

Bidding Documents

For

National Competitive Bidding

Pakistan

Procurement of Goods

PART ONE (FIXED)

- Instructions to Bidders (ITB)
 - General Conditions of Contract (GCC)
-

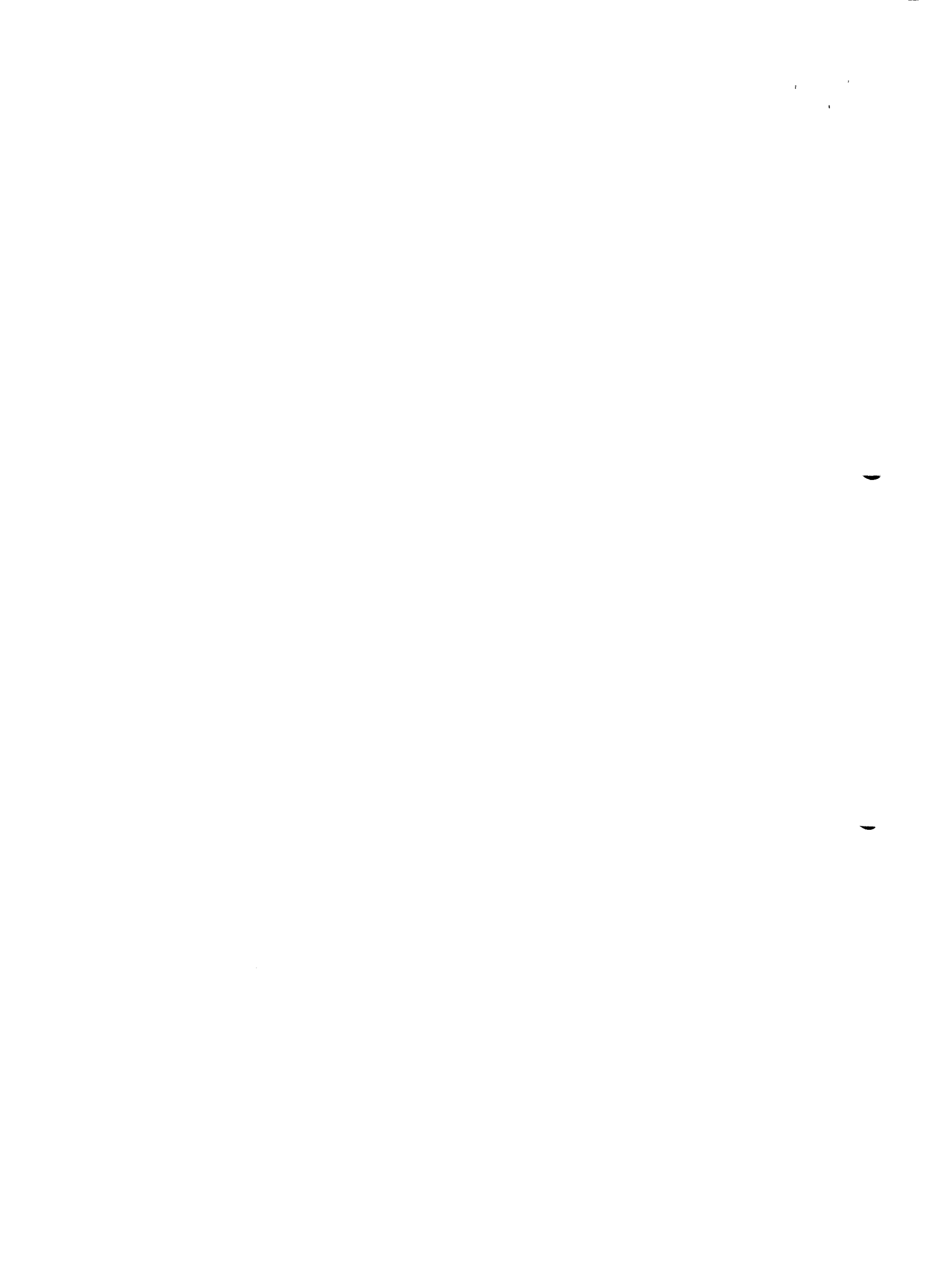


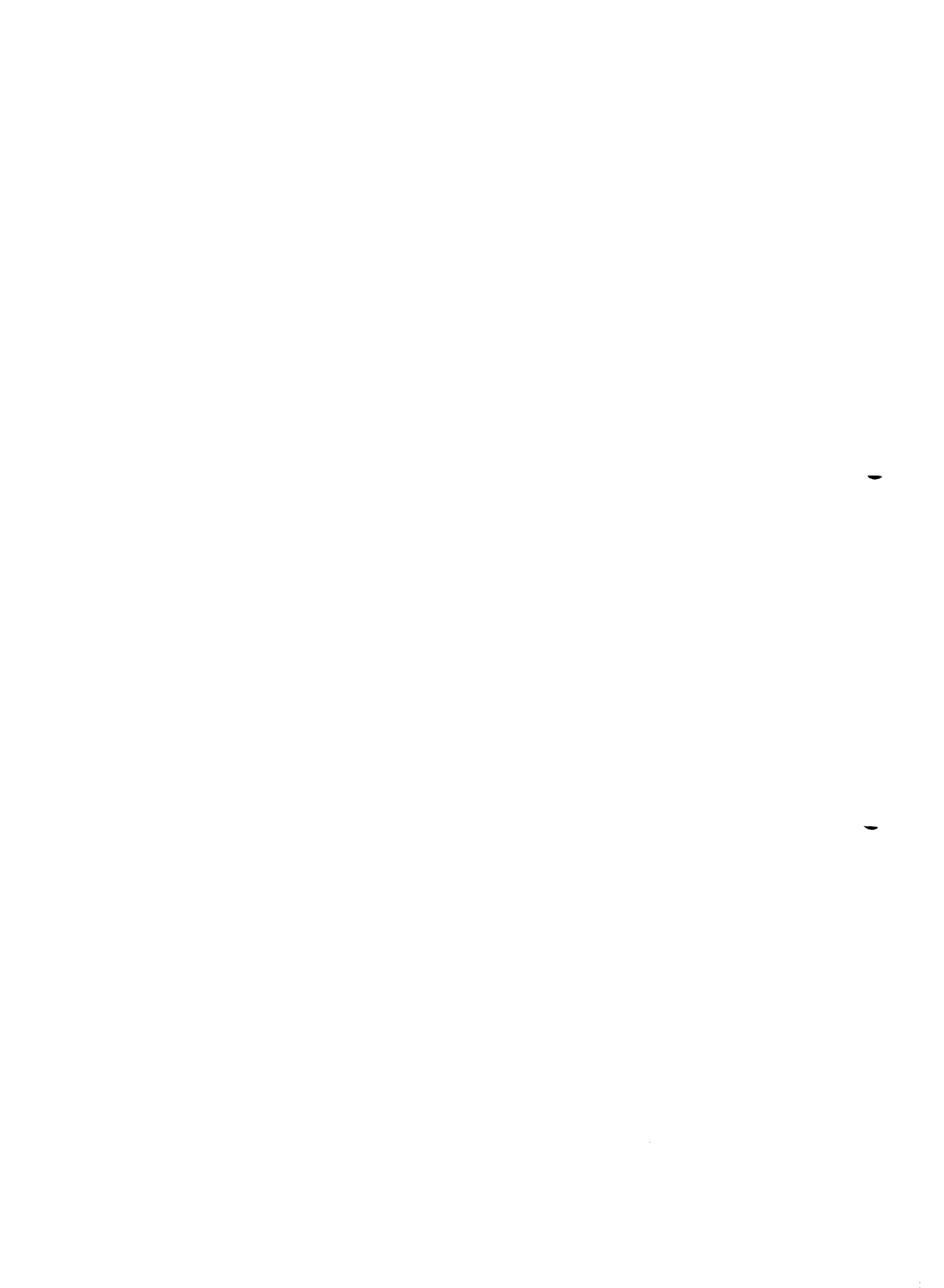
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Instructions to Bidders

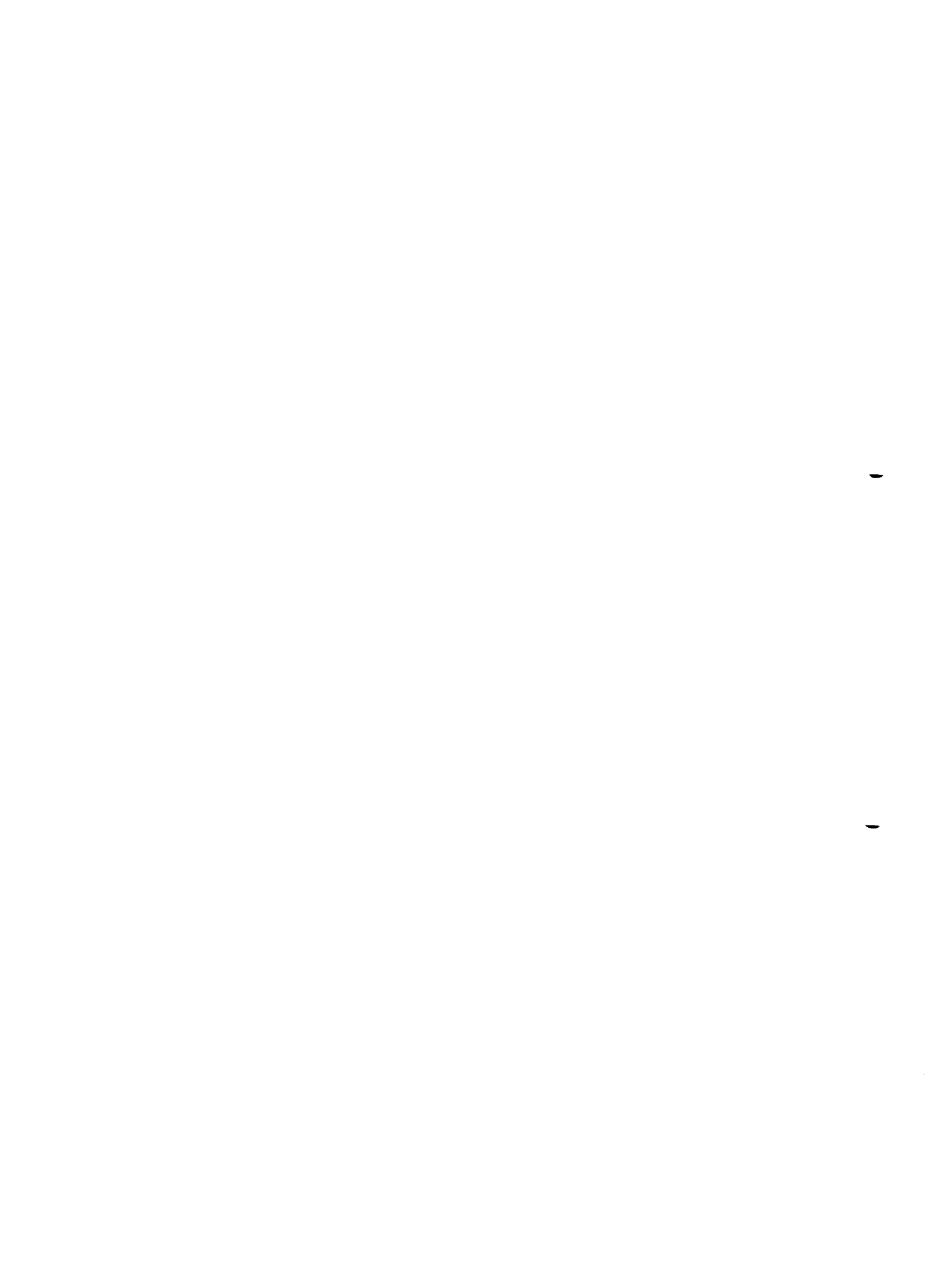
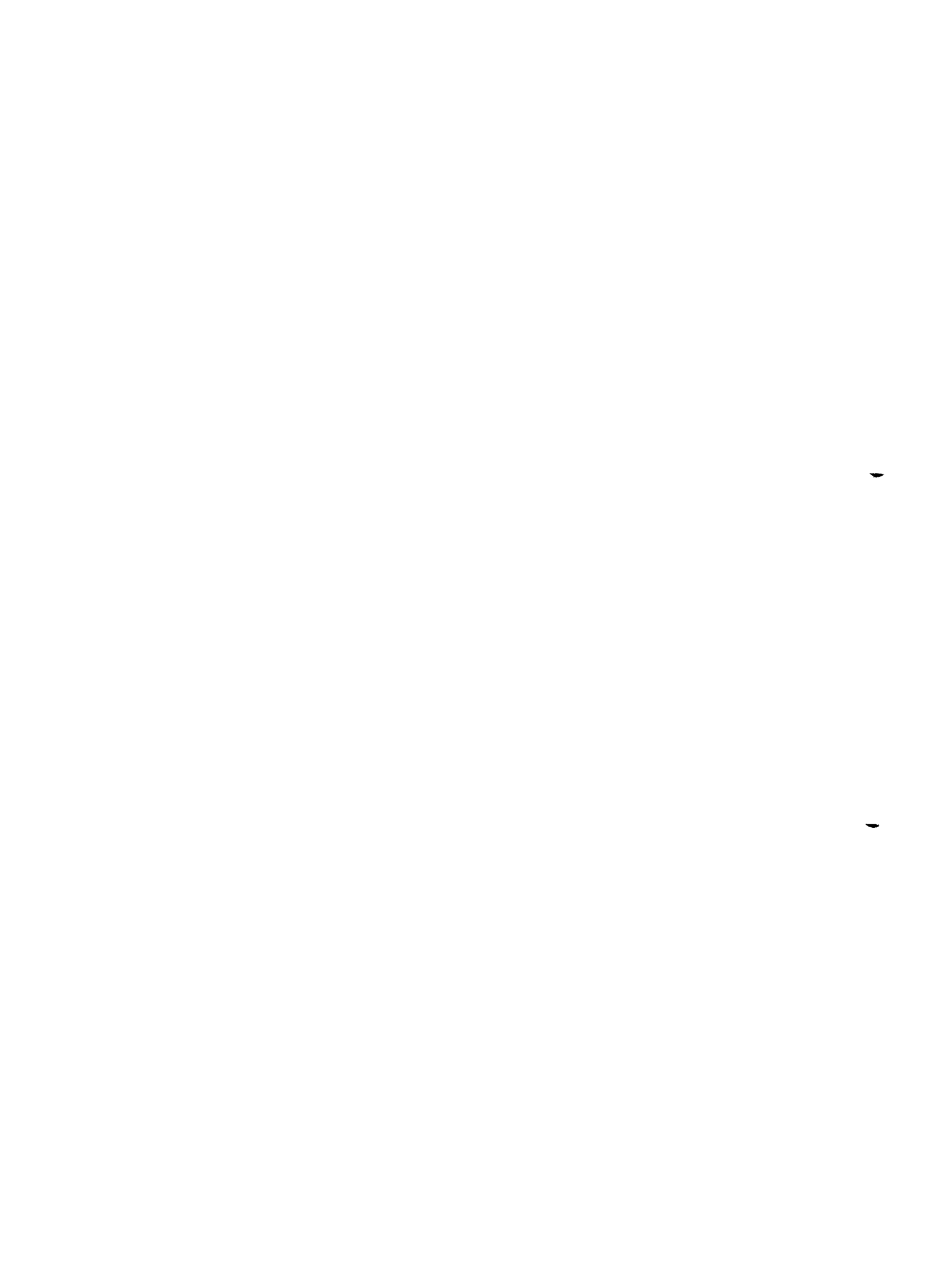


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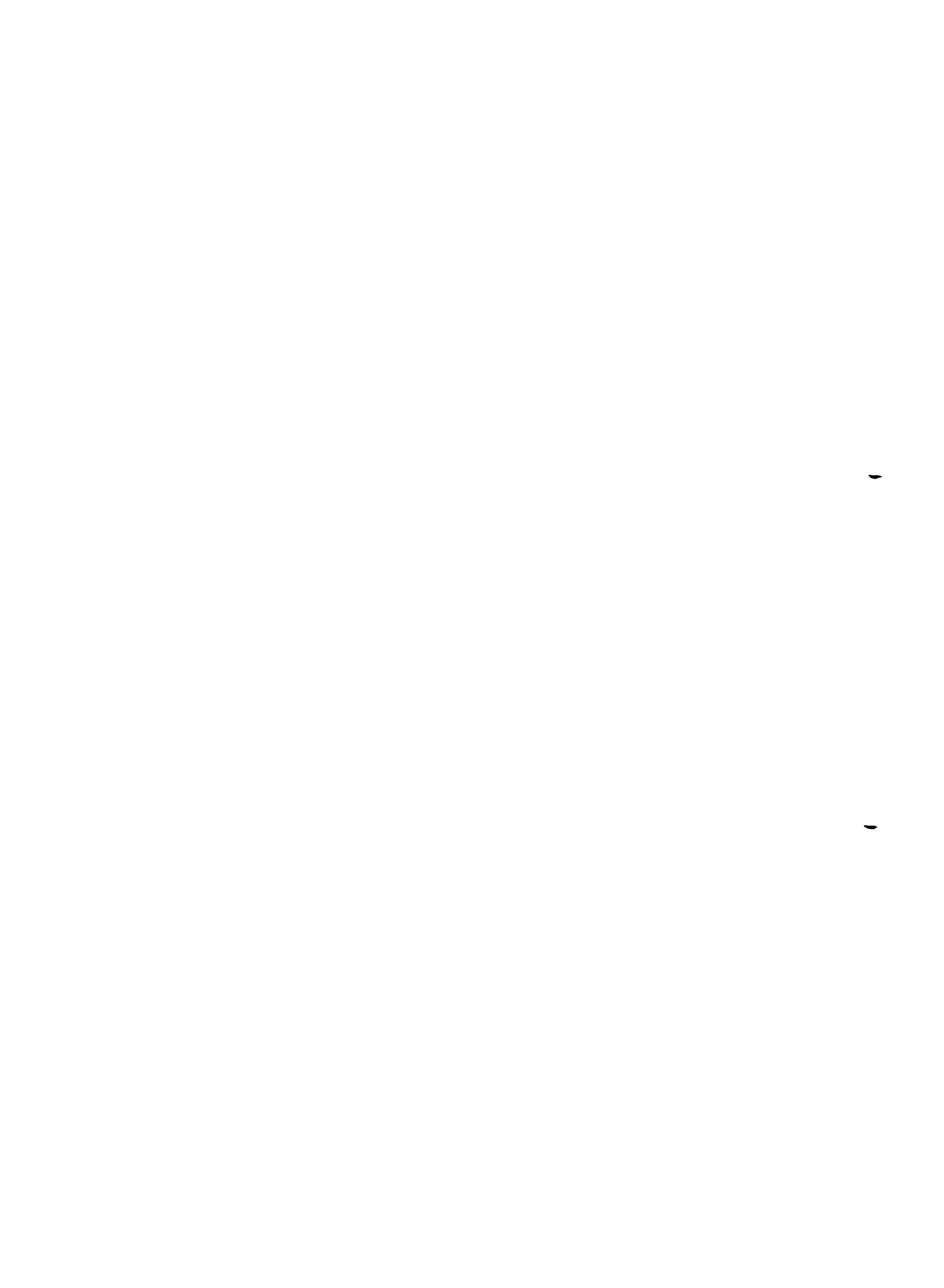
Instructions to Bidders

1. Procuring Agency:

- 1.1 Dawood University of Engineering & Technology
(DUET), Karachi

2. Eligible Bidders:

- 2.1 This Invitation for Bids is open to all suppliers from eligible source as defined in the SPP Rules, 2010 and its Bidding Documents except as provided hereinafter.
- 2.2 Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Procuring agency to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation for Bids.
- 2.3 Bidders shall not be eligible to bid if they are under a declaration of ineligibility for corrupt and fraudulent practices issued by the any government organization in accordance with sub clause 34.1



3. Eligible Goods and Services

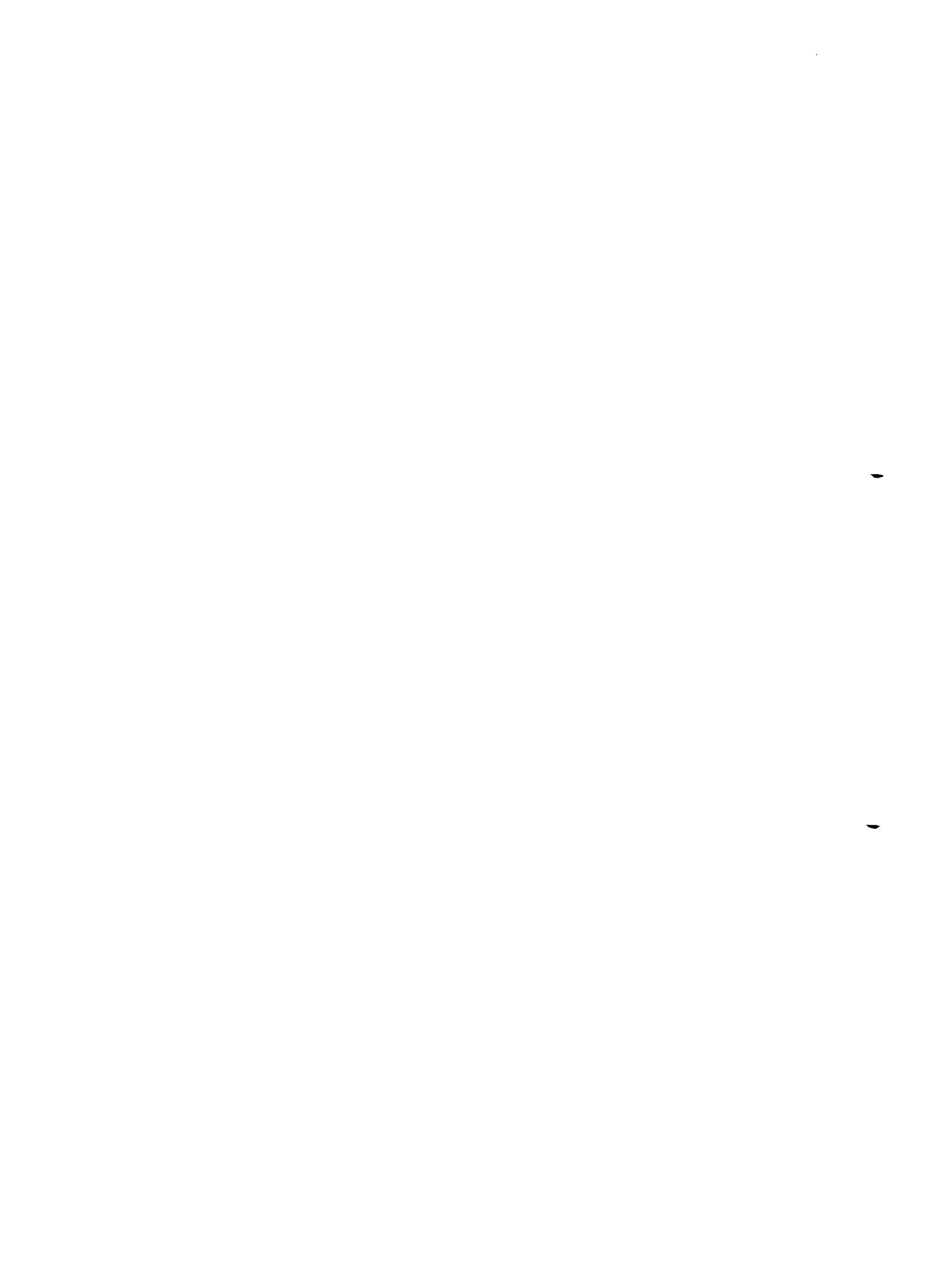
- 3.1 All goods and related services to be supplied under the contract shall have their origin in eligible source countries, defined in the SPP Rules, 2010 and its Bidding Documents, and all expenditures made under the contract will be limited to such goods and services.
- 3.2 For purposes of this clause, "origin" means the place where the goods are mined, grown, or produced, or the place from which the related services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially-recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 3.3 The origin of goods and services is distinct from the nationality of the Bidder.

4. Cost of Bidding

- 4.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Procuring agency named in the Bid Data Sheet, hereinafter referred to as "the Procuring agency," will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

B. The Bidding Documents**5. Content of Bidding Documents**

- 5.1 the bidding documents include:
- (a) Instructions to Bidders (ITB)
 - (b) Bid Data Sheet
 - (c) General Conditions of Contract (GCC)
 - (d) Special Conditions of Contract (SCC)
 - (e) Schedule of Requirements
 - (f) Technical Specifications
 - (g) Technical Evaluation Criteria Sheet
 - (h) Bid Form and Price Schedules
 - (i) Bid Security Form
 - (j) Contract Form
 - (k) Performance Security Form
 - (l) Manufacturer's Authorization Form
- 5.2 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in the

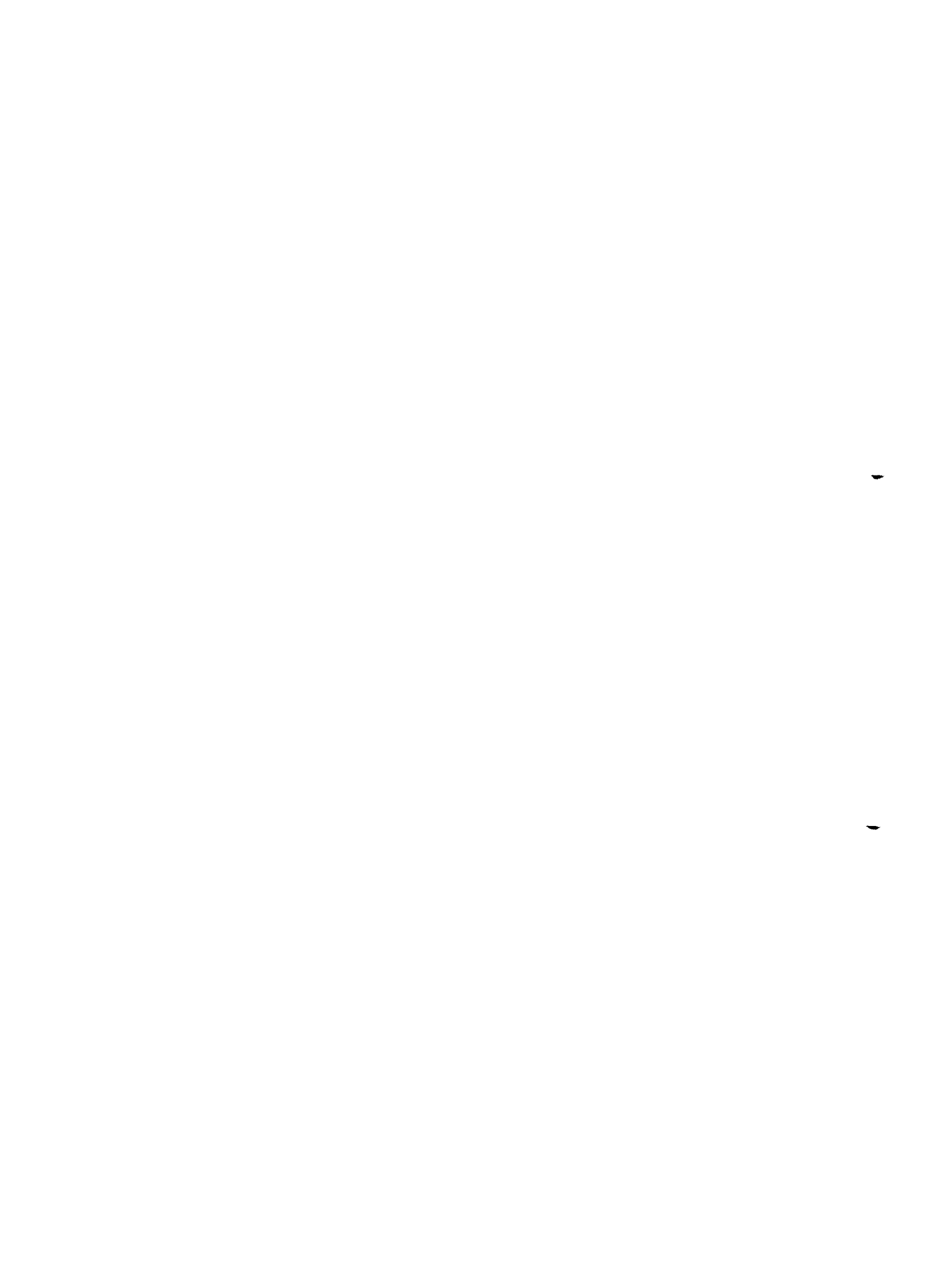


rejection of its bid.

- 6. Clarification of Bidding Documents** 6.1 A interested Bidder requiring any clarification of the bidding documents may notify the Procuring agency in writing. The Procuring agency will respond in writing to any request for clarification of the bidding documents which it receives no later than three working days prior to the deadline for the submission of bids prescribed in the Bid Data Sheet. Written copies of the Procuring agency's response (including an explanation of the query but without identifying the source of inquiry) will be sent to all interested bidders that have received the bidding documents.
- 7. Amendment of Bidding Documents** 7.1 At any time prior to the deadline for submission of bids, the Procuring agency, for any reason, whether at its own initiative or in response to a clarification requested by a interested Bidder, may modify the bidding documents by amendment.
- 7.2 All interested bidders that have received the bidding documents will be notified of the amendment in writing, and will be binding on them.
- 7.3 In order to allow interested bidders reasonable time in which to take the amendment into account in preparing their bids, the Procuring agency, at its discretion, may extend the deadline for the submission of bids.

C. Preparation of Bids

- 8. Language of Bid** 8.1 The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Procuring agency shall be written in the language specified in the Bid Data Sheet. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified in the Bid Data Sheet, in which case, for purposes of interpretation of the Bid, the translation shall govern.
- 9. Documents Comprising the Bid** 9.1 The bid prepared by the Bidder shall comprise the following components:
- (a) a Bid Form and a Price Schedule completed in accordance with ITB Clauses 10, 11, and 12;
 - (b) documentary evidence established in accordance with ITB



Clause 13 that the Bidder is eligible to bid and is qualified to perform the contract if its bid is accepted;

- (c) documentary evidence established in accordance with ITB Clause 14 that the goods and ancillary services to be supplied by the Bidder are eligible goods and services and conform to the bidding documents; and
- (d) bid security furnished in accordance with ITB Clause 15.

10. Bid Form

10.1 The Bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the bidding documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.

11. Bid Prices

11.1 The Bidder shall indicate on the appropriate Price Schedule the unit prices (where applicable) and total bid price of the goods it proposes to supply under the contract.

11.2 Prices indicated on the Price Schedule shall be delivered duty paid (DDP) prices. The price of other (incidental) services, if any, listed in the Bid Data Sheet will be entered separately.

11.3 The Bidder's separation of price components in accordance with ITB Clause 11.2 above will be solely for the purpose of facilitating the comparison of bids by the Procuring agency and will not in any way limit the Procuring agency's right to contract on any of the terms offered.

11.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account, unless otherwise specified in the Bid Data Sheet. A bid submitted with an adjustable price quotation will be treated as nonresponsive and will be rejected, pursuant to ITB Clause 24. If, however, in accordance with the Bid Data Sheet, prices quoted by the Bidder shall be subject to adjustment during the performance of the contract, a bid submitted with a fixed price quotation will not be rejected, but the price adjustment would be treated as zero.

12. Bid Currencies 12.1 Prices shall be quoted in Pak Rupees unless otherwise specified in the Bid Data Sheet.

**13. Documents
Establishing
Bidder's**

13.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, documents establishing the Bidder's eligibility to bid and its qualifications to perform the contract if its bid is accepted.



Eligibility and Qualification

13.2 The documentary evidence of the Bidder's eligibility to bid shall establish to the Procuring agency's satisfaction that the Bidder, at the time of submission of its bid, is from an eligible country as defined under ITB Clause 2.

13.3 The documentary evidence of the Bidder's qualifications to perform the contract if its bid is accepted shall establish to the Procuring agency's satisfaction:

- (a) that, in the case of a Bidder offering to supply goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods' Manufacturer or producer to supply the goods in the Procuring agency's country;
- (b) that the Bidder has the financial, technical, and production capability necessary to perform the contract;
- (c) that, in the case of a Bidder not doing business within the Procuring agency's country, the Bidder is or will be (if awarded the contract) represented by an Agent in that country equipped, and able to carry out the Supplier's maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
- (d) that the Bidder meets the qualification criteria listed in the Bid Data Sheet.

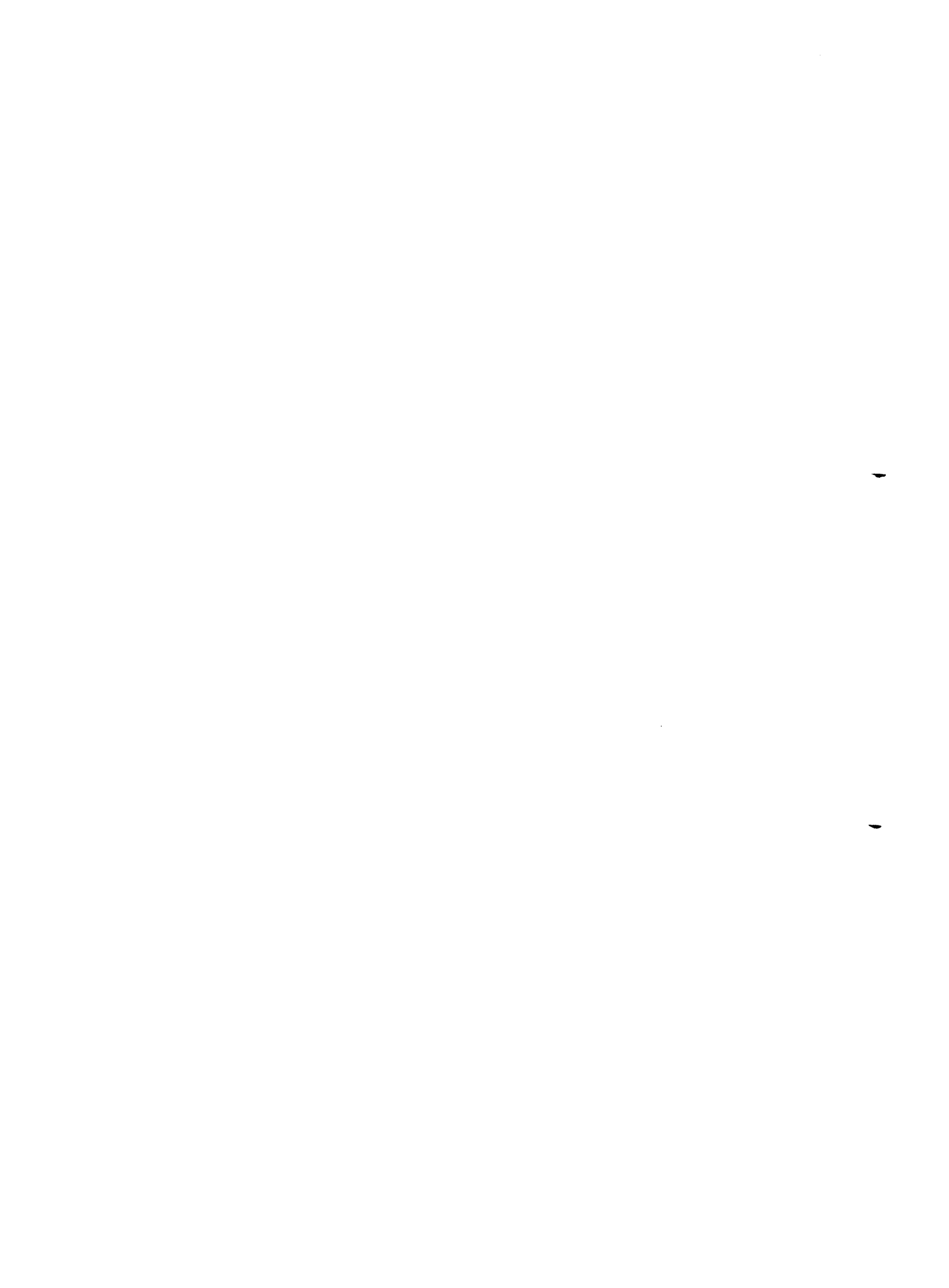
14. Documents Establishing Goods' Eligibility and Conformity to Bidding Documents

14.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the bidding documents of all goods and services which the Bidder proposes to supply under the contract.

14.2 The documentary evidence of the eligibility of the goods and services shall consist of a statement in the Price Schedule of the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.

14.3 The documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings, and data, and shall consist of:

- (a) a detailed description of the essential technical and



performance characteristics of the goods;

- (b) a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period to be specified in the Bid Data Sheet, following commencement of the use of the goods by the Procuring agency; and
- (c) an item-by-item commentary on the Procuring agency's Technical Specifications demonstrating substantial responsiveness of the goods and services to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

14.4 For purposes of the commentary to be furnished pursuant to ITB Clause 14.3(c) above, the Bidder shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Procuring agency in its Technical Specifications, are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names, and/or catalogue numbers in its bid, provided that it demonstrates to the Procuring agency's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

15. Bid Security

15.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, a bid security in the amount specified in the Bid Data Sheet.

15.2 The bid security is required to protect the Procuring agency against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to ITB Clause 15.7.

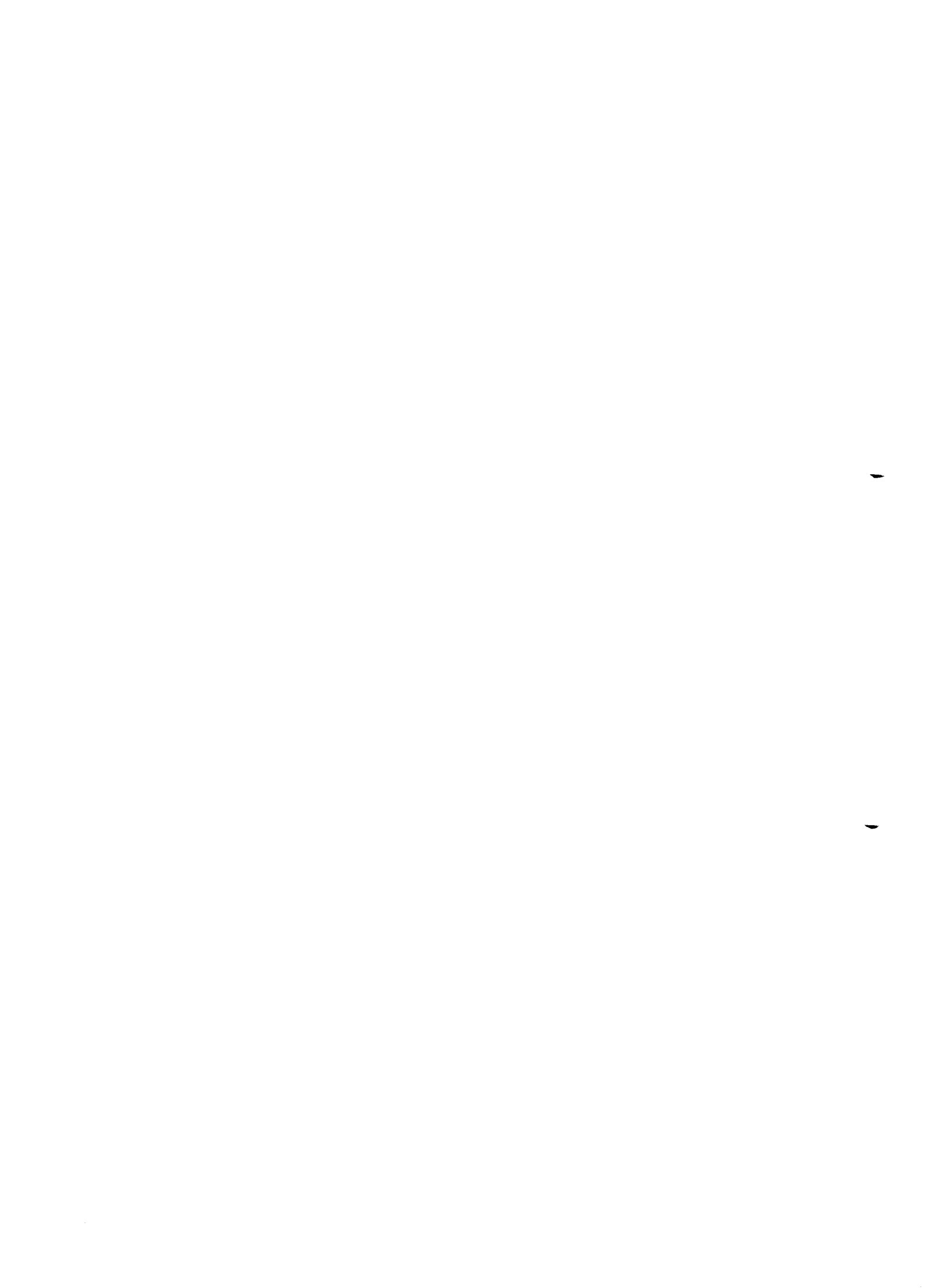
15.3 The bid security shall be in Pak. Rupees and shall be in one of the following forms:

- (a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the Procuring agency's country, in the form provided in the bidding documents or another form acceptable to the Procuring agency and valid for thirty (30) days beyond the validity of the bid; or
- (b) irrevocable encashable on-demand Bank call-deposit.

15.4 Any bid not secured in accordance with ITB Clauses 15.1 and 15.3 will be rejected by the Procuring agency as nonresponsive, pursuant to ITB Clause 24.



- 15.5 Unsuccessful bidders' bid security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity prescribed by the Procuring agency pursuant to ITB Clause 16.
- 15.6 The successful Bidder's bid security will be discharged upon the Bidder signing the contract, pursuant to ITB Clause 32, and furnishing the performance security, pursuant to ITB Clause 33.
- 15.7 The bid security may be forfeited:
- (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or
 - (b) in the case of a successful Bidder, if the Bidder fails:
 - (i) to sign the contract in accordance with ITB Clause 32;
 - or**
 - (ii) to furnish performance security in accordance with ITB Clause 33.
- 16. Period of Validity of Bids**
- 16.1 Bids shall remain valid for the period specified in the Bid Data Sheet after the date of bid opening prescribed by the Procuring agency, pursuant to ITB Clause 19. A bid valid for a shorter period shall be rejected by the Procuring agency as nonresponsive.
- 16.2 In exceptional circumstances, the Procuring agency may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The bid security provided under ITB Clause 15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid, except as provided in the bidding document.
- 17. Format and Signing of Bid**
- 17.1 The Bidder shall prepare an original and the number of copies the bid indicated in the Bid Data Sheet, clearly marking each "ORIGINAL BID" and "COPY OF BID," as appropriate. In the event of any discrepancy between them, the original shall govern.
- 17.2 The original and the copy or copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a



person or persons duly authorized to bind the Bidder to the contract. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

- 17.3 Any interlineations, erasures, or overwriting shall be valid only if they are initialed by the person or persons signing the bid.
- 17.4 The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract.

D. Submission of Bids

18. Sealing and Marking of Bids

18.1 The Bidder shall seal the original and each copy of the bid in separate envelopes, duly marking the envelopes as "ORIGINAL" and "COPY." The envelopes shall then be sealed in an outer envelope.

18.2 The inner and outer envelopes shall:

- (a) be addressed to the Procuring agency at the address given in the Bid Data Sheet; and
- (b) bear the Project name indicated in the Bid Data Sheet, the Invitation for Bids (IFB) title and number indicated in the Bid Data Sheet, and a statement: "DO NOT OPEN BEFORE," to be completed with the time and the date specified in the Bid Data Sheet, pursuant to ITB Clause 2.2.

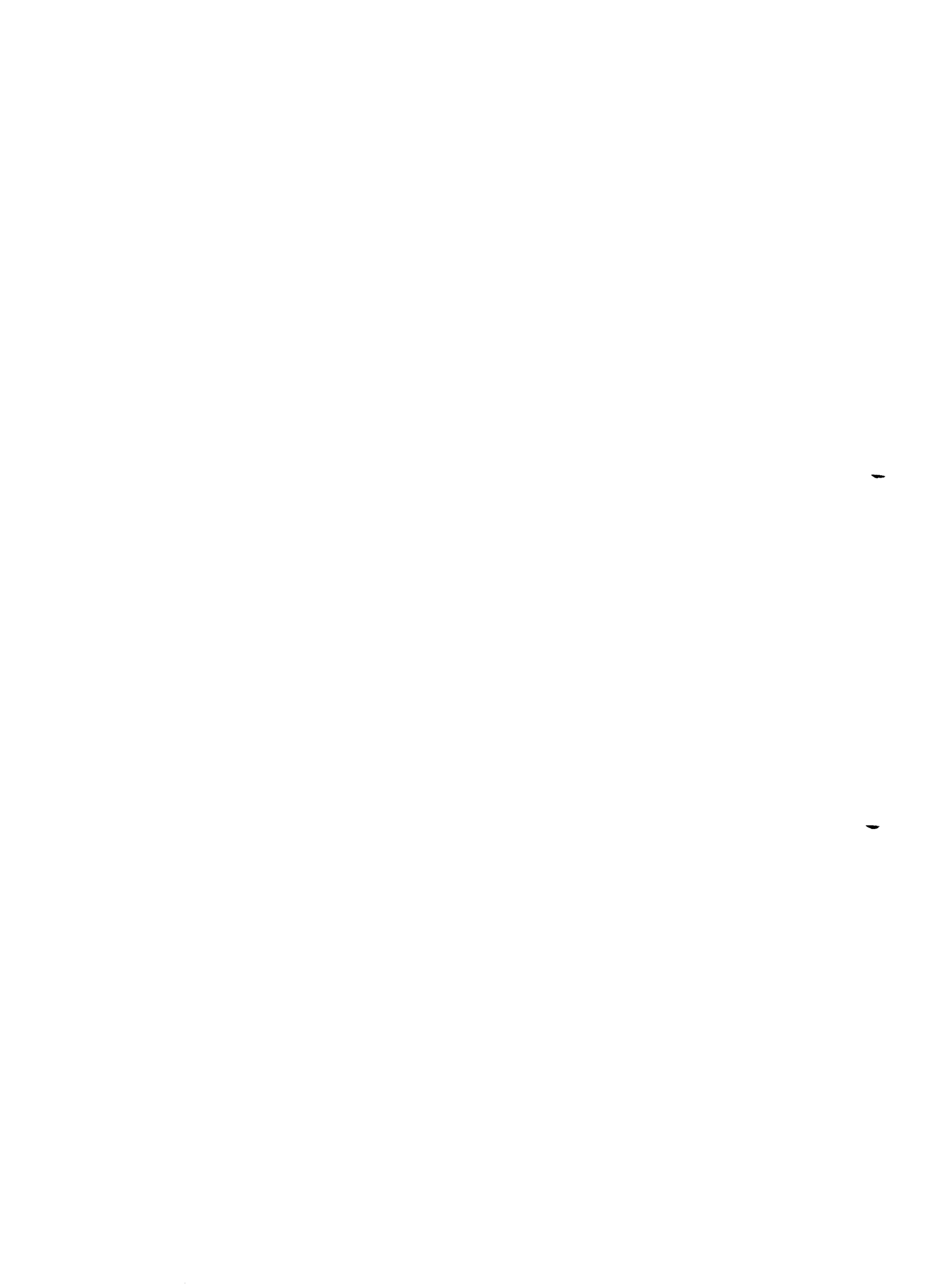
18.3 The inner envelopes shall also indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late".

18.4 If the outer envelope is not sealed and marked as required by ITB Clause 18.2, the Procuring agency will assume no responsibility for the bid's misplacement or premature opening.

19. Deadline for Submission of Bids

19.1 Bids must be received by the Procuring agency at the address specified under ITB Clause 18.2 no later than the time and date specified in the Bid Data Sheet.

19.2 The Procuring agency may, at its discretion, extend this deadline for the submission of bids by amending the bidding documents in accordance with ITB Clause 7, in which case all rights and

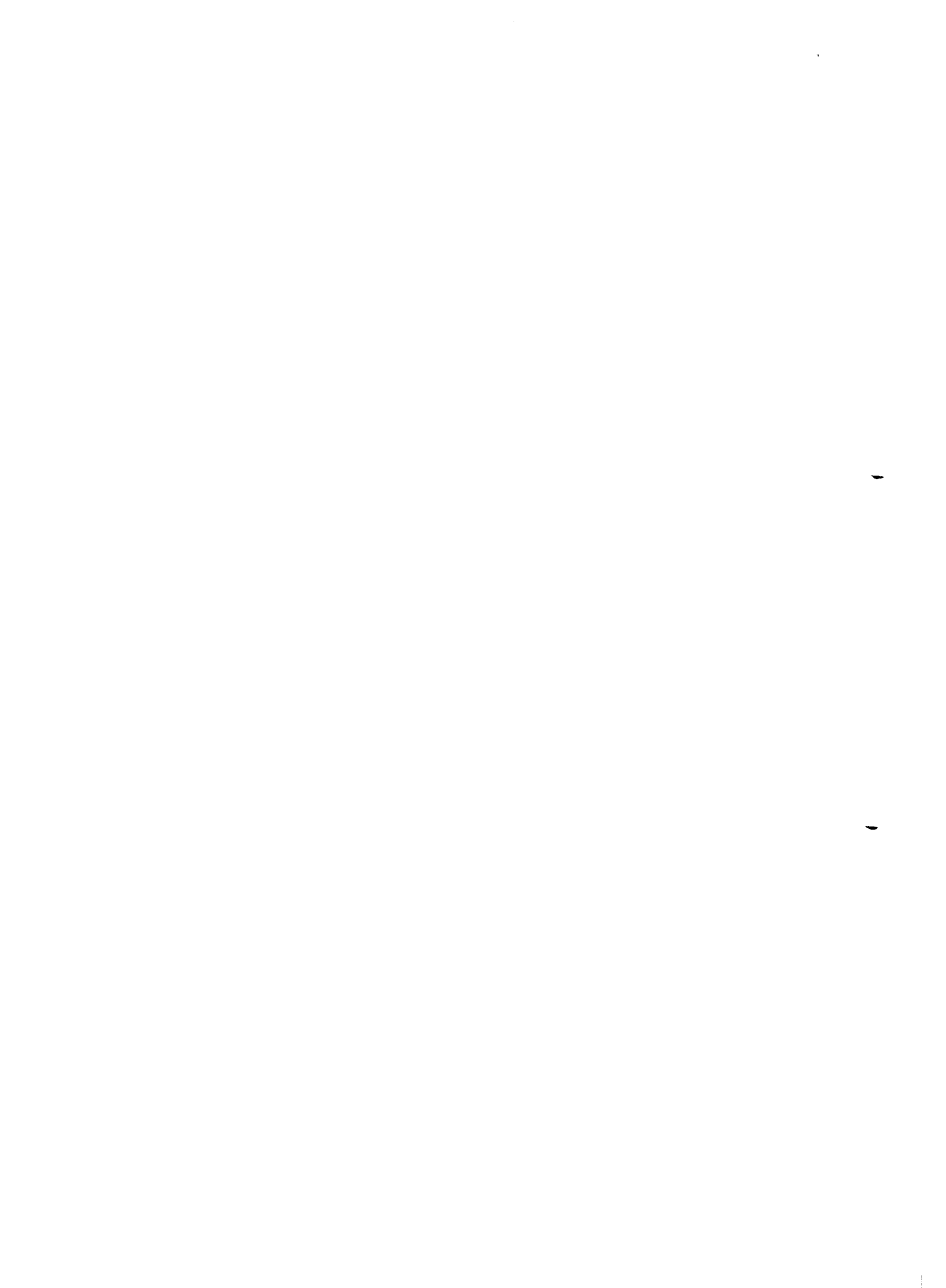


obligations of the Procuring agency and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

- 20. Late Bids** 20.1 Any bid received by the Procuring agency after the deadline for submission of bids prescribed by the Procuring agency pursuant to ITB Clause 19 will be rejected and returned unopened to the Bidder.
- 21. Modification and Withdrawal of Bids** 21.1 The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification, including substitution or withdrawal of the bids, is received by the Procuring agency prior to the deadline prescribed for submission of bids.
- 21.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of ITB Clause 18. by a signed confirmation copy, postmarked not later than the deadline for submission of bids.
- 21.3 No bid may be modified after the deadline for submission of bids.
- 21.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to the ITB Clause 15.7.

E. Opening and Evaluation of Bids

- 22. Opening of Bids by the Procuring agency** 22.1 The Procuring agency will open all bids in the presence of bidders' representatives who choose to attend, at the time, on the date, and at the place specified in the Bid Data Sheet. The bidders' representatives who are present shall sign a register evidencing their attendance.
- 22.2 The bidders' names, bid modifications or withdrawals, bid prices, discounts, and the presence or absence of requisite bid security and such other details as the Procuring agency, at its discretion, may consider appropriate, will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the Bidder pursuant to ITB Clause 20.



22.3 Bids (and modifications sent pursuant to ITB Clause 21.2) that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances. Withdrawn bids will be returned unopened to the bidders.

22.4 The Procuring agency will prepare minutes of the bid opening.

23. Clarification of Bids

23.1 During evaluation of the bids, the Procuring agency may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the prices or substance of the bid shall be sought, offered, or permitted.

24. Preliminary Examination

24.1 The Procuring agency will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

24.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If the Supplier does not accept the correction of the errors, its bid will be rejected, and its bid security may be forfeited. If there is a discrepancy between words and figures, the amount in words will prevail.

24.3 The Procuring agency may waive any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

24.4 Prior to the detailed evaluation, pursuant to ITB Clause 25 the Procuring agency will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the bidding documents without material deviations. Deviations from, or objections or reservations to critical provisions, **such as** those concerning Bid Security (ITB Clause 15), Applicable Law (GCC Clause 30), and Taxes and Duties (GCC Clause 32), will be deemed to be a material deviation. The Procuring agency's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.



24.5 If a bid is not substantially responsive, it will be rejected by the Procuring agency and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

25. Evaluation and Comparison of Bids

25.1 The Procuring agency will evaluate and compare the bids which have been determined to be substantially responsive, pursuant to ITB Clause 24.

25.2 The Procuring agency's evaluation of a bid will be on delivered duty paid (DDP) price inclusive of prevailing duties and will exclude any allowance for price adjustment during the period of execution of the contract, if provided in the bid.

25.3 The Procuring agency's evaluation of a bid will take into account, in addition to the bid price quoted in accordance with ITB Clause 11.2, one or more of the following factors as specified in the Bid Data Sheet, and quantified in ITB Clause 25.4:

- (a) incidental costs
- (b) delivery schedule offered in the bid;
- (c) deviations in payment schedule from that specified in the Special Conditions of Contract;
- (d) the cost of components, mandatory spare parts, and service;
- (e) the availability Procuring agency of spare parts and after-sales services for the equipment offered in the bid;
- (f) the projected operating and maintenance costs during the life of the equipment;
- (g) the performance and productivity of the equipment offered; and/or
- (h) other specific criteria indicated in the Bid Data Sheet and/or in the Technical Specifications.

25.4 For factors retained in the Bid Data Sheet pursuant to ITB 25.3, one or more of the following quantification methods will be applied, as detailed in the Bid Data Sheet:

- (a) Incidental costs provided by the bidder will be added by Procuring agency to the delivered duty paid (DDP) price at



the final destination.

(b) *Delivery schedule.*

(i) The Procuring agency requires that the goods under the Invitation for Bids shall be delivered at the time specified in the Schedule of Requirements which will be treated as the base, a delivery "adjustment" will be calculated for bids by applying a percentage, specified in the Bid Data Sheet, of the DDP price for each week of delay beyond the base, and this will be added to the bid price for evaluation. No credit shall be given to early delivery.

or

(ii) The goods covered under this invitation are required to be delivered (shipped) within an acceptable range of weeks specified in the Schedule of Requirement. No credit will be given to earlier deliveries, and bids offering delivery beyond this range will be treated as nonresponsive. Within this acceptable range, an adjustment per week, as specified in the Bid Data Sheet, will be added for evaluation to the bid price of bids offering deliveries later than the earliest delivery period specified in the Schedule of Requirements.

or

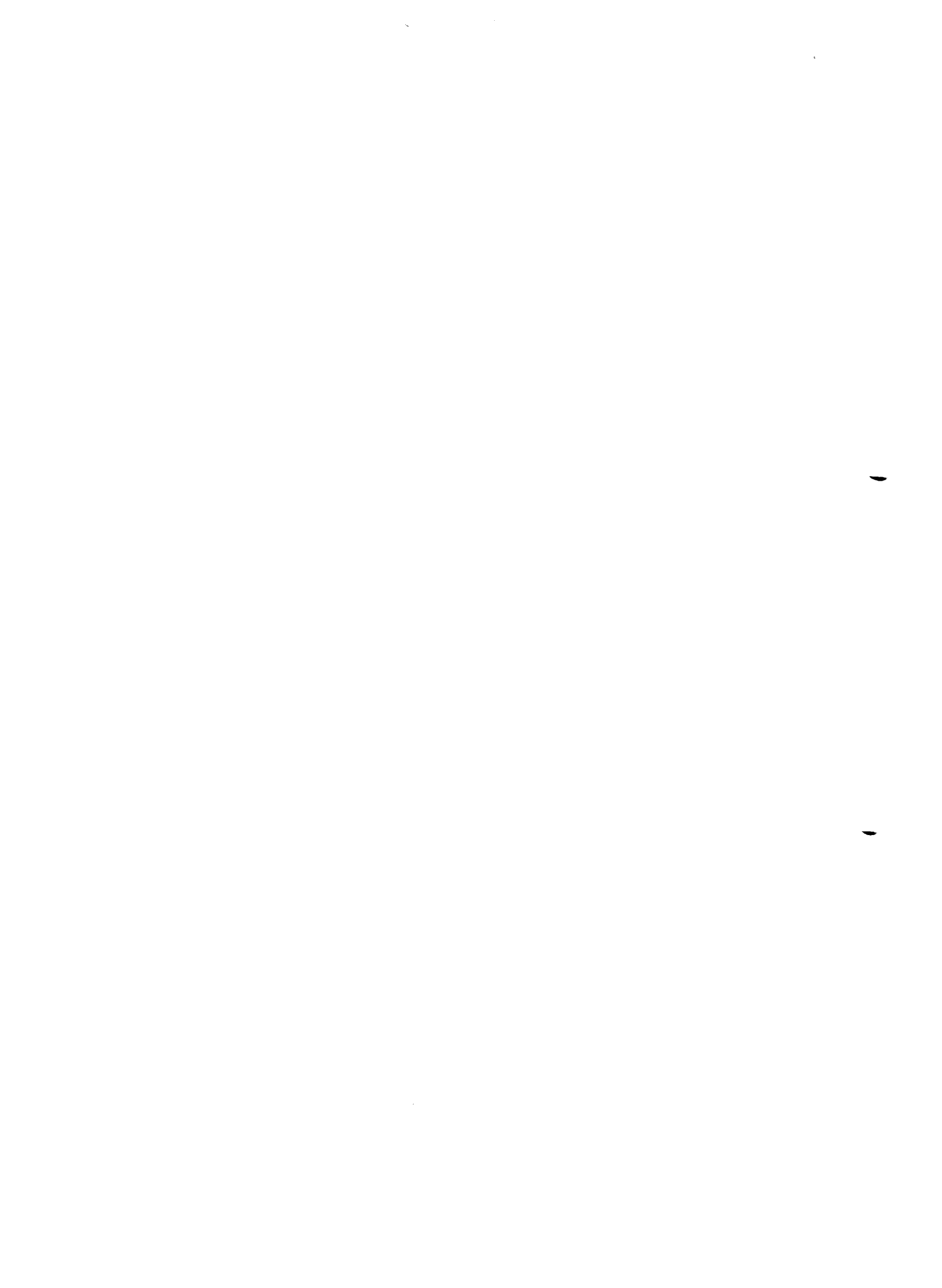
(iii) The goods covered under this invitation are required to be delivered in partial shipments, as specified in the Schedule of Requirements. Bids offering deliveries earlier or later than the specified deliveries will be adjusted in the evaluation by adding to the bid price a factor equal to a percentage, specified in the Bid Data Sheet, of DDP price per week of variation from the specified delivery schedule.

(c) *Deviation in payment schedule.*

(i) Bidders shall state their bid price for the payment schedule outlined in the SCC. Bids will be evaluated on the basis of this base price. Bidders are, however, permitted to state an alternative payment schedule and indicate the reduction in bid price they wish to offer for such alternative payment schedule. The Procuring agency may consider the alternative payment schedule offered by the selected Bidder.

or

(ii) The SCC stipulates the payment schedule offered by



the Procuring agency. If a bid deviates from the schedule and if such deviation is considered acceptable to the Procuring agency, the bid will be evaluated by calculating interest earned for any earlier payments involved in the terms outlined in the bid as compared with those stipulated in this invitation, at the rate per annum specified in the Bid Data Sheet.

(d) *Cost of spare parts.*

(i) The list of items and quantities of major assemblies, components, and selected spare parts, likely to be required during the initial period of operation specified in the Bid Data Sheet, is annexed to the Technical Specifications. The total cost of these items, at the unit prices quoted in each bid, will be added to the bid price.

or

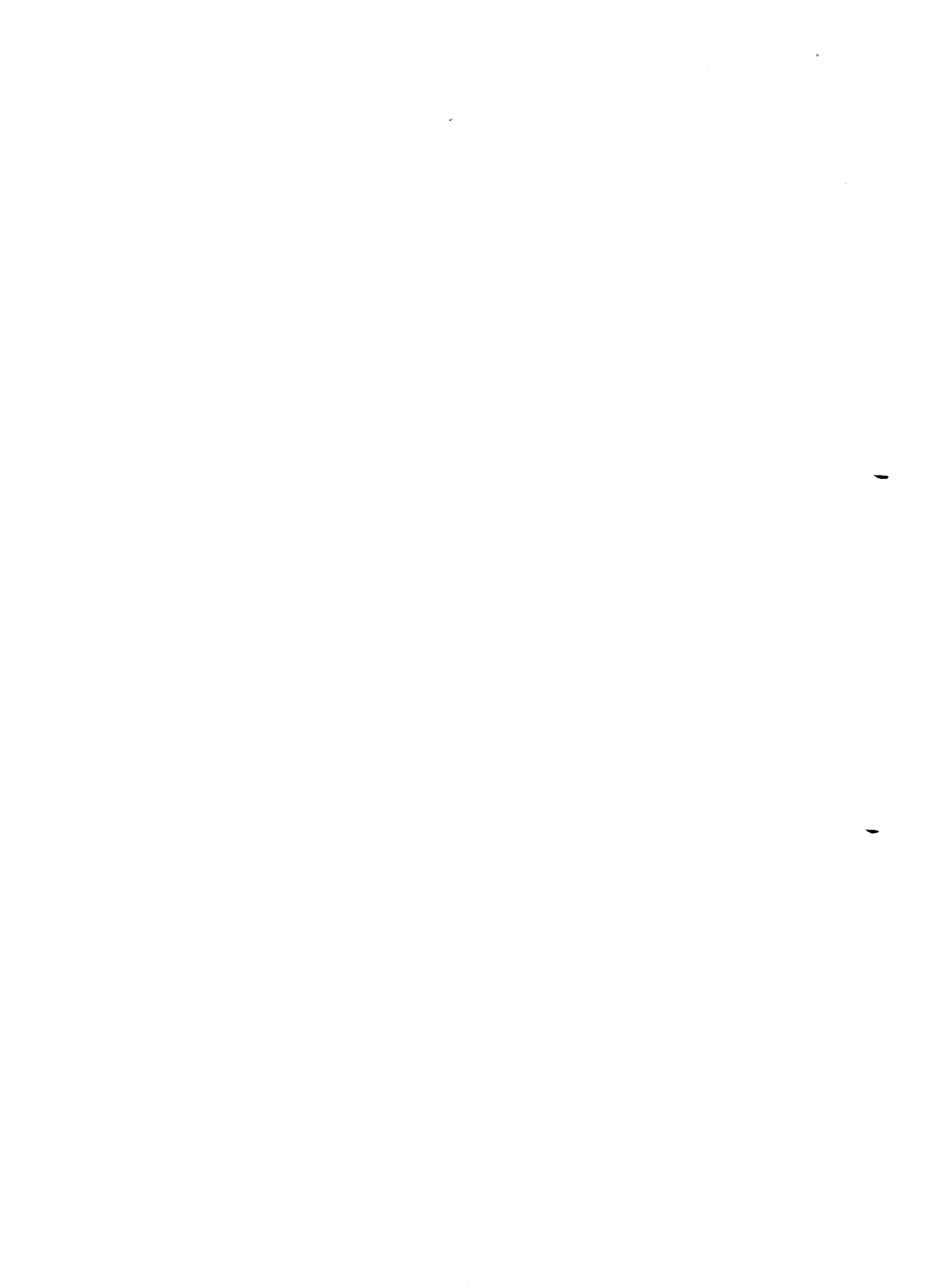
(ii) The Procuring agency will draw up a list of high-usage and high-value items of components and spare parts, along with estimated quantities of usage in the initial period of operation specified in the Bid Data Sheet. The total cost of these items and quantities will be computed from spare parts unit prices submitted by the Bidder and added to the bid price.

or

(iii) The Procuring agency will estimate the cost of spare parts usage in the initial period of operation specified in the Bid Data Sheet, based on information furnished by each Bidder, as well as on past experience of the Procuring agency or other procuring agencies in similar situations. Such costs shall be added to the bid price for evaluation.

(e) *Spare parts and after sales service facilities in the Procuring agency's country.*

The cost to the Procuring agency of establishing the minimum service facilities and parts inventories, as outlined in the Bid Data Sheet or elsewhere in the bidding documents, if quoted separately, shall be added to the bid price.



(f) *Operating and maintenance costs.*

Since the operating and maintenance costs of the goods under procurement form a major part of the life cycle cost of the equipment, these costs will be evaluated in accordance with the criteria specified in the Bid Data Sheet or in the Technical Specifications.

(g) *Performance and productivity of the equipment.*

(i) Bidders shall state the guaranteed performance or efficiency in response to the Technical Specification. For each drop in the performance or efficiency below the norm of 100, an adjustment for an amount specified in the Bid Data Sheet will be added to the bid price, representing the capitalized cost of additional operating costs over the life of the plant, using the methodology specified in the Bid Data Sheet or in the Technical Specifications.

or

(ii) Goods offered shall have a minimum productivity specified under the relevant provision in the Technical Specifications to be considered responsive. Evaluation shall be based on the cost per unit of the actual productivity of goods offered in the bid, and adjustment will be added to the bid price using the methodology specified in the Bid Data Sheet or in the Technical Specifications.

(h) *Specific additional criteria indicated in the Bid Data Sheet and/or in the Technical Specifications.*

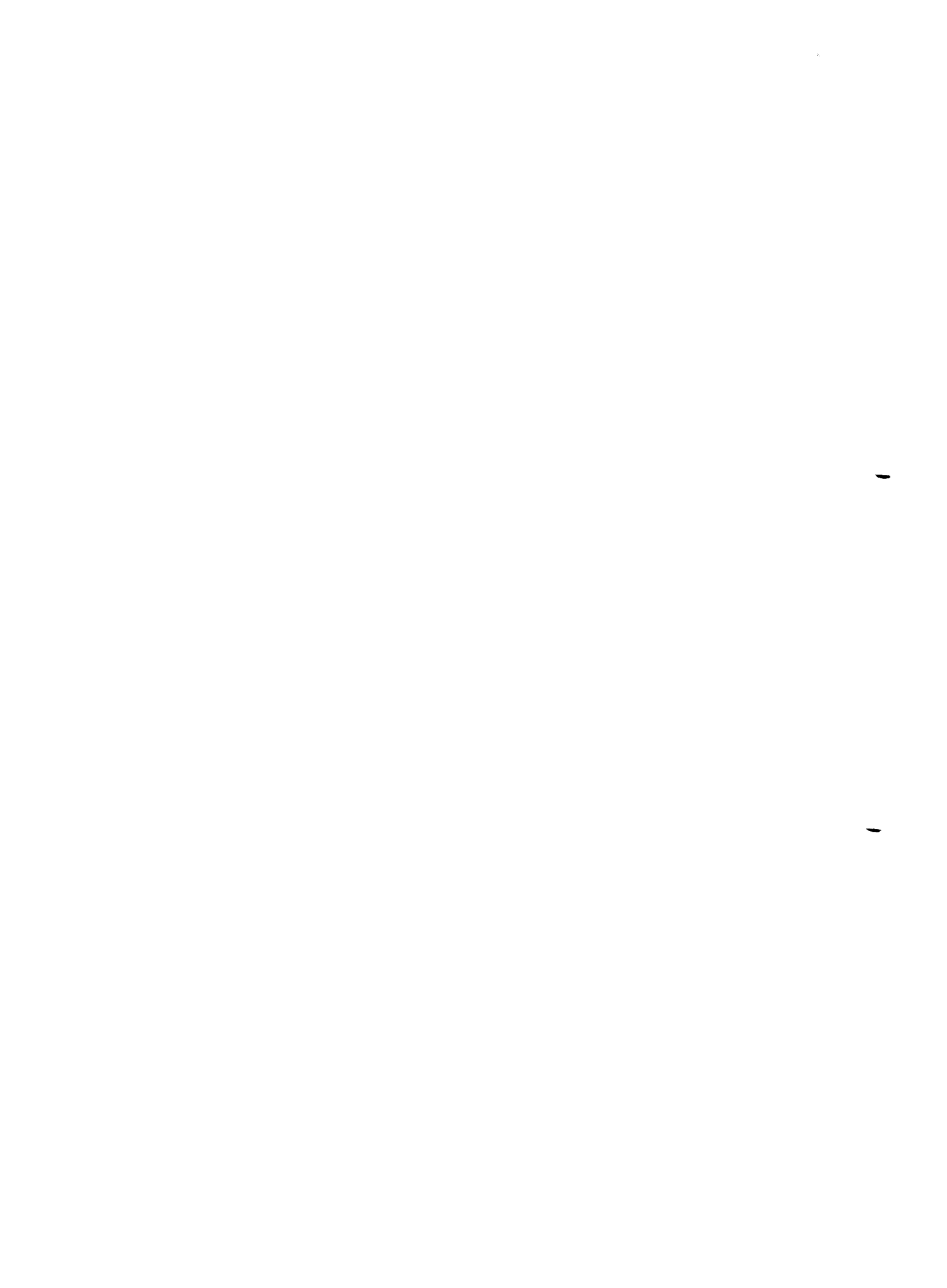
The relevant evaluation method shall be detailed in the Bid Data Sheet and/or in the Technical Specifications.

Alternative

25.4 Merit Point System:

The following merit point system for weighing evaluation factors can be applied if none of the evaluation methods listed in 25.4 above has been retained in the Bid Data Sheet. The number of points allocated to each factor shall be specified in the Bid Data Sheet.

[In the Bid Data Sheet, choose from the range of]



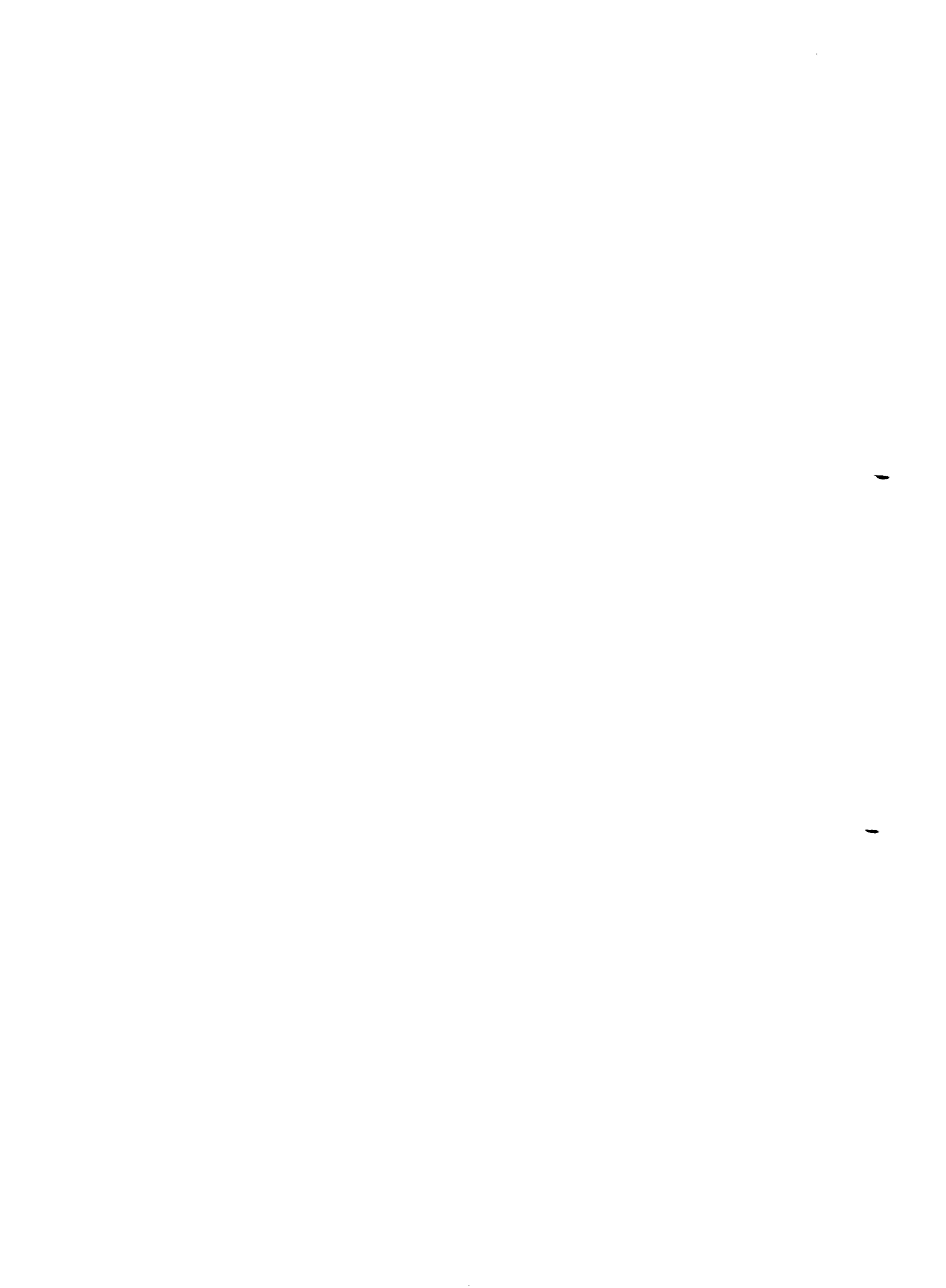
Evaluated price of the goods	60 to 90
Cost of common list spare parts	0 to 20
Technical features, and maintenance and operating costs	0 to 20
Availability of service and spare parts	0 to 20
Standardization	0 to 20
Total	100

The bid scoring the highest number of points will be deemed to be the lowest evaluated bid.

- 26. Contacting the Procuring agency**
- 26.1 Subject to ITB Clause 23, no Bidder shall contact the Procuring agency on any matter relating to its bid, from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Procuring agency, it should do so in writing.
- 26.2 Any effort by a Bidder to influence the Procuring agency in its decisions on bid evaluation, bid comparison, or contract award may result in the rejection of the Bidder's bid.

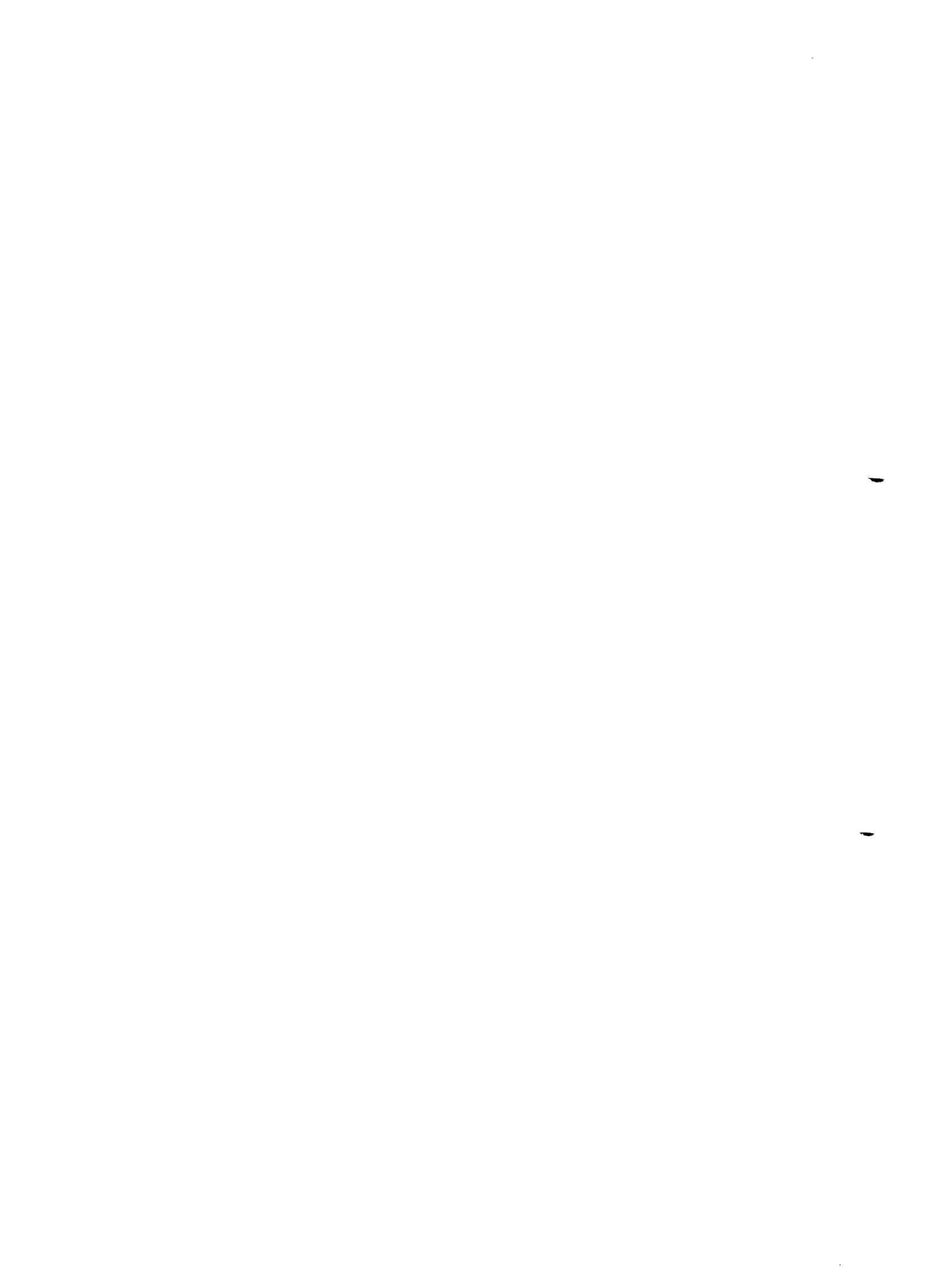
F. Award of Contract

- 27. Post-qualification**
- 27.1 In the absence of prequalification, the Procuring agency will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily, in accordance with the criteria listed in ITB Clause 13.3.
- 27.2 The determination will take into account the Bidder's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 13.3, as well as such other information as the Procuring agency deems necessary and appropriate.
- 27.3 An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event the Procuring agency will proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.
- 28. Award Criteria**
- 28.1 Subject to ITB Clause 30, the Procuring agency will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid, provided further that the Bidder is



determined to be qualified to perform the contract satisfactorily.

- 29. Procuring agency's Right to Vary Quantities at Time of Award** 29.1 The Procuring agency reserves the right at the time of contract award to increase or decrease, by the percentage indicated in the Bid Data Sheet, the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.
- 30. Procuring agency's Right to Accept any Bid and to Reject any or All Bids** 30.1 The Procuring agency reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Procuring agency's action.
- 31. Notification of Award** 31.1 Prior to the expiration of the period of bid validity, the Procuring agency will notify the successful Bidder in writing by registered letter or by cable, to be confirmed in writing by registered letter, that its bid has been accepted.
31.2 The notification of award will constitute the formation of the Contract.
31.3 Upon the successful Bidder's furnishing of the performance security pursuant to ITB Clause 33, the Procuring agency will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 15.
- 32. Signing of Contract** 32.1 At the same time as the Procuring agency notifies the successful Bidder that its bid has been accepted, the Procuring agency will send the Bidder the Contract Form provided in the bidding documents, incorporating all agreements between the parties.
32.2 Within thirty (10) days of receipt of the Contract Form, the successful Bidder shall sign and date the contract and return it to the Procuring agency.
- 33 Performance Security** 33.1 Within twenty (10) days of the receipt of notification of award from the Procuring agency, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, in the Performance Security Form provided in the bidding documents, or in another form acceptable to the Procuring agency.
33.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 32 or ITB Clause 33.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid



security, in which event the Procuring agency may make the award to the next lowest evaluated Bidder or call for new bids.

34. Corrupt or Fraudulent Practices

34.1 The Government of Sindh requires that Procuring agency's (including beneficiaries of donor agencies' loans), as well as Bidders/Suppliers/Contractors under Government-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the SPPRA, in accordance with the SPP Act, 2009 and Rules made thereunder:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

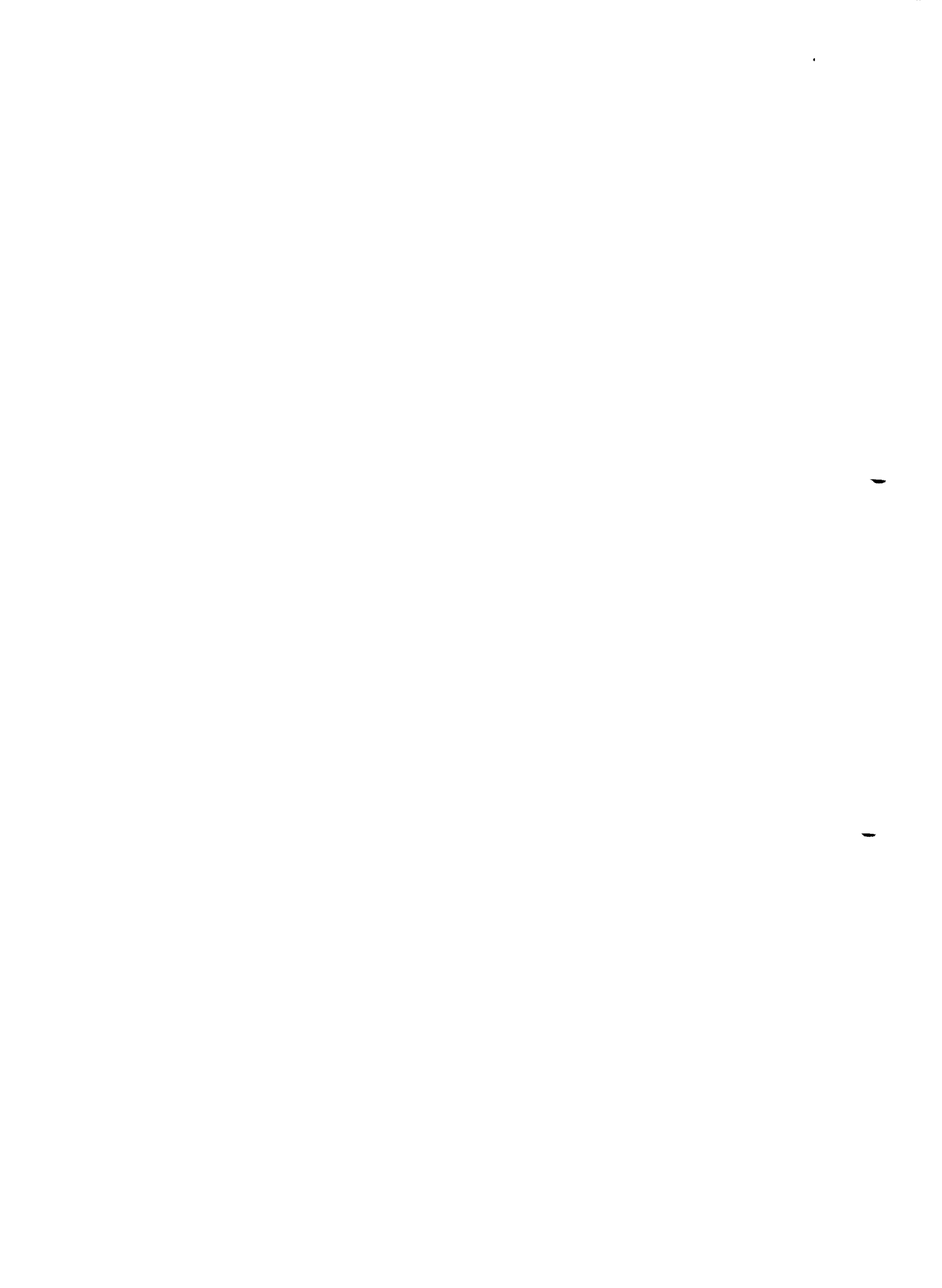
(i) "corrupt practice" means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution; and

(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procuring agency, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Procuring agency of the benefits of free and open competition;

(b) will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(c) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a Government-financed contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Government-financed contract.

34.2 Furthermore, Bidders shall be aware of the provision stated in sub-clause 5.4 and sub-clause 24.1 of the General Conditions of Contract.



Part One - Section II.
General Conditions of Contract

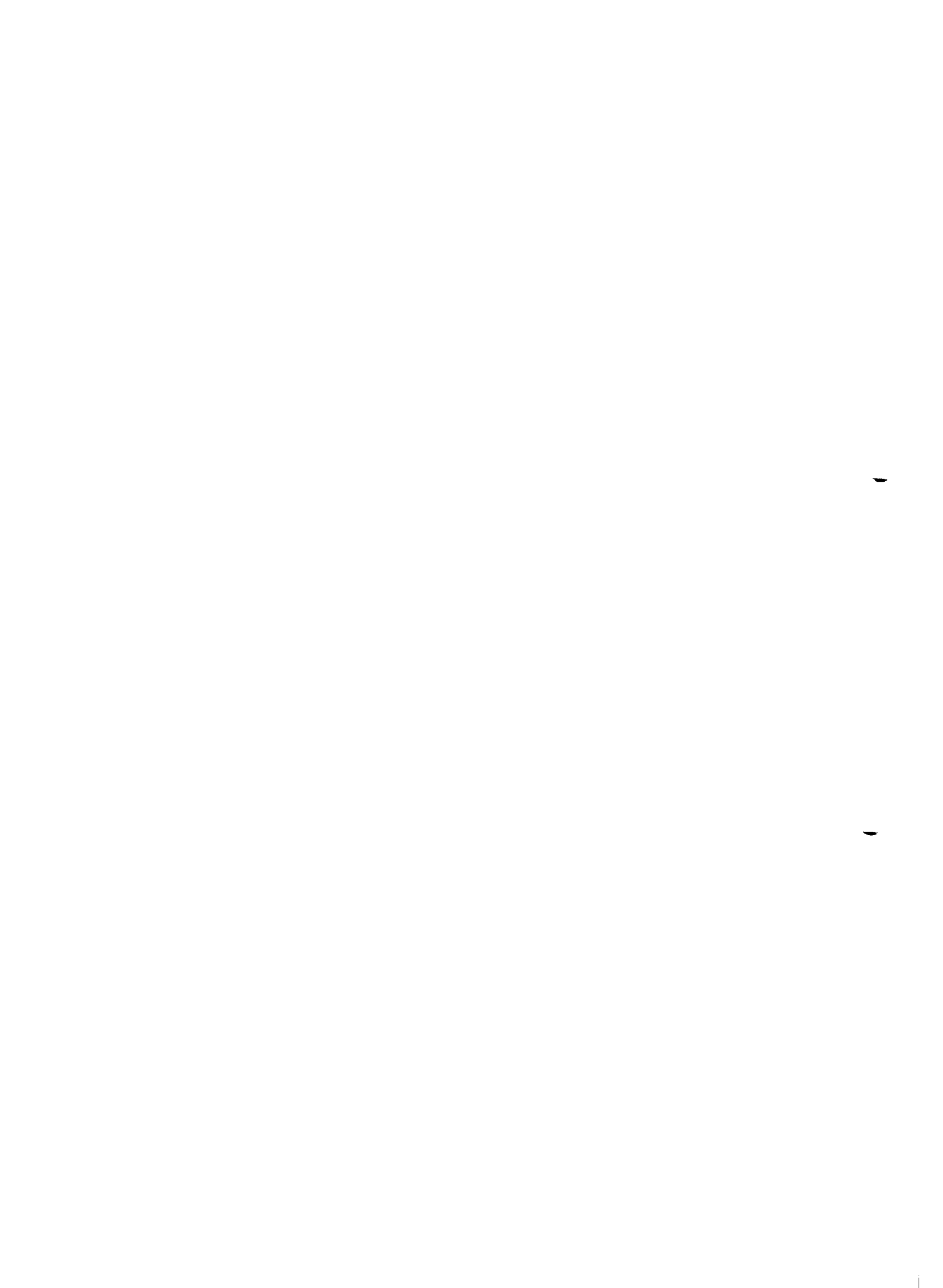
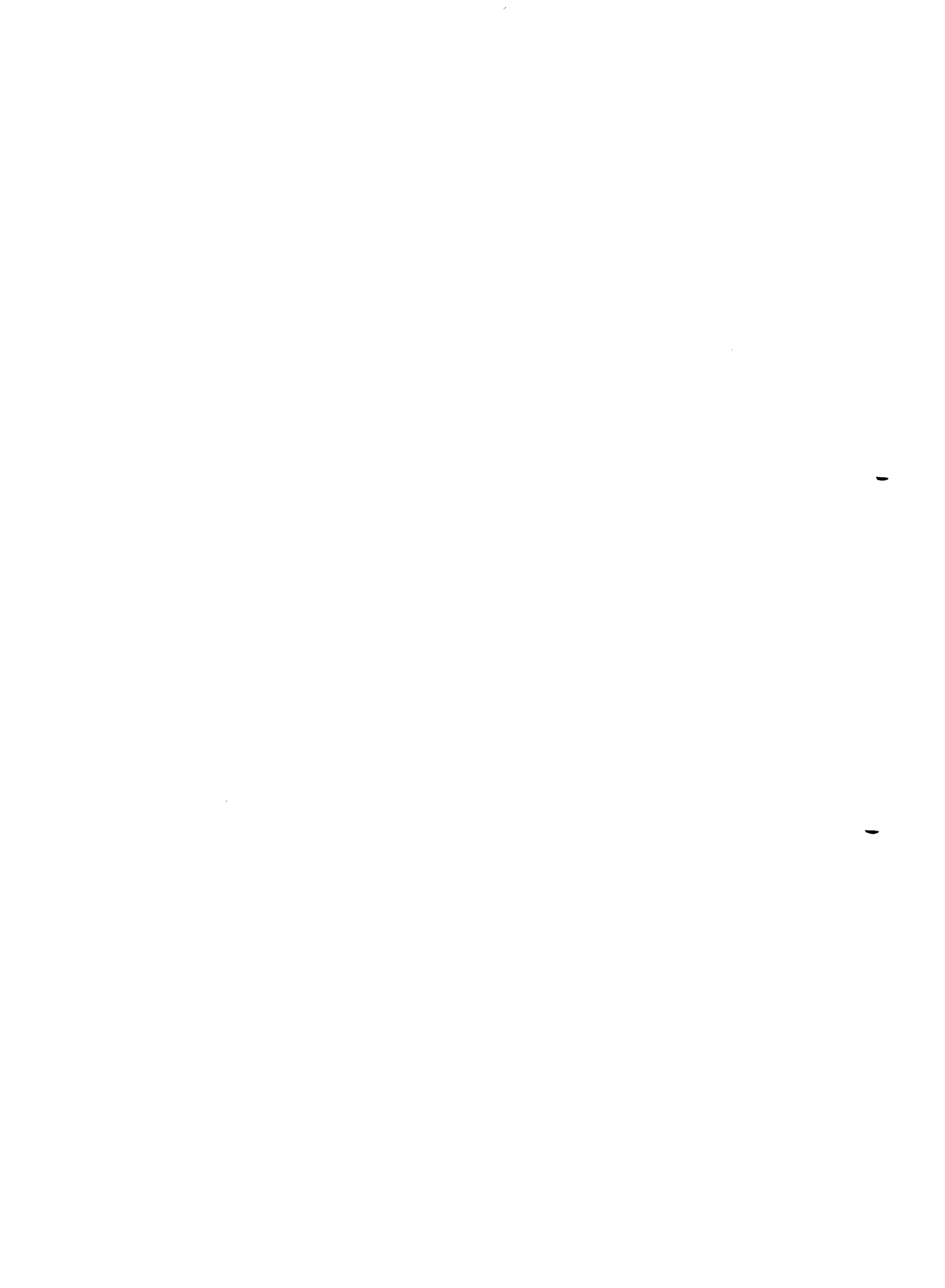


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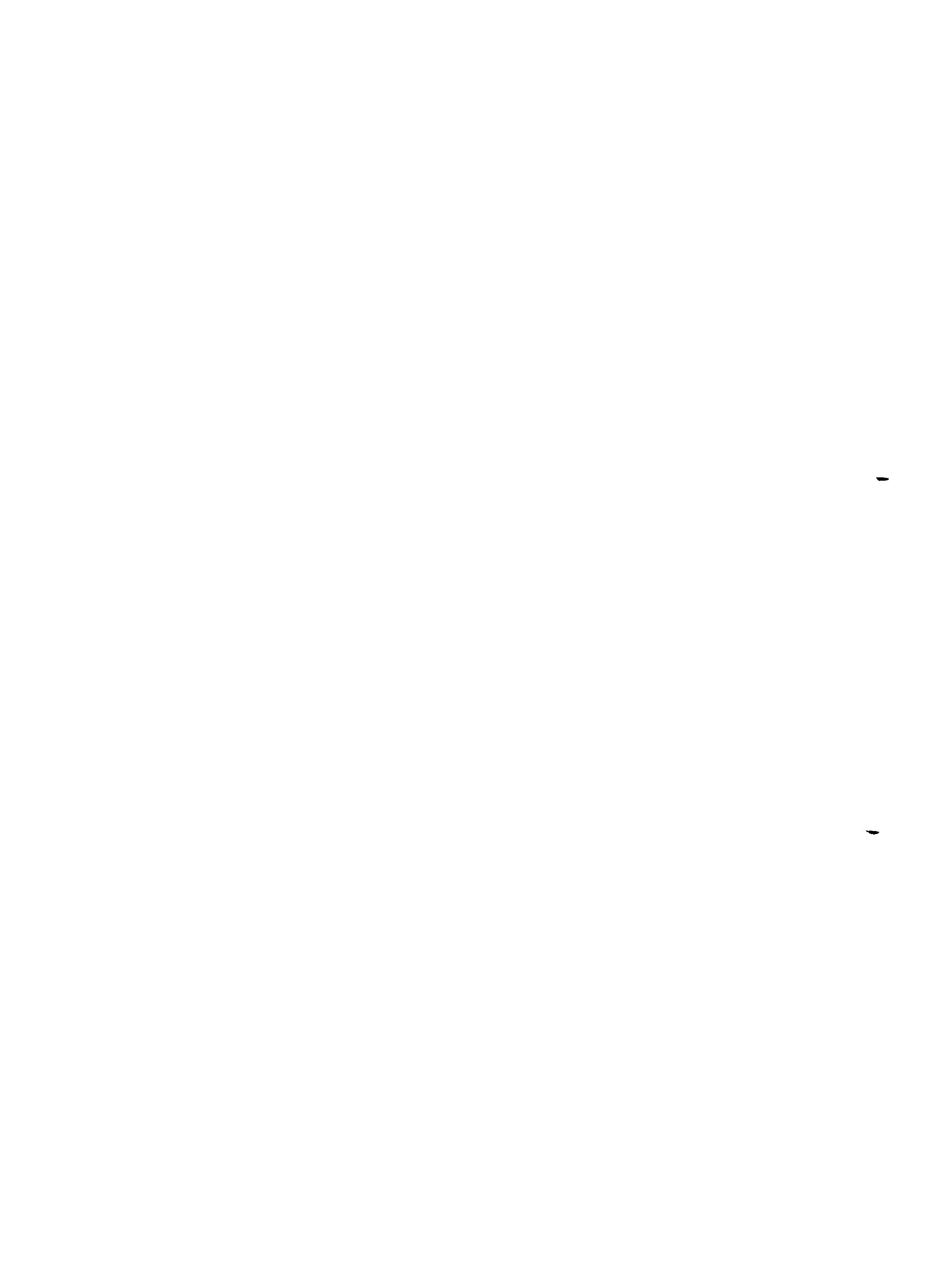
General Conditions of Contract

1. Definitions 1.1 In this Contract, the following terms shall be interpreted as indicated:

- (a) “The Contract” means the agreement entered into between the Procuring agency and the Supplier, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- (b) “The Contract Price” means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.
- (c) “The Goods” means all of the equipment, machinery, and/or other materials which the Supplier is required to supply to the Procuring agency under the Contract.
- (d) “The Services” means those services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training, and other such obligations of the Supplier covered under the Contract.
- (e) “GCC” means the General Conditions of Contract contained in this section.
- (f) “SCC” means the Special Conditions of Contract.
- (g) “The Procuring agency” means the organization purchasing the Goods, as named in SCC.
- (h) “The Procuring agency’s country” is the country named in SCC.
- (i) “The Supplier” means the individual or firm supplying the Goods and Services under this Contract.
- (j) “The Project Site,” where applicable, means the place or places named in SCC.
- (k) “Day” means calendar day.

2. Application

2.1 These General Conditions shall apply to the extent that they are



not superseded by provisions of other parts of the Contract.

3. Country of Origin

3.1 All Goods and Services supplied under the Contract shall have their origin in the countries and territories eligible under the rules and further elaborated in the SCC.

3.2 For purposes of this Clause, "origin" means the place where the Goods were mined, grown, or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

3.3 The origin of Goods and Services is distinct from the nationality of the Supplier.

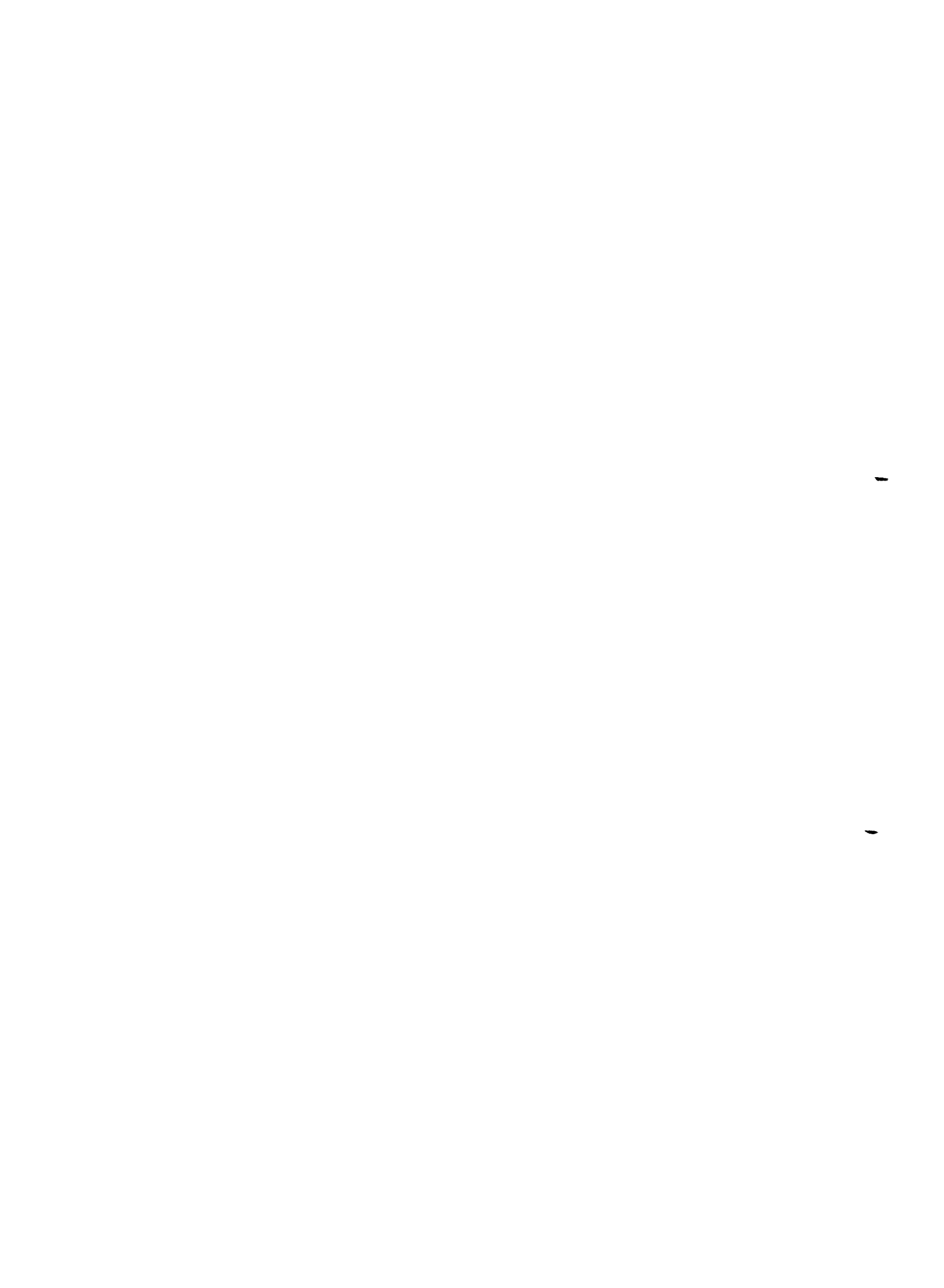
4.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative Standards appropriate to the Goods' country of origin. Such standards shall be the latest issued by the concerned institution.

5. Use of Contract Documents and Information; Inspection and Audit by the Government

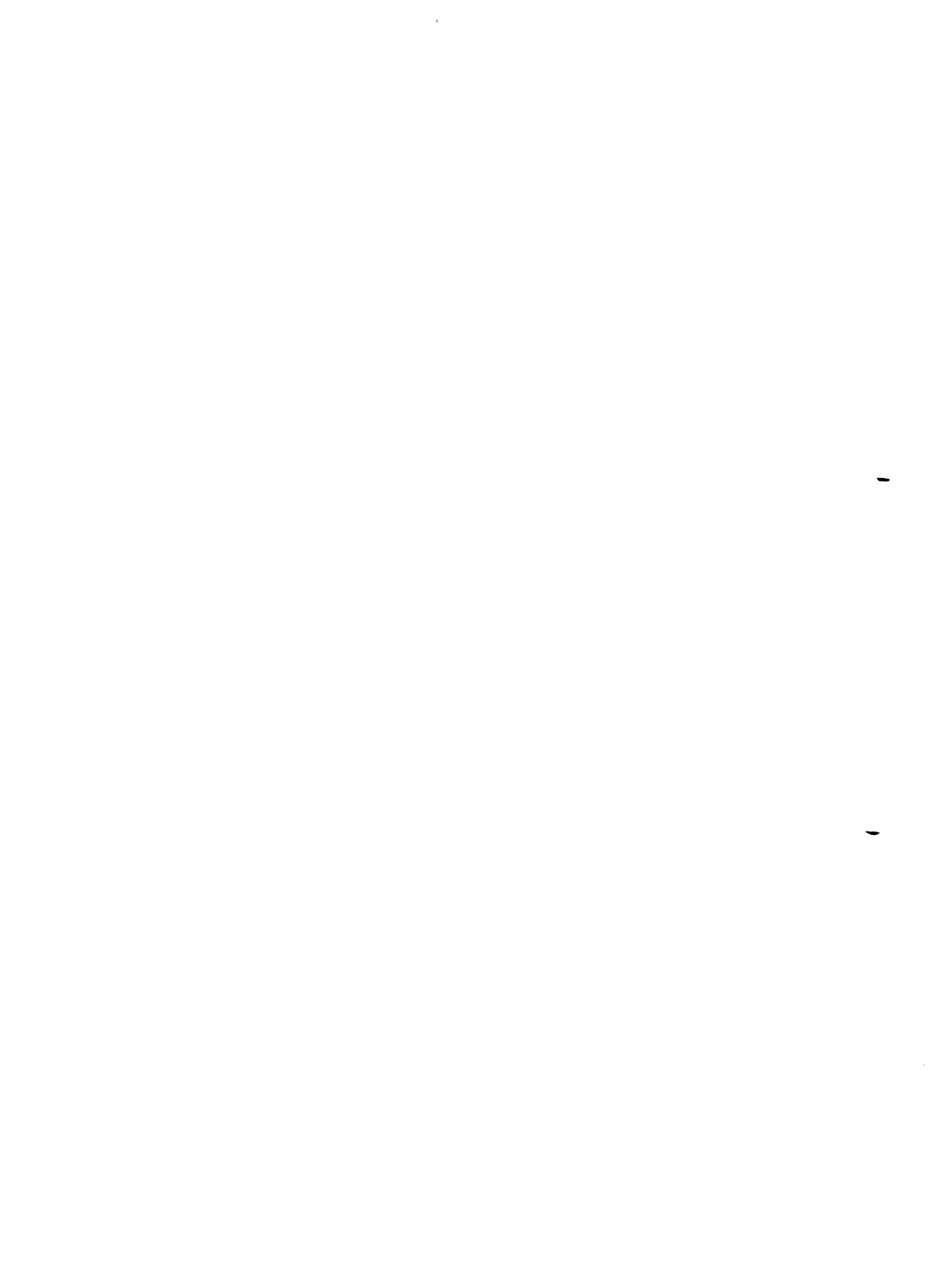
5.1 The Supplier shall not, without the Procuring agency's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Procuring agency in connection therewith, to any person other than a person Employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for Purposes of such performance.

5.2 The Supplier shall not, without the Procuring agency's prior written consent, make use of any document or information enumerated in GCC Clause 5.1 except for purposes of performing the Contract.

5.3 Any document, other than the Contract itself, enumerated in GCC Clause 5.1 shall remain the property of the Procuring agency and shall be returned (all copies) to the Procuring agency on completion of the Supplier's performance under the Contract if so required by the Procuring agency.



- 5.4 The Supplier shall permit the Procuring agency to inspect the Supplier's accounts and records relating to the performance of the Supplier and to have them audited by auditors appointed by the procuring agency, if so required.
- 6. Patent Rights** 6.1 The Supplier shall indemnify the Procuring agency against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the Procuring agency's country.
- 7. Performance Security** 7.1 Within twenty (10) days of receipt of the notification of Contract award, the successful Bidder shall furnish to the Procuring agency the performance security in the amount specified in SCC.
- 7.2 The proceeds of the performance security shall be payable to the Procuring agency as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 7.3 The performance security shall be denominated in the currency of the Contract acceptable to the Procuring agency and shall be in one of the following forms:
- (a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the Procuring agency's country, in the form provided in the bidding documents or another form acceptable to the Procuring agency; or
 - (b) a cashier's or certified check.
- 7.4 The performance security will be discharged by the Procuring agency and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty Obligations, unless specified otherwise in SCC.
- 8. Inspections and Tests** 8.1 The Procuring agency or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Procuring agency. SCC and the Technical Specifications shall specify what inspections and tests the Procuring agency requires and where they are to be conducted. The Procuring agency shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.
- 8.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery, and/or at



the Goods' final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Procuring agency.

- 8.3 Should any inspected or tested Goods fail to conform to the Specifications, the Procuring agency may reject the Goods, and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Procuring agency.
- 8.4 The Procuring agency's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival in the Procuring agency's country shall in no way be limited or waived by reason of the Goods having previously been inspected, tested, and passed by the Procuring agency or its representative prior to the Goods' shipment from the country of origin.
- 8.5 Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

9. Packing 9.1

The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.

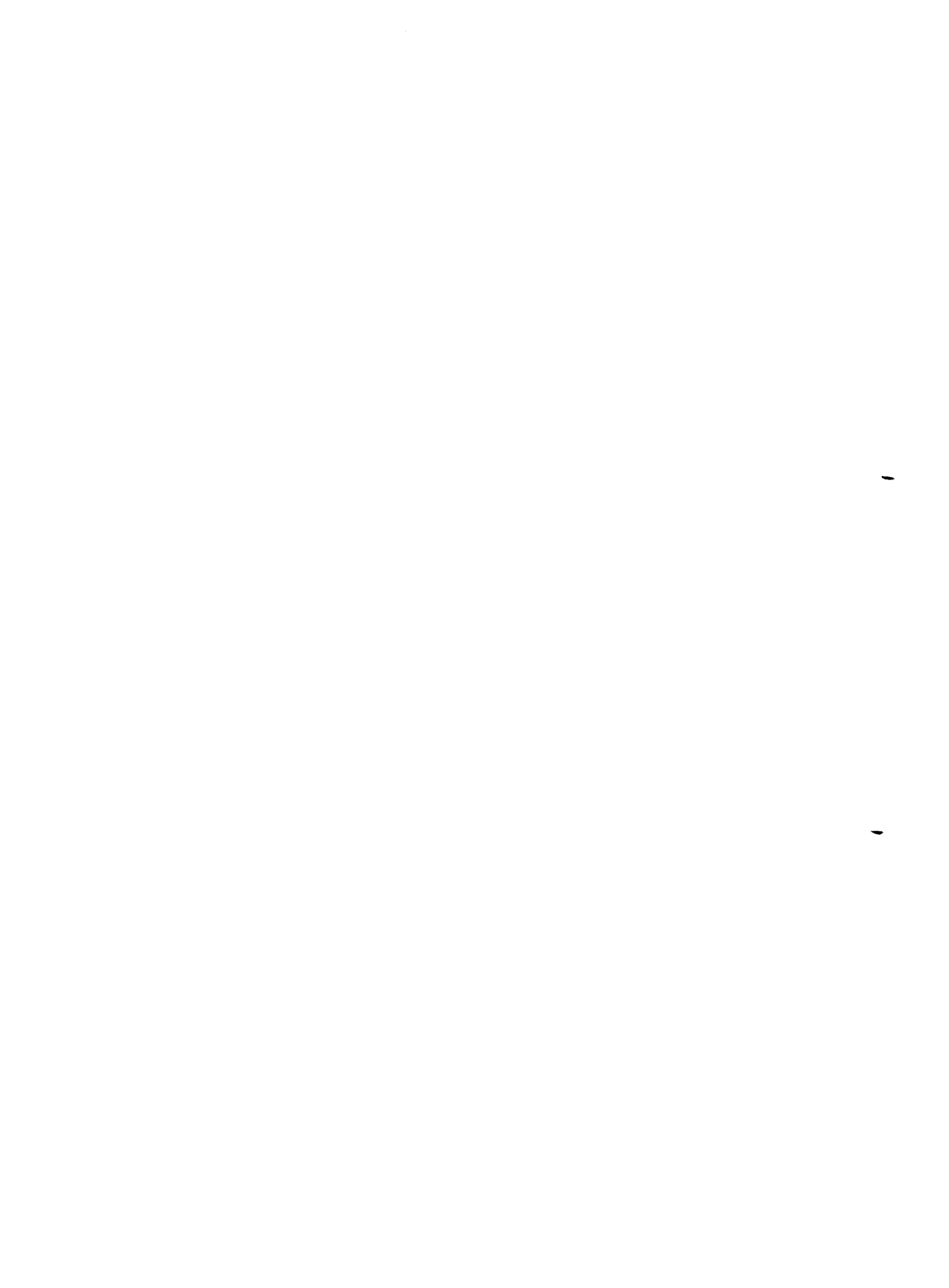
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the Procuring agency.

10. Delivery and Documents

- 10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in the Schedule of Requirements. The details of shipping and/or other documents to be furnished by the Supplier are specified in SCC.
- 10.2 Documents to be submitted by the Supplier are specified in SCC.



- 11. Insurance** 11.1 The Goods supplied under the Contract shall be delivered duty paid (DDP) under which risk is transferred to the buyer after having been delivered, hence **insurance coverage is sellers responsibility.**
- 12. Transportation** 12.1 The Supplier is required under the Contract to transport the goods to a specified place of destination within the Procuring agency's country, transport to such place of destination in the Procuring agency's country, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.
- 13. Incidental Services** 13.1 The Supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:
- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;
 - (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
 - (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
 - (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
 - (e) training of the Procuring agency's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.
- 13.2 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged for other parties by the Supplier for similar services.
- 14. Spare Parts** 14.1 As specified in SCC, the Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:



- (a) such spare parts as the Procuring agency may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
- (b) in the event of termination of production of the spare parts:
 - (i) advance notification to the Procuring agency of the pending termination, in sufficient time to permit the Procuring agency to procure needed requirements; and
 - (ii) following such termination, furnishing at no cost to the Procuring agency, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The Supplier warrants that the Goods supplied under the Contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the Procuring agency's specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3 The Procuring agency shall promptly notify the Supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the Supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Procuring agency.

15.5 If the Supplier, having been notified, fails to remedy the defect(s)



within the period specified in SCC, within a reasonable period, the Procuring agency may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Procuring agency may have against the Supplier under the Contract.

16. Payment

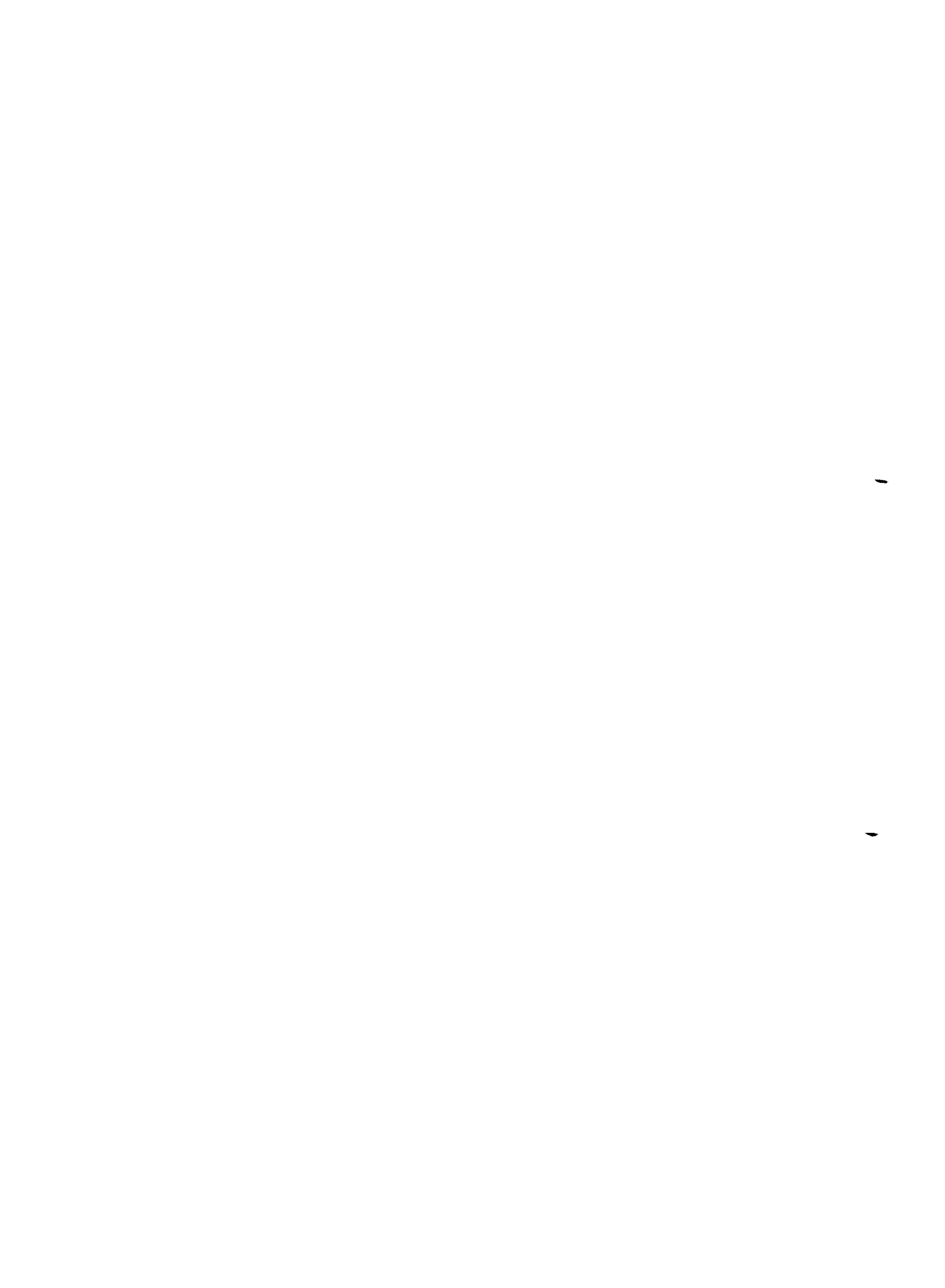
- 16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be specified in SCC.
- 16.2 The Supplier's request(s) for payment shall be made to the Procuring agency in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 10, and upon fulfillment of other obligations stipulated in the Contract.
- 16.3 Payments shall be made promptly by the Procuring agency, but in no case later than Thirty (30) days after submission of an invoice or claim by the Supplier.
- 16.4 The currency of payment is Pak. Rupees.

17. Prices

- 17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments authorized in SCC or in the Procuring agency's request for bid validity extension, as the case may be.

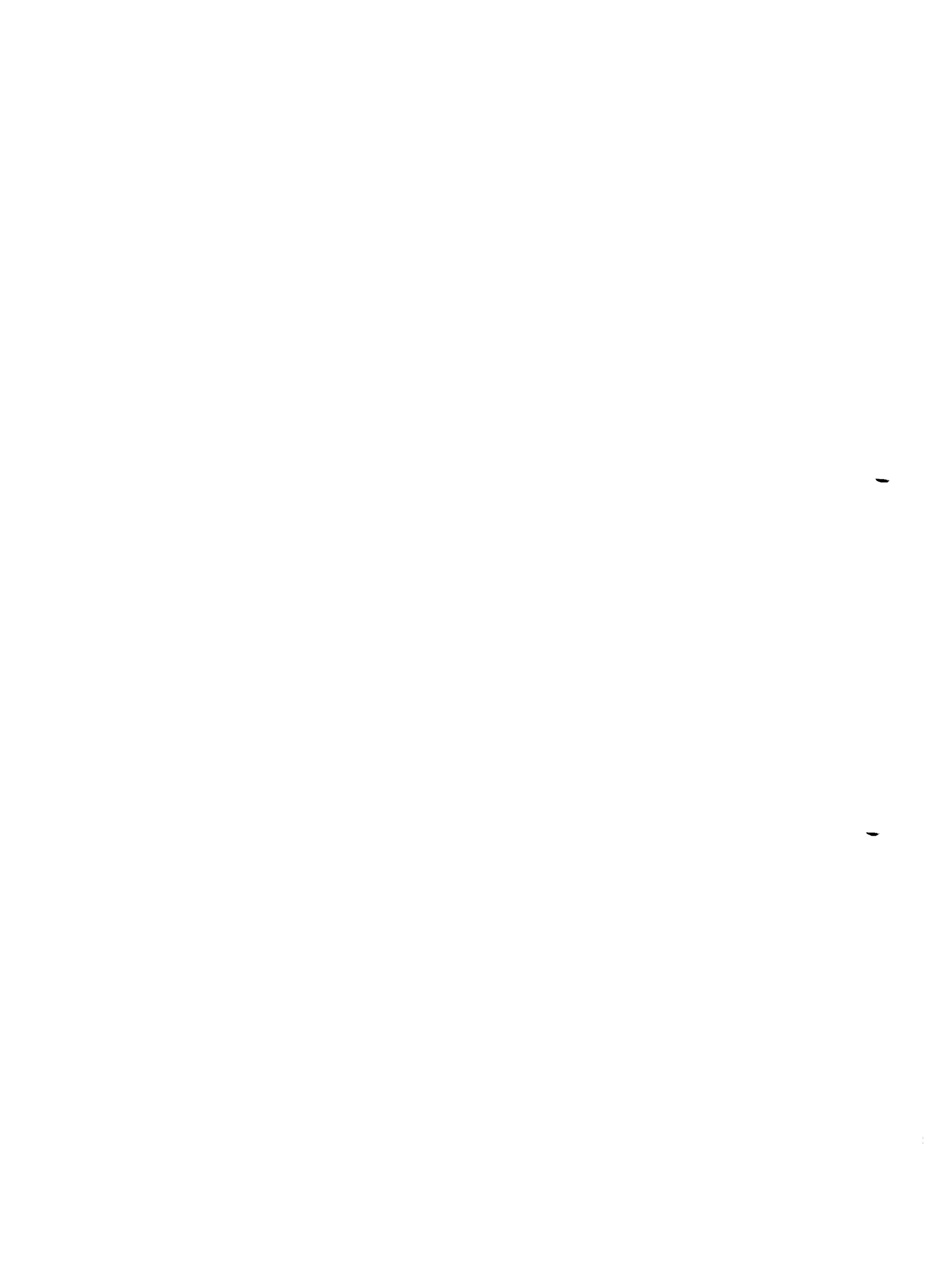
18. Change Orders

- 18.1 The Procuring agency may at any time, by a written order given to the Supplier pursuant to GCC Clause 31, make changes within the general scope of the Contract in any one or more of the following:
- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Procuring agency;
 - (b) the method of shipment or packing;
 - (c) the place of delivery; and/or
 - (d) the Services to be provided by the Supplier.
- 18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be



made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Procuring agency's change order.

- 19. Contract Amendments** 19.1 Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.
- 20. Assignment** 20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under this Contract, except with the Procuring agency's prior written consent.
- 21. Subcontracts** 21.1 The Supplier shall notify the Procuring agency in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.
- 21.2 Subcontracts must comply with the provisions of GCC Clause 3.
- 22. Delays in the Supplier's Performance** 22.1 Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule prescribed by the Procuring agency in the Schedule of Requirements.
- 22.2 If at any time during performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Procuring agency in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Procuring agency shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of Contract.
- 22.3 Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of liquidated damages.
- 23. Liquidated** 23.1 Subject to GCC Clause 25, if the Supplier fails to deliver any or



Damages

all of the Goods or to perform the Services within the period(s) specified in the Contract, the Procuring agency shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in SCC. Once the maximum is reached, the Procuring agency may consider termination of the Contract pursuant to GCC Clause 24.

24. Termination 24.1 for Default

The Procuring agency, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate this Contract in whole or in part:

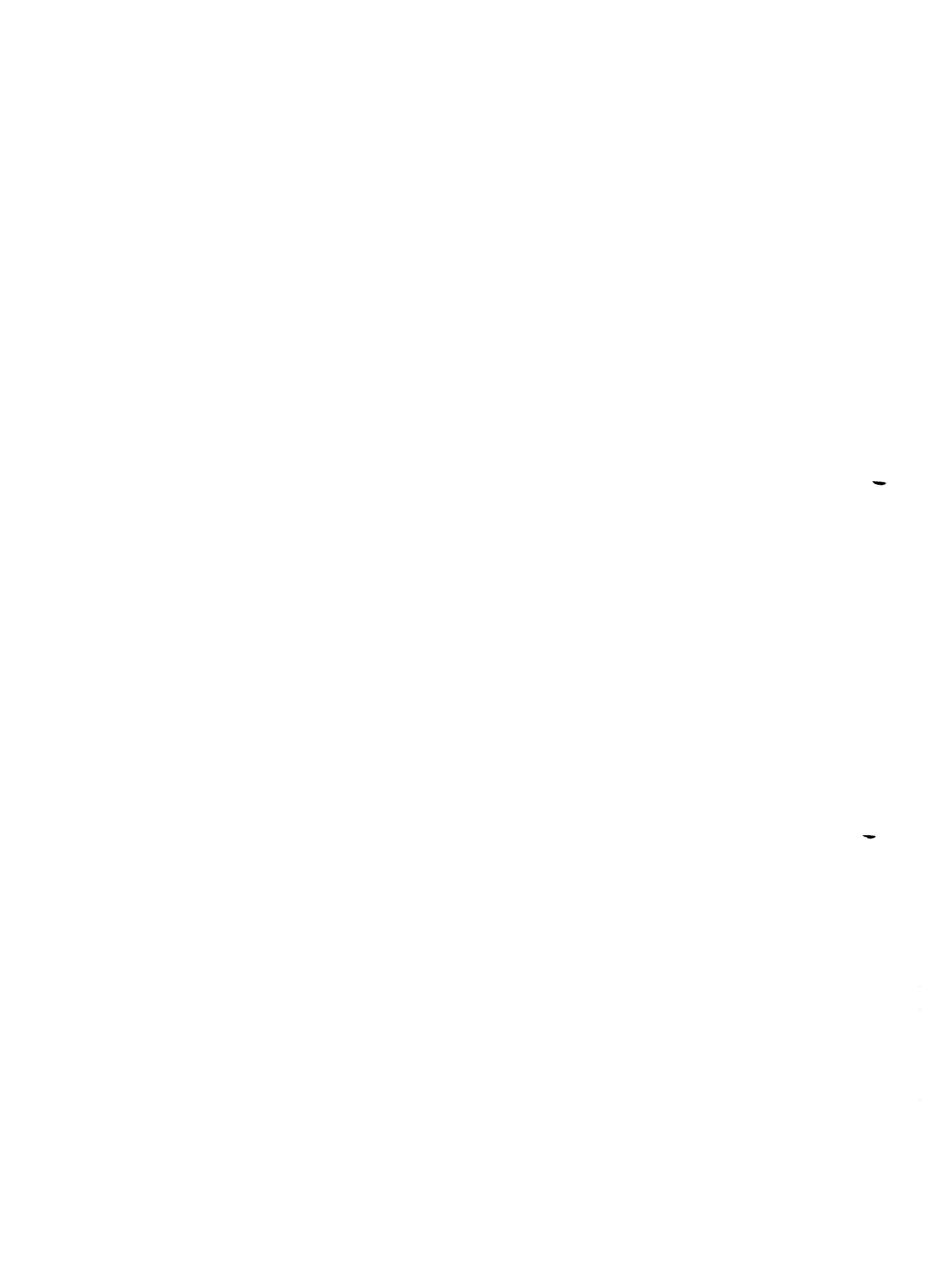
- (a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Procuring agency pursuant to GCC Clause 22; or
- (b) if the Supplier fails to perform any other obligation(s) under the Contract.
- (c) if the Supplier, in the judgment of the Procuring agency has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this clause:

“corrupt practice” means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.

“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

24.2 In the event the Procuring agency terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Procuring agency may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those



undelivered, and the Supplier shall be liable to the Procuring agency for any excess costs for such similar Goods or Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

25. Force Majeure 25.1 Notwithstanding the provisions of GCC Clauses 22, 23, and 24, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

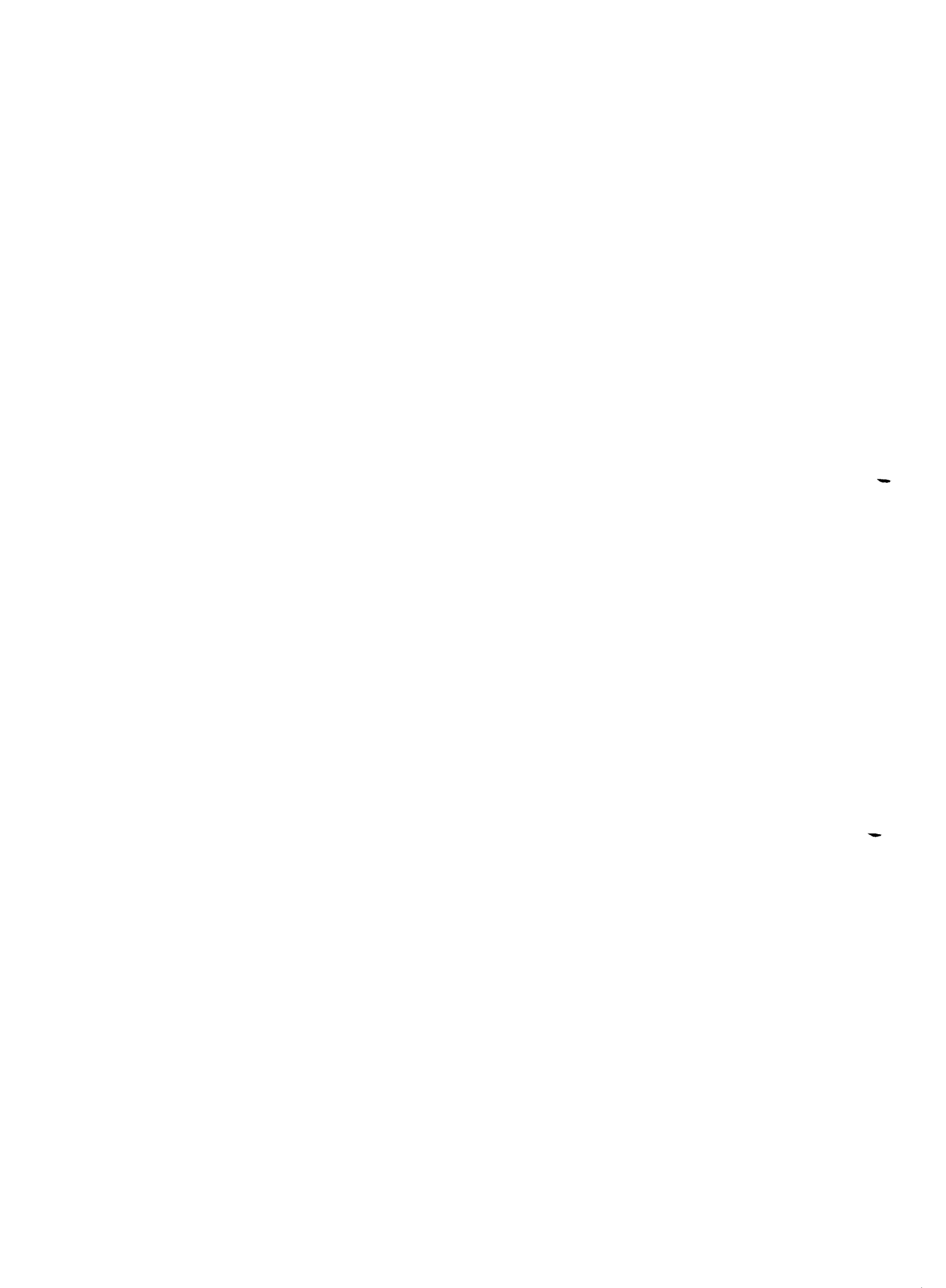
25.2 For purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Procuring agency in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Procuring agency in writing of such condition and the cause thereof. Unless otherwise directed by the Procuring agency in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

26. Termination for Insolvency 26.1 The Procuring agency may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Procuring agency.

27. Termination for Convenience 27.1 The Procuring agency, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Procuring agency's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.

27.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be accepted by the Procuring agency at the



Contract terms and prices. For the remaining Goods, the Procuring agency may elect:

- (a) to have any portion completed and delivered at the Contract terms and prices; and/or
- (b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

28. Resolution of Disputes

28.1 The Procuring agency and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

28.2 If, after thirty (30) days from the commencement of such informal negotiations, the Procuring agency and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in SCC. These mechanisms may include, but are not restricted to, conciliation mediated by a third party, adjudication in an agreed manner and/or arbitration.

29. Governing Language

29.1 The Contract shall be written in the language specified in SCC. Subject to GCC Clause 30, the version of the Contract written in the specified language shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.

30. Applicable Law

30.1 The Contract shall be interpreted in accordance with the laws of the Procuring agency's country, unless otherwise specified in SCC.

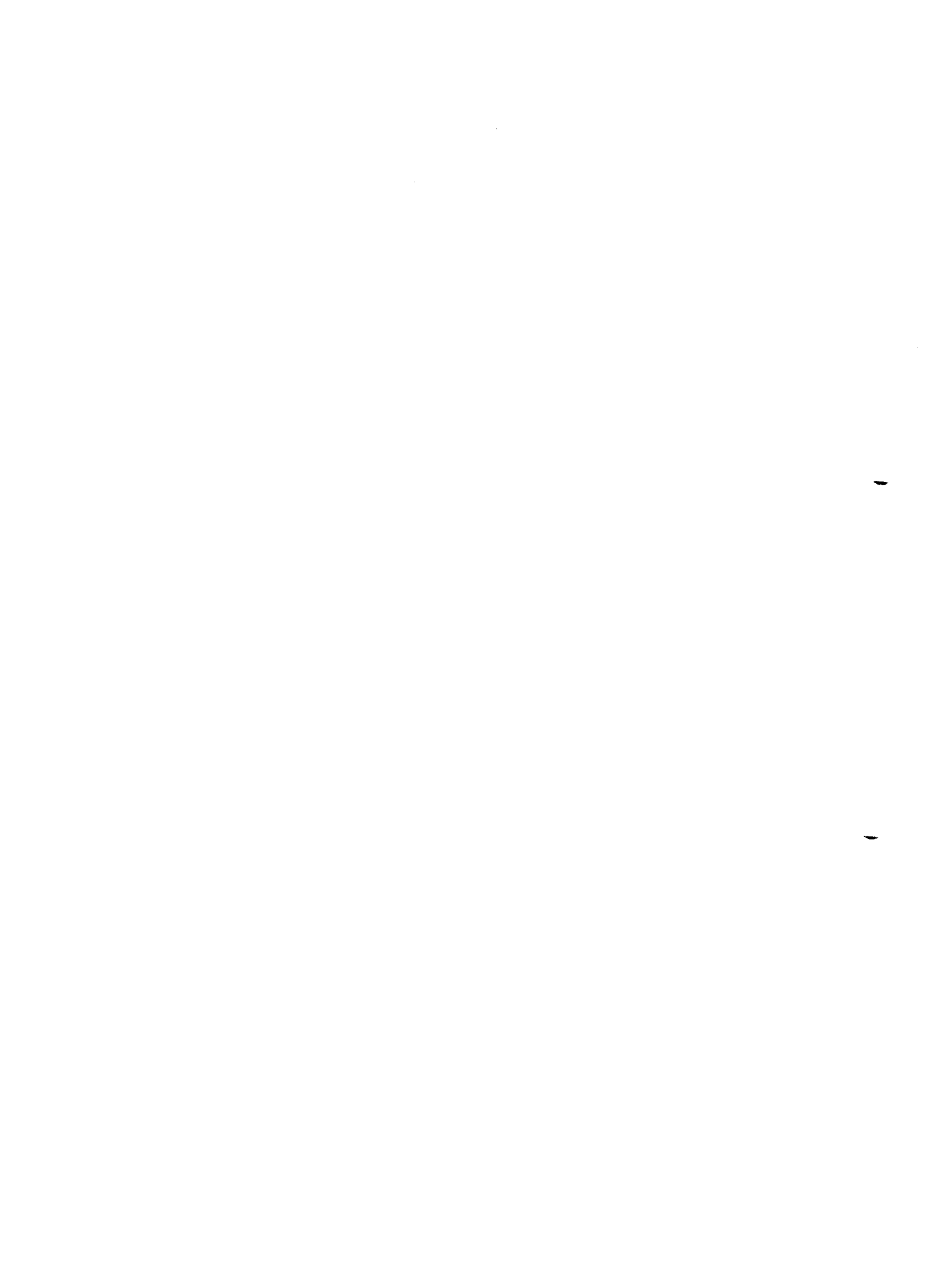
31. Notices

31.1 Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or by cable, telex, or facsimile and confirmed in writing to the other party's address specified in SCC.

31.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

32. Taxes and Duties

32.1 Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Procuring agency.



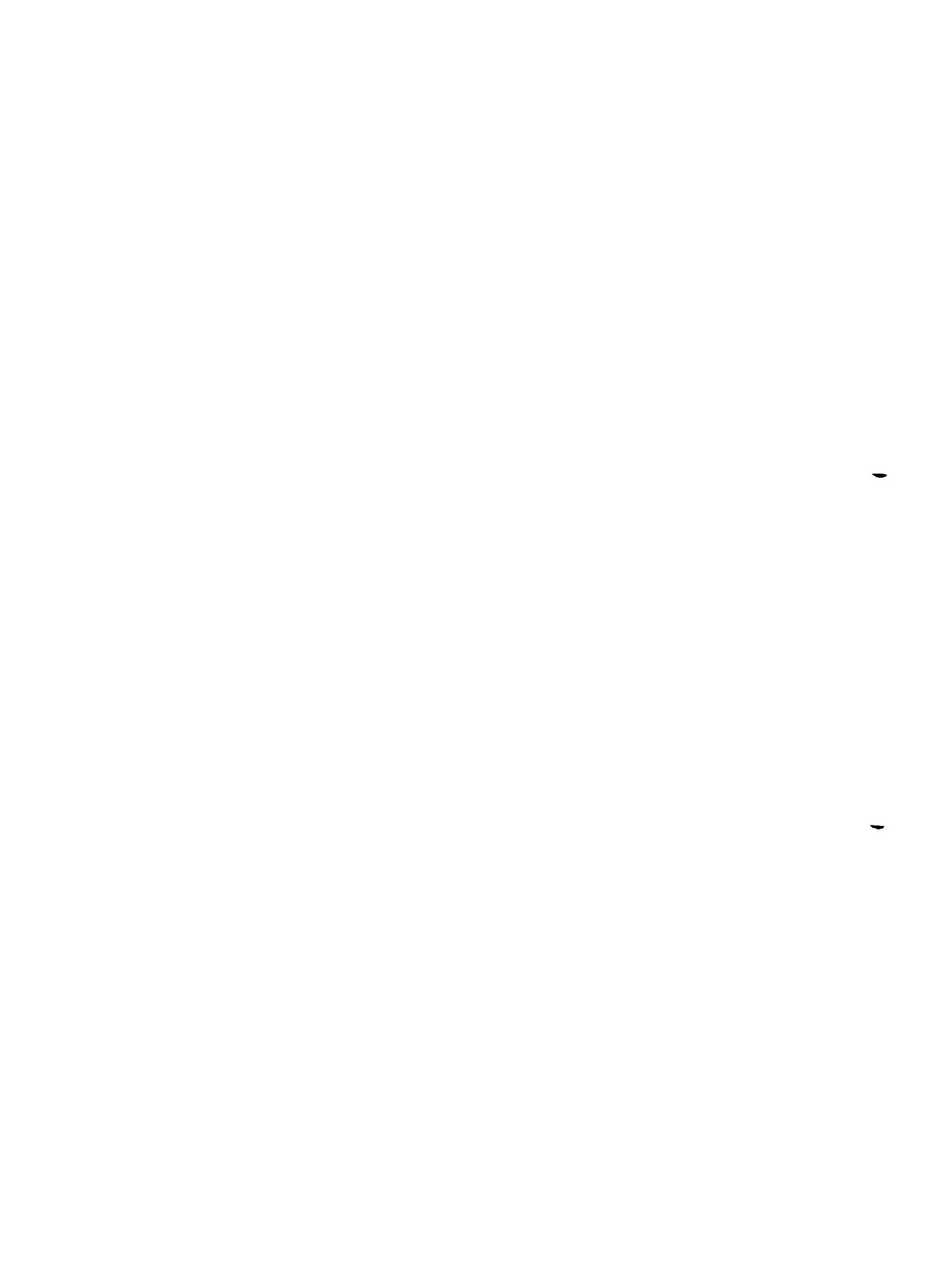
Notes on the Instructions to Bidders

This section of the bidding documents provides the information necessary for bidders to prepare responsive bids, in accordance with the requirements of the Procuring agency. It also provides information on bid submission, opening, and evaluation, and on the award of contract.

Part One Section I contains provisions that are to be used unchanged. Part Two Section II consists of provisions that supplement, amend, or specify in detail information or requirements included in Part One Section I and which are specific to each procurement.

Matters governing the performance of the Supplier, payments under the contract, or matters affecting the risks, rights, and obligations of the parties under the contract are not normally included in this section, but rather under Part one Section II, General Conditions of Contract, and/or Part Two Section III, Special Conditions of Contract. If duplication of a subject is inevitable in the other sections of the document prepared by the Procuring agency, care must be exercised to avoid contradictions between clauses dealing with the same matter.

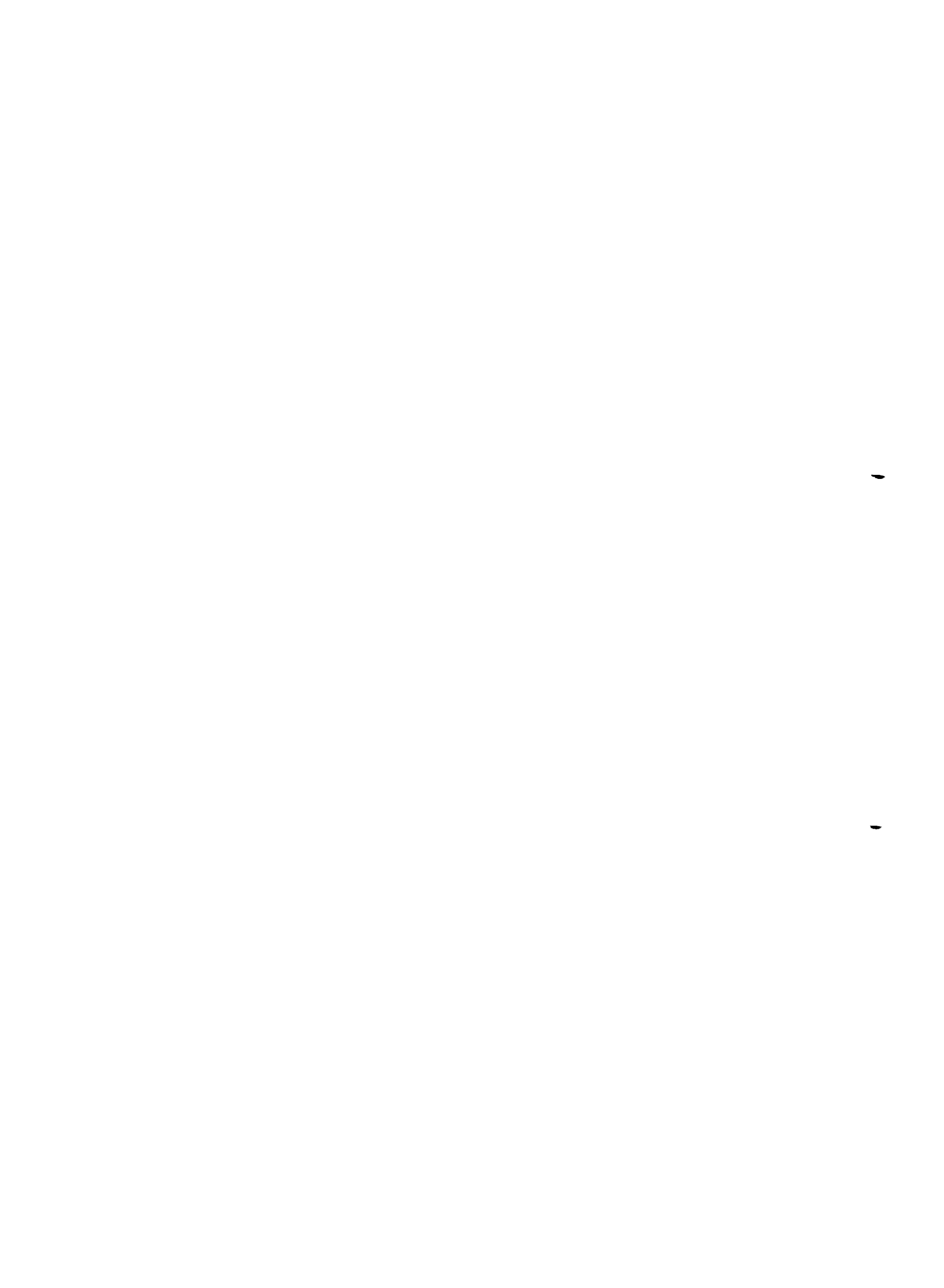
These Instructions to Bidders will not be part of the contract.



Notes on the General Conditions of Contract

The General Conditions of Contract in Part One Section II, read in conjunction with the Special Conditions of Contract in Part Two Section III and other documents listed therein, should be a complete document expressing all the rights and obligations of the parties.

The General Conditions of Contract herein shall not be altered. Any changes and complementary information, which may be needed, shall be introduced only through the Special Conditions of Contract in Part Two Section III.



Bidding Documents

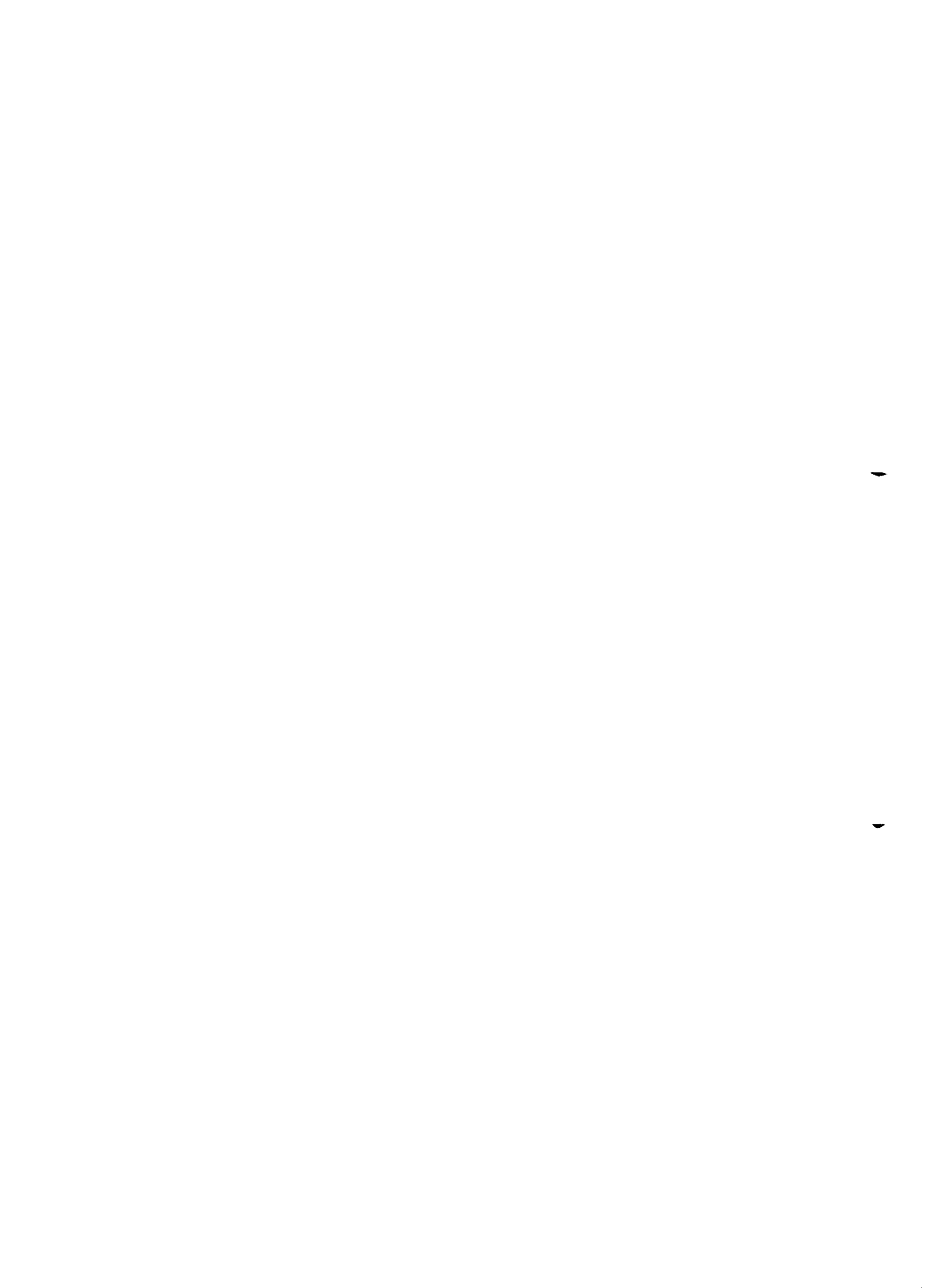
For

National Competitive Bidding

Procurement of Goods

PART TWO (PROCUREMENT SPECIFIC PROVISIONS)

- Invitation for Bids (IFB)
- Bid Data Sheet (BDS)
- Special Conditions of Contract (SCC)
- Schedule of Requirements
- Technical Specifications
- Technical Evaluation Criteria
- Sample Form
- Eligibility



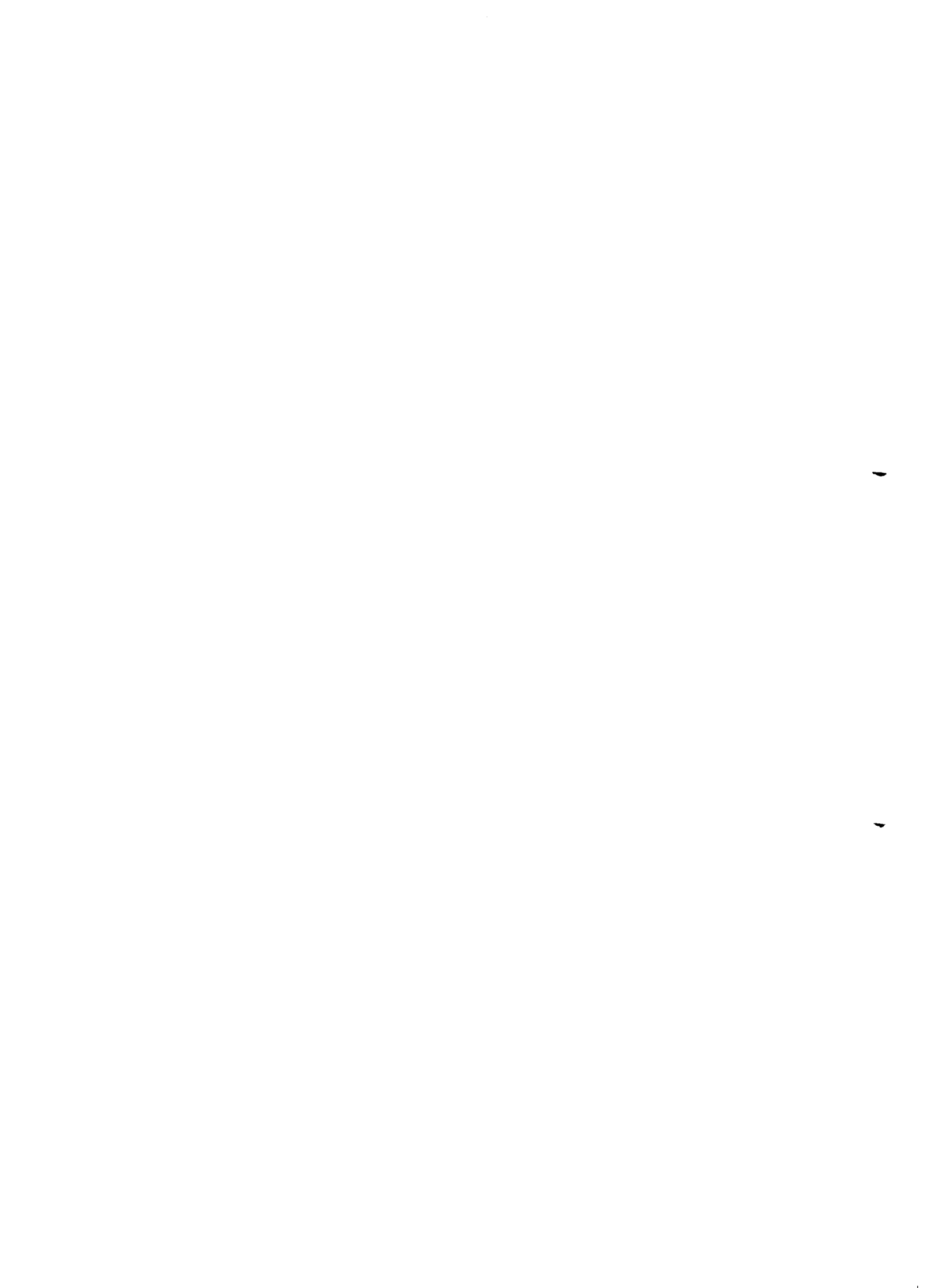
Preface

These Bidding Documents have been prepared for use by procuring agencies in the procurement of goods through National Competitive Bidding (NCB).

In order to simplify the preparation of bidding documents for each procurement, the Bidding Documents are grouped in two parts based on provisions which are fixed and that which are specific for each procurement. Provisions which are intended to be used unchanged are in Part one, which includes Section I, Instructions to Bidders, and Section II, General Conditions of Contract. Data and provisions specific to each procurement and contract are included in Part Two which includes Section II, Bid Data Sheet; Section III, Special Conditions of Contract; Section IV, Schedule of Requirements; Section V, Technical Specifications; and the forms to be used in Section I, Invitation for Bids, and Section VI, Sample Forms.

This is Part Two and contains data and provisions specific to each procurement. Care should be taken to check the relevance of the provisions of the Bidding Documents against the requirements of the specific goods to be procured. The following general directions should be observed when using the documents. In addition, each section is prepared with notes intended only as information for the Procuring agency or the person drafting the bidding documents. They shall *not* be included in the final documents, except for the notes introducing Section VI, Forms, where the information is useful for the Bidder.

- (a) Specific details, such as the “name of the Procuring agency” and “address for bid submission,” should be furnished in the Invitation for Bids, in the Bid Data Sheet, and in the Special Conditions of Contract. The final documents should contain neither blank spaces nor options.
- (b) Amendments, if any, to the Instructions to Bidders and to the General Conditions of Contract should be made through the Bid Data Sheet and the Special Conditions of Contract, respectively.
- (c) Footnotes or notes in italics included in the Invitation for Bids, Bid Data Sheet, Special Conditions of Contract, and in the Schedule of Requirements are not part of the text of the document, although they contain instructions that the Procuring agency should strictly follow. The final document should contain no footnotes.



- (d) The criteria for bid evaluation and the various methods of evaluation in the Instructions to Bidders (Clauses 25.3 and 25.4, respectively) should be carefully reviewed. Only those that are selected to be used for the procurement in question should be retained and expanded, as required, in the Bid Data Sheet or in the Technical Specifications, as appropriate. The criteria that are not applicable should be deleted from the Bid Data Sheet.
- (e) Clauses included in the Special Conditions of Contract are illustrative of the provisions that should be drafted specifically by the Procuring agency for each procurement.
- (f) The forms provided in Section VI should be completed by the Bidder or the Supplier; the footnotes in these forms should remain, since they contain instructions which the Bidder or the Supplier should follow.

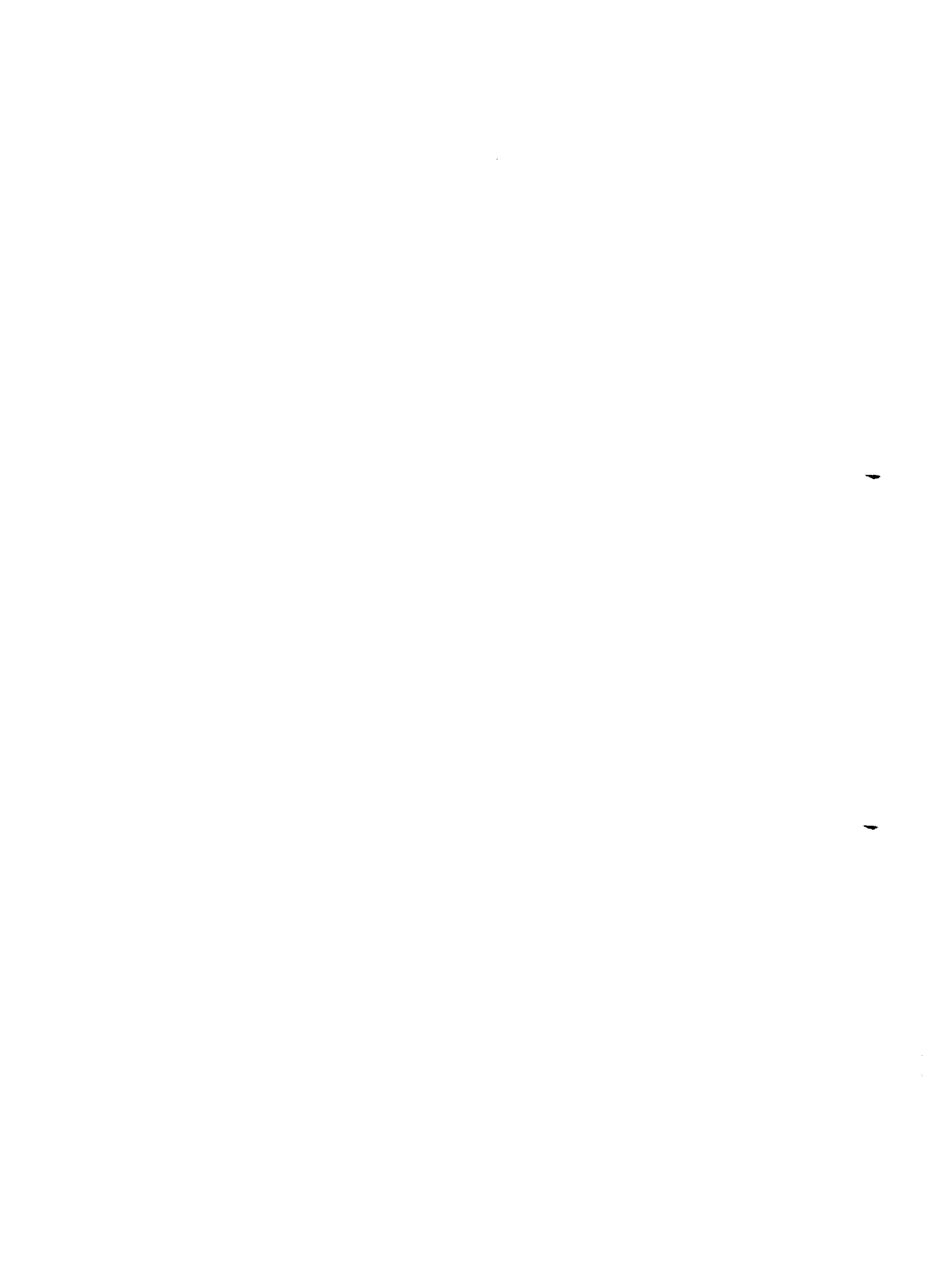
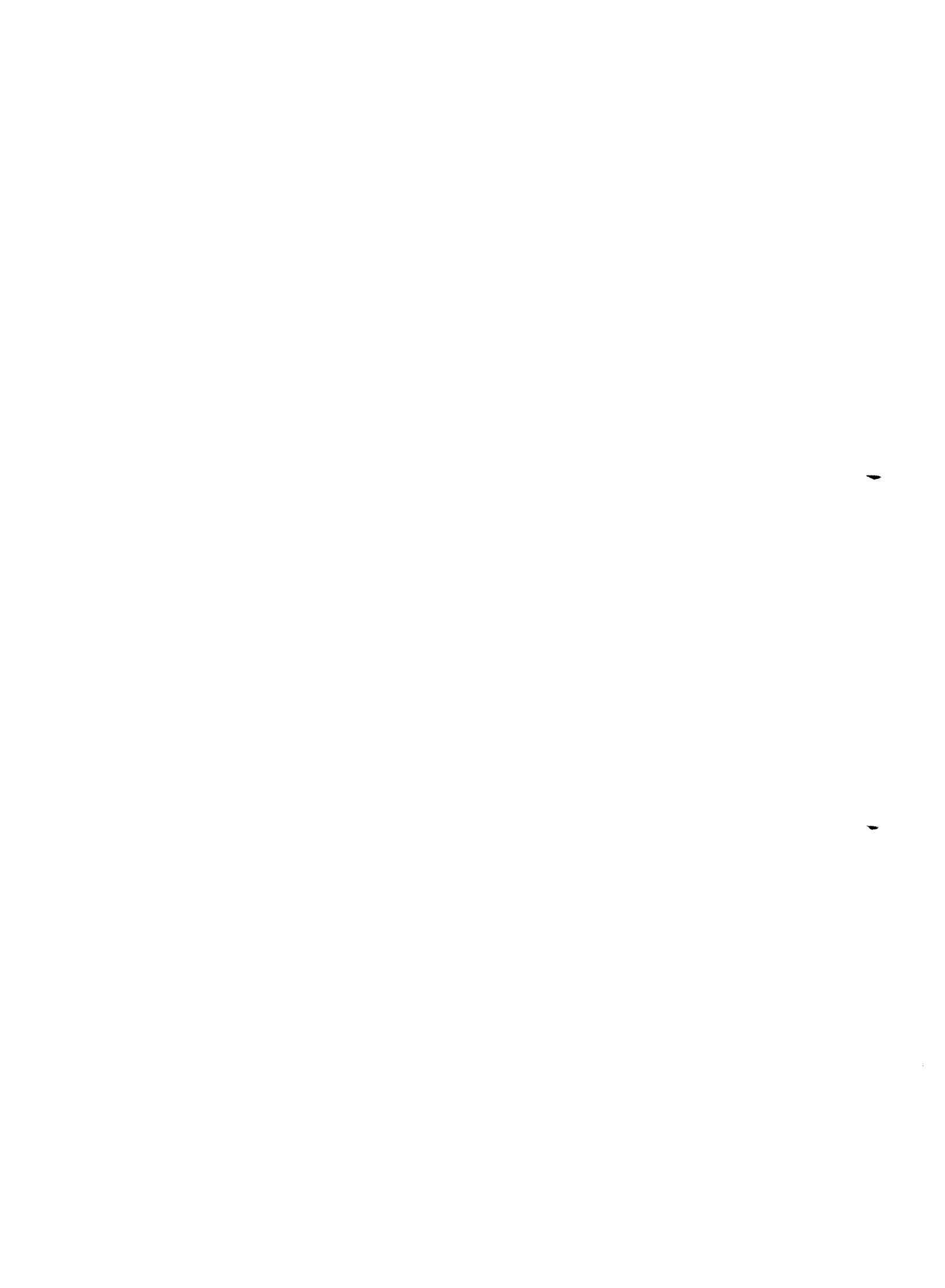


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Part Two

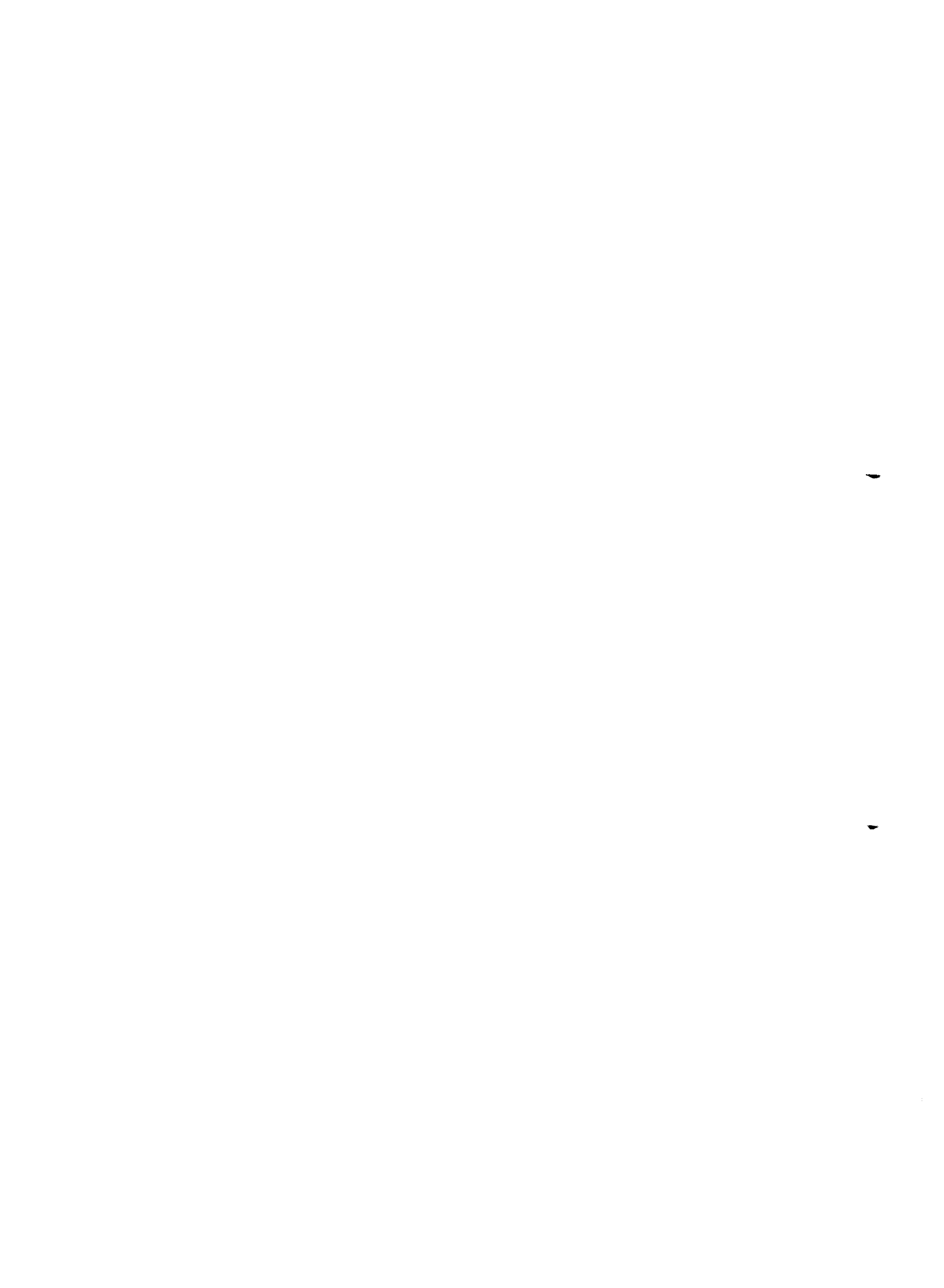
Section I. Invitation for Bids

Notes on the Invitation for Bids

The Invitation for Bids (IFB) shall be issued as an advertisement in at least three newspaper of general circulation in the Province of Sindh or Authorities web site as the case may be, allowing at least fifteen days for NCB and forty five days(45) ICB for bid preparation and submission ;

The Invitation for Bids provides information that enables interested bidders to decide whether to participate. Apart from the essential items listed in the Standard Bidding Documents (SBD), the Invitation for Bids should also indicate any important bid evaluation criteria or qualification requirement (for example, a requirement for a minimum level of experience in manufacturing a similar type of goods for which the Invitation for Bids is issued) and that the bidders should give their best and final prices as no negotiations are allowed.

The Invitation for Bids should be incorporated into the bidding documents. The information contained in the Invitation for Bids must conform to the bidding documents and in particular to the relevant information in the Bid Data Sheet.



INVITATION FOR BIDS/NOTICE INVITING TENDER

IFB NO: DUET/DF/PO/CSE-EQP/2015-16

Sealed bids are invited from experienced well reputed firms registered with sales tax / income tax procurement of Laboratory Equipment on item-wise **C&F** basis with insurance coverage for Computer System Engineering Department at Dawood University of Engineering & Technology (DUET), Karachi with **5% Bid Security** in the shape of pay order / bank draft in the name of Director Finance, DUET, Karachi.

Eligibility: Income Tax, GST registered firms only.

Method of Procurement: Single Stage – Two Envelop Procedure for selection of firm accordance with section 46(2) of SPPRA Rules 2010, single package containing two separate envelopes each envelope should be clearly marked as “FINANCIAL PROPOSAL” and “TECHNICAL PROPOSAL”.

Issuance of Tender Documents: Tender Documents will be issued from **17-12-2015 to 05-01-2016 (12:00 noon)** against the paid challan /pay order / bank draft of Rs. 1000/- (Non-Refundable) in favour of Director Finance, DUET, Karachi. The Tender Document can also be downloaded from the University website: www.duet.edu.pk and the SPPRA website: www.pprasindh.gov.pk

Date & Time of Bid Submission: 05-01-2016 (01:00 pm)

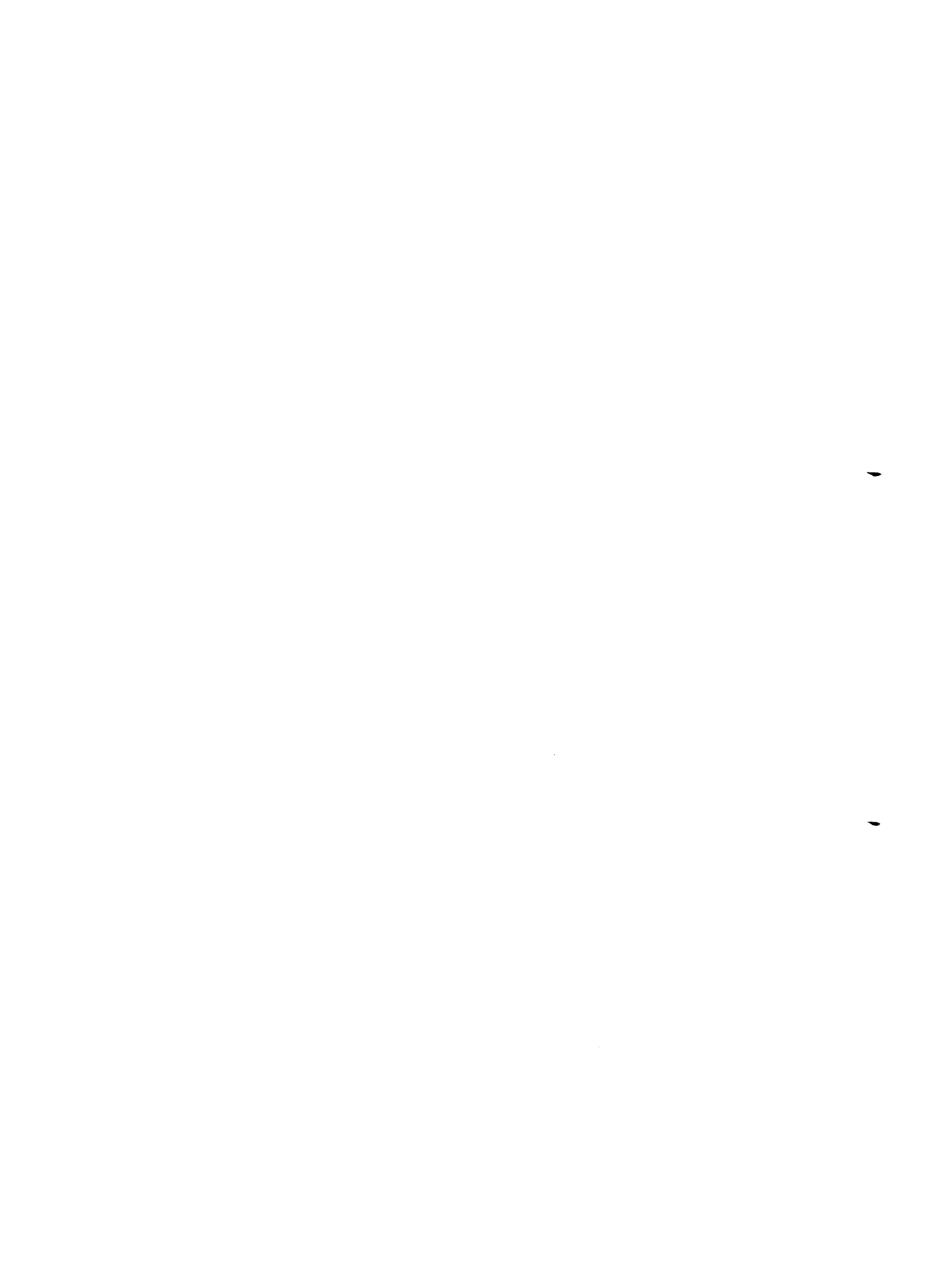
Date & Time of Bid Opening: 05-01-2016 (02:00 pm)

In case of any Holiday or unforeseen situation or incident, the bids shall be issued, submitted & opened on the next working day as per schedule. Place of issuance, submission, inquiries and opening will be at Chairperson Computer System Engineering Department & Procurement Office, Dawood University of Engineering & Technology, Karachi.

Terms & Conditions:

1. Under following conditions Bid will be rejected:
 - i. Conditional and telegraphic bids/tenders
 - ii. Bids not accompanied by bid security & tender fee as mentioned above
 - iii. Bids received after specified date and time
 - iv. Affidavit on Stamp paper of Rs. 100/- that firm has not been black listed in any Government Organization is not provided.
2. The Tender shall be evaluated by Procurement Committee according with terms & Conditions envisaged in tender documents.

Procuring agency reserves the right to reject all or any bids subject to the relevant provision of Sindh Public Procurements Rules 2010(Amended 2013)



Section II. Bid Data Sheet

Notes on the Bid Data Sheet

Section II is intended to assist the Procuring agency in providing the specific information in relation to corresponding clauses in the Instructions to Bidders included in Part one Section I, and has to be prepared for each specific procurement.

The Procuring agency should specify in the Bid Data Sheet information and requirements specific to the circumstances of the Procuring agency, the processing of the procurement, the applicable rules regarding bid price and currency, and the bid evaluation criteria that will apply to the bids. In preparing Section II, the following aspects should be checked:

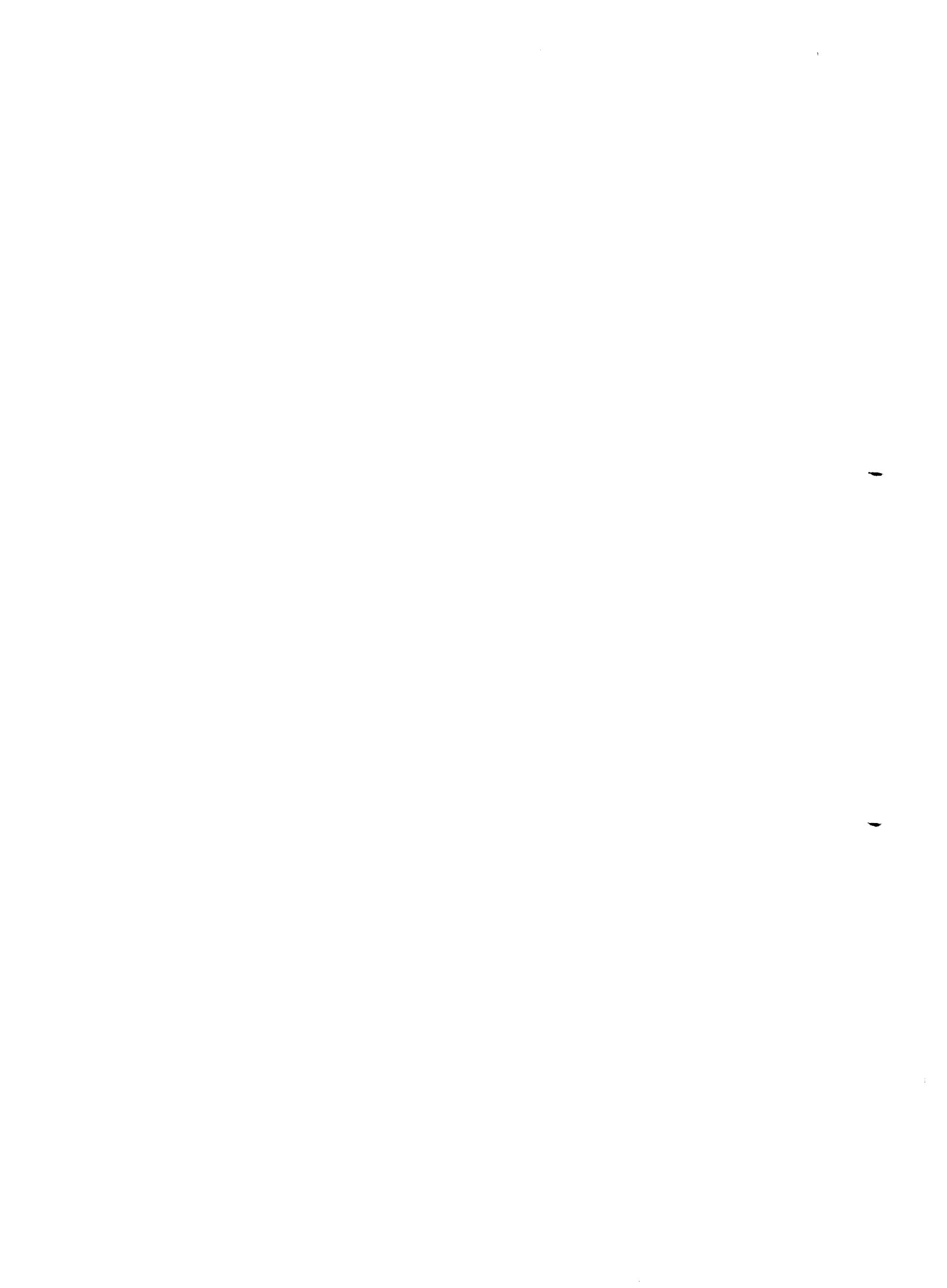
- (a) Information that specifies and complements provisions of Part One Section I must be incorporated.
- (b) Amendments and/or supplements, if any, to provisions of Part One Section I as necessitated by the circumstances of the specific procurement, must also be incorporated.



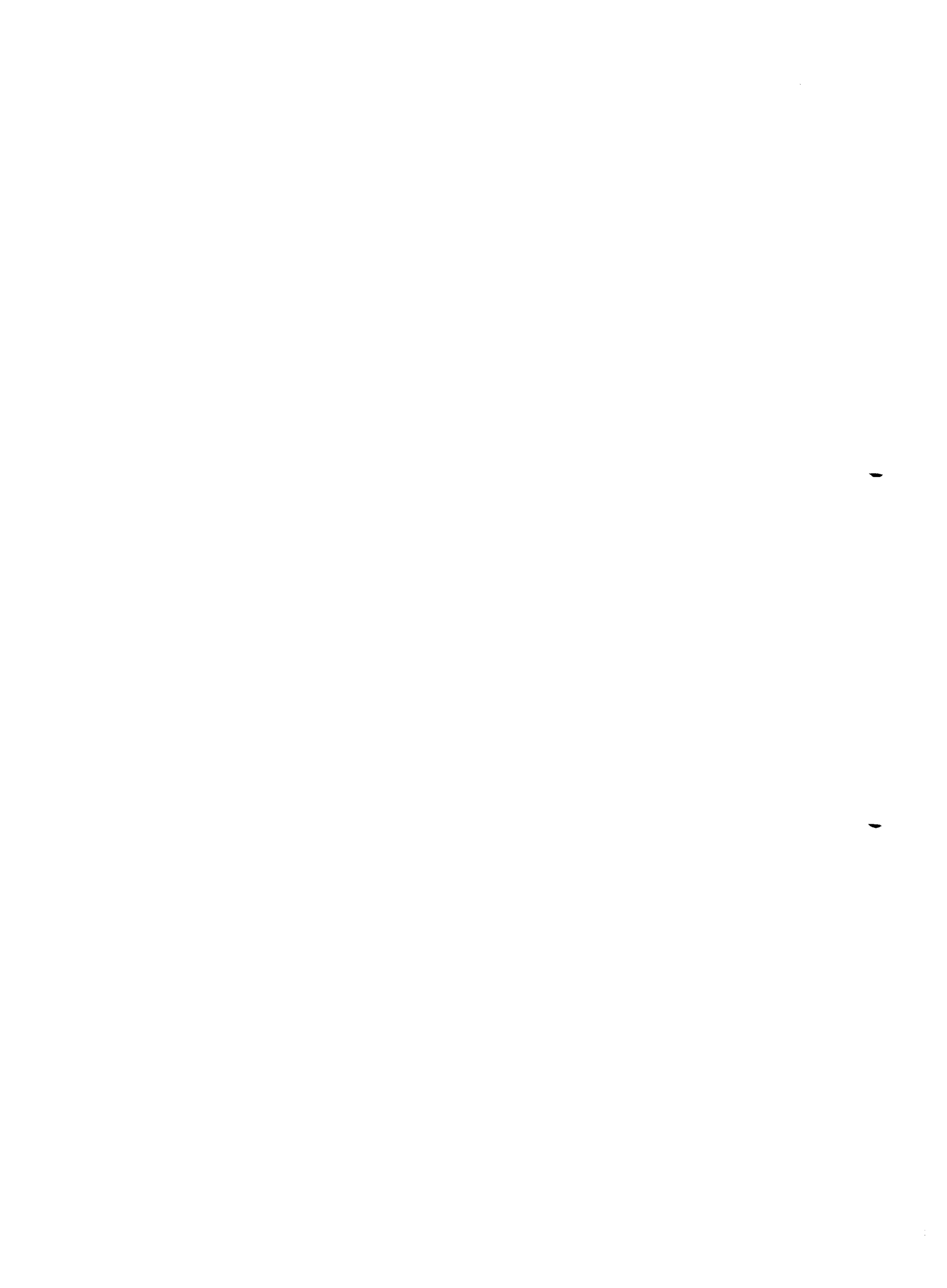
Bid Data Sheet

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB) Part One. Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

Introduction	
ITB 1.1	Dawood University of Engineering & Technology (DUET), Karachi
ITB 1.1	University Own Resources
ITB 1.1	Procurement of Lab Equipment's for Electronics Engineering Dept.
ITB 1.1	Name of Contract. Laboratory Equipment Computer System Engineering Department
ITB 4.1	Dawood University of Engineering & Technology (DUET), Karachi
ITB 6.1	New M.A. JINNAH ROAD, KARACHI-74800 (PAKISTAN) PHONE: 021-99231195-98, 99230307 FAX: 021-99230710
ITB 8.1	Language of the bid. ENGLISH
Bid Price and Currency	
ITB 11.2	The price quoted shall be In Pakistani Currency / PKR
ITB 11.5	The price shall be fixed,
Preparation and Submission of Bids	
ITB 13.3 (d)	Qualification requirements: <ul style="list-style-type: none"> • <i>At least 10 Years (minimum level) of experience is required in Manufacturing/Supplying in similar type of goods/items/Laboratory equipment's</i> • <i>Non Black List Undertaking on Rs. 100 stamp paper.</i> • <i>Valid Income Tax , GST registration Certificate</i> • <i>Manufacturer Authorization Letter</i> • <i>Turnover at least three years 10.000 M</i> • <i>Bank Statement From Jan 2014-Dec 2015</i> • <i>Client List of similar supplies with certificate of satisfactory from concerned organization subject to verify</i> • <i>Required bid security</i> • <i>Each and every page of bidding documents and other must be signed and stamped by the authorized person of the firm along with an authorization letter.</i> • <i>"If a bidder submits bids on behalf of more than one Manufacturer, unless each such bid is accompanied by a separate Bid Form for each bid, and a bid security, when required, for each bid, and authorization from the respective Manufacturer, all such bids will be rejected as nonresponsive.</i>
ITB 14.3 (b)	N/A
ITB 15.1	Amount of bid security: <i>Five percent (5%) of the total bid amount</i>
ITB 16.1	Bid validity period: 90 Days
ITB 17.1	Number of copies: One Original & One Copy
ITB 18.2 (a)	Address for Bid Submission: Dawood University of Engineering & Technology (DUET), Karachi
ITB 18.2 (b)	IFB title : Procurement of Laboratory equipment for COMPUTER



	SYSTEM ENGINEERING DEPT. IFB NO: No: DUET/DF/PO/CSE-EQP/2015-16
ITB 19.1	Deadline for bid submission: 05-01-2016 at 01:00 pm
ITB 22.1	Time, date, and place for bid opening: <i>Vice Chancellor's Secretariat, Dawood University of Engineering & Technology (DUET), Karachi on 05-01-2016 at 02:00pm</i>
Bid Evaluation	
ITB 25.3	Criteria for bid evaluation: To be evaluated on the basis of Technical Evaluation (Evaluation Sheet is Enclosed)
ITB 25.4 (c) (ii)	N/A
ITB 25.4 (d)	Cost of spare parts: N/A
Contract Award	
ITB 29.1	Percentage for quantity increase or decrease. 15% <i>fifteen (15) percent.] under the provision of SPP rules 2010 (amended in 2013)</i>



Section III. Special Conditions of Contract

Notes on the Special Conditions of Contract

Similar to the Bid Data Sheet in Section II, the clauses in this Section are intended to assist the Procuring agency in providing contract-specific information in relation to corresponding clauses in the General Conditions of Contract.

The provisions of Section III complement the General Conditions of Contract included in Part one, Section II, specifying contractual requirements linked to the special circumstances of the Procuring agency, the Procuring agency's country, the sector, and the Goods purchased. In preparing Section III, the following aspects should be checked:

- (a) Information that complements provisions of Part one Section II must be incorporated.
- (b) Amendments and/or supplements to provisions of Part one Section II, as necessitated by the circumstances of the specific purchase, must also be incorporated.

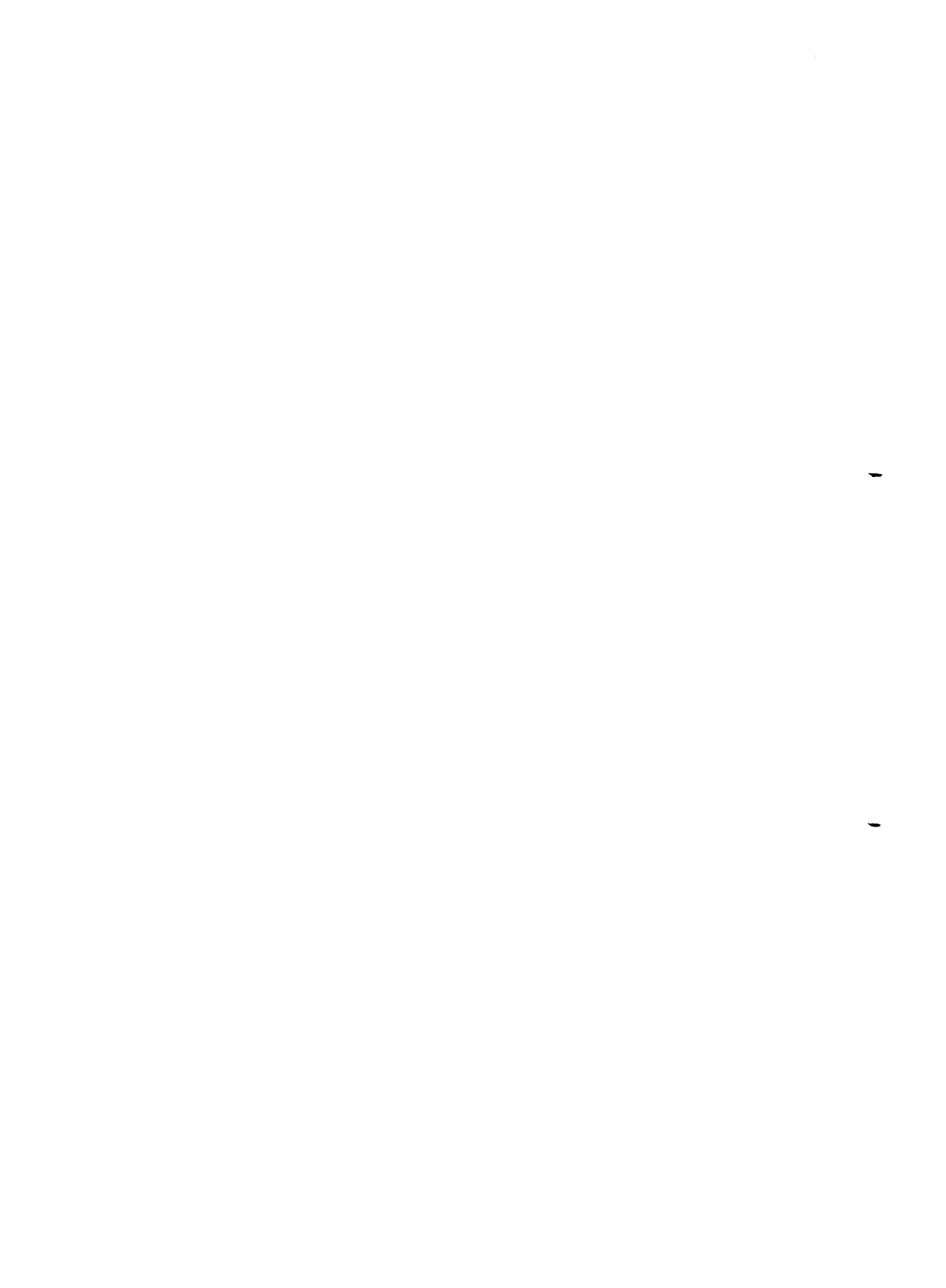
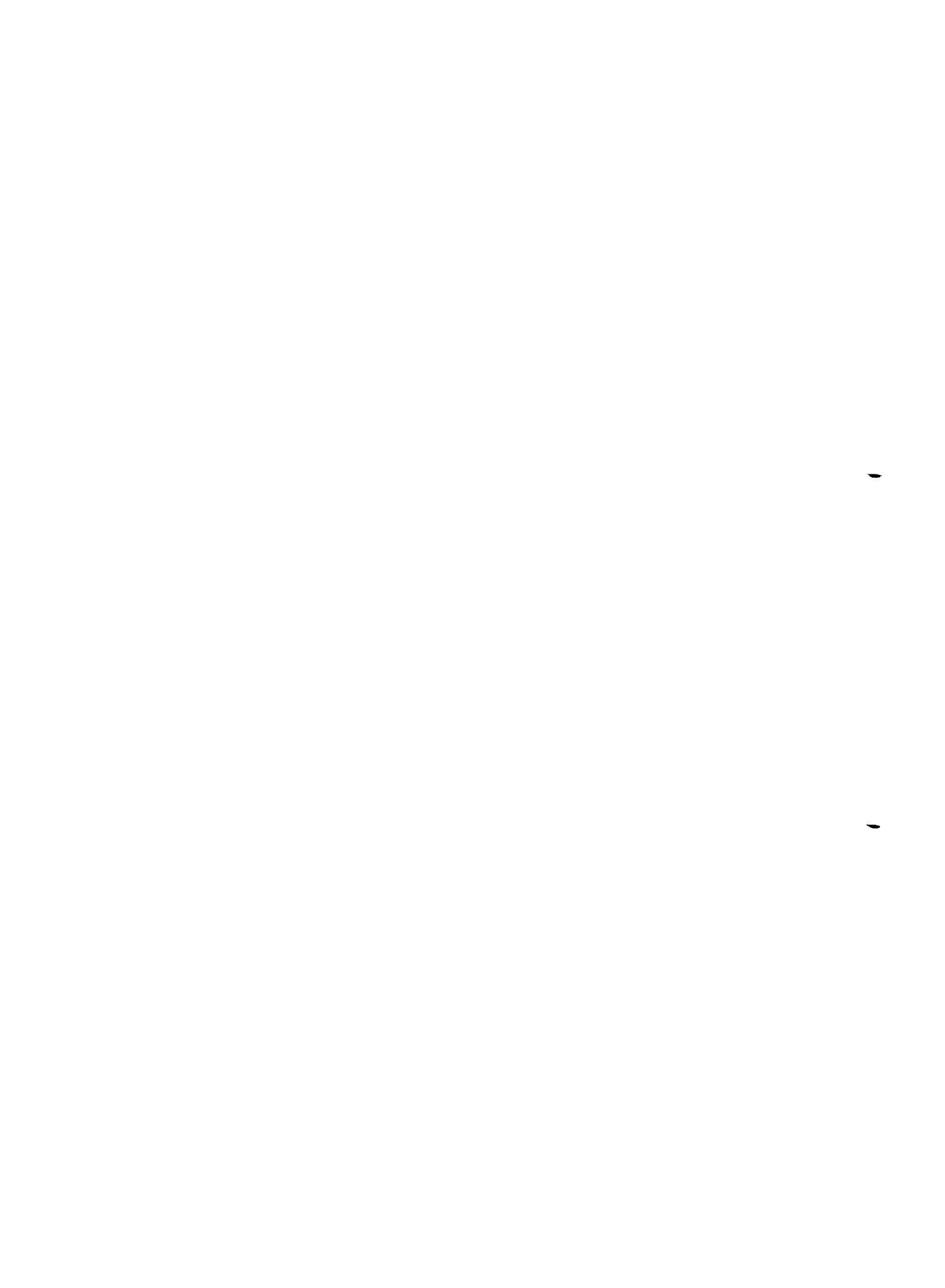


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Special Conditions of Contract

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

1. Definitions (GCC Clause 1)

GCC 1.1 (g)—The Procuring agency is: Dawood University of Engineering & Technology (DUET), Karachi.

GCC 1.1 (h)—The Procuring agency's country is: PAKISTAN

GCC 1.1 (i)—The Supplier is:

Sample Provision

GCC 1.1 (j)—The Project Site is: DUET Main Campus at new M.A Jinnah Road, Karachi

2. Country of Origin (GCC Clause 3)

All countries and territories as indicated in Part Two Section VI of the bidding documents, "Eligibility for the Provisions of Goods, Works, and Services in Government-Financed Procurement".

3. Performance Security (GCC Clause 7)

GCC 7.1—The amount of performance security, as a percentage of the Contract Price, shall be: *(10) percent of the Contract Price*

GCC 7.4—after delivery and acceptance of the Goods, the performance security shall be reduced to five (5) percent of the Contract Price to cover the Supplier's warranty obligations in accordance with Clause GCC 15.2.



4. **Inspections and Tests (GCC Clause 8)**

GCC 8.6—Inspection and tests prior to shipment of Goods and at final acceptance are as follows:

Procuring Agency will nominate the —Technical committee members / Procurement Committee Members / Technical Advisors & Experts for inspections & tests As per Technical Specifications & other technical requirements

5. **Packing (GCC Clause 9)**

As per GCC Clause 9

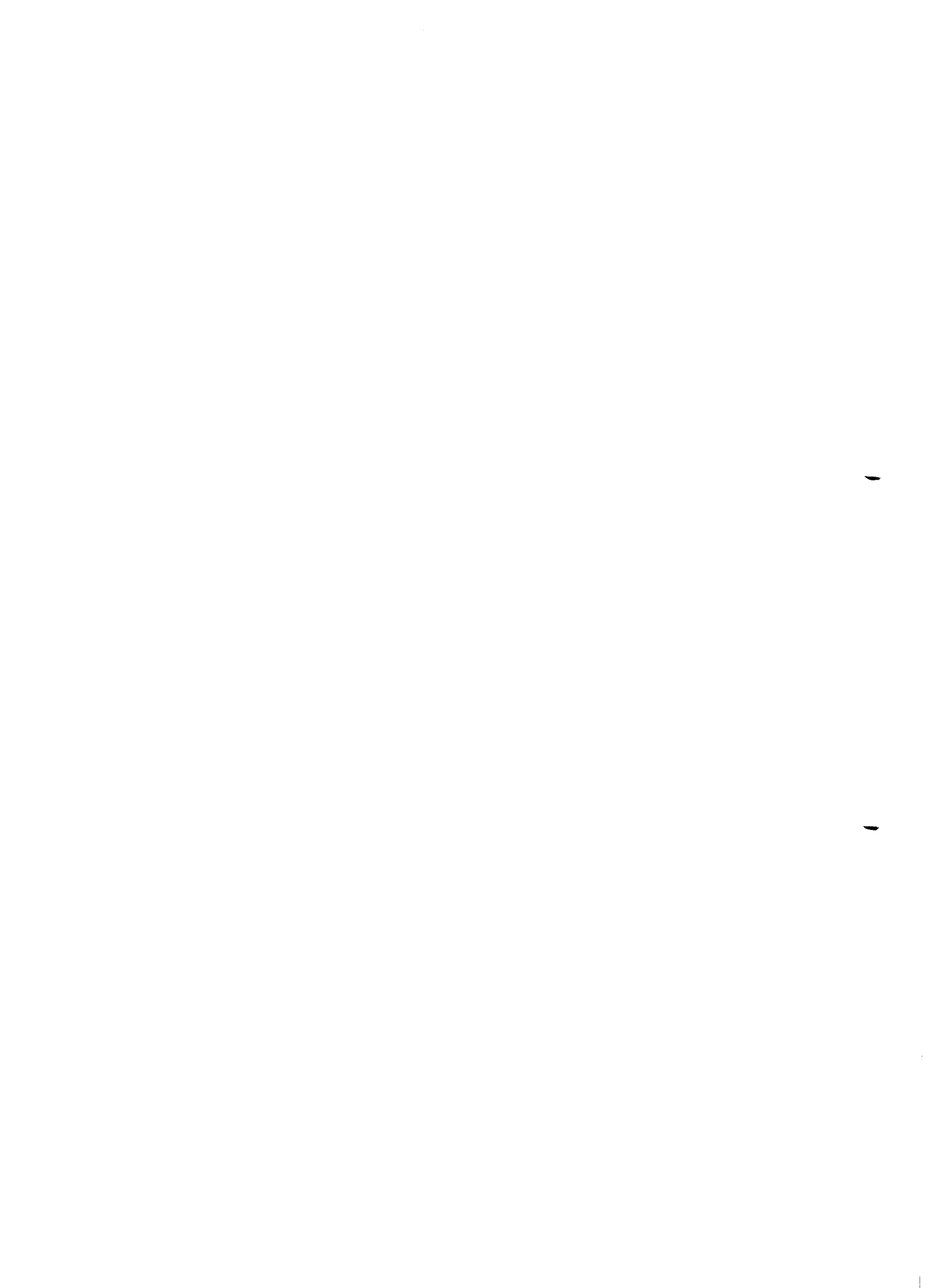
6. **Delivery and Documents (GCC Clause 10)**

GCC 10.3—Upon shipment, the Supplier shall notify the Procuring agency the full details of the shipment, including Contract number, description of Goods, quantity and usual transport document. The Supplier shall mail the following documents to the Procuring agency:

- (i) copies of the Supplier's invoice showing Goods' description, quantity, unit price, and total amount;
- (ii) original and two copies of the usual transport document (for example, a negotiable bill of lading, a non-negotiable sea waybill, an inland waterway document, an air waybill, a railway consignment note, a road consignment note, or a multimodal transport document) which the buyer may require to take the goods;
- (iii) copies of the packing list identifying contents of each package;
- (iv) insurance certificate;
- (v) Manufacturer's or Supplier's warranty certificate;
- (vi) inspection certificate, issued by the nominated inspection agency, and the Supplier's factory inspection report; and
- (vii) certificate of origin.

7. **Insurance (GCC Clause 11)**

GCC 11.1— The Goods supplied under the Contract shall be delivered duty paid (DDP) under which risk is transferred to the buyer after having been delivered, hence insurance coverage is sellers responsibility. Since the Insurance is seller's responsibility **Seller may arrange appropriate coverage.**



8. Incidental Services (GCC Clause 13)

GCC 13.1—Incidental services to be provided are:

Such as free of cost installation, commissioning, provision of technical assistance, training for procuring agency personnel's, and other such obligations of the Supplier covered under the Contract. Details as under:

- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) training of the Procuring agency's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

9. Spare Parts (GCC Clause 14)

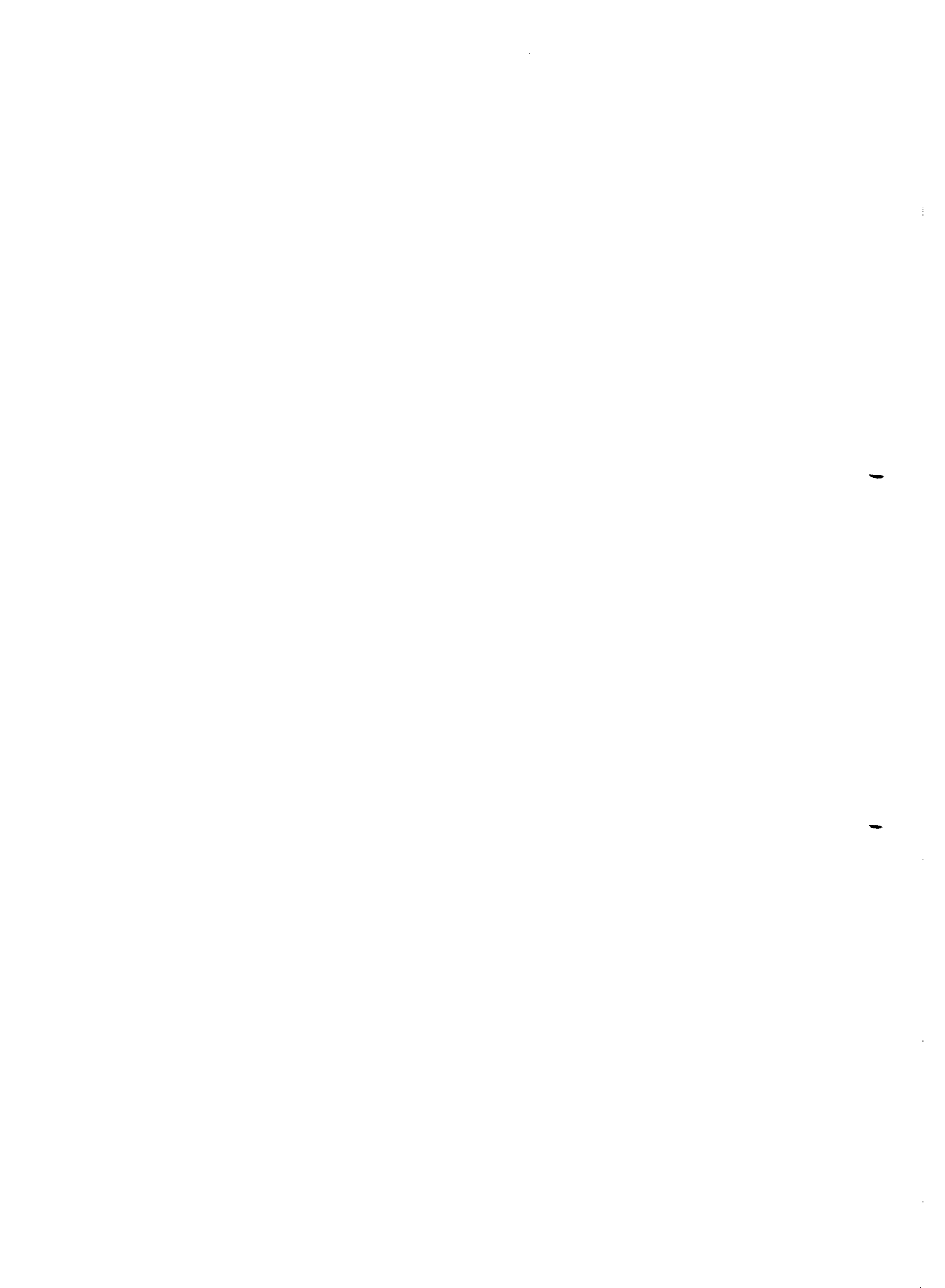
GCC 14.1—Additional spare parts requirements are: N/A

10. Warranty (GCC Clause 15)***Sample provision***

GCC 15.2—In partial modification of the provisions, the warranty period shall be 12 months from date of acceptance of the Goods or 18 months from the date of shipment, whichever occurs earlier. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the Contract. If, for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall, at its discretion, either:

- (a) make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests in accordance with SCC 4,

GCC 15.4 & 15.5—The period for correction of defects in the warranty period is: 45 Days



11. Payment (GCC Clause 16)

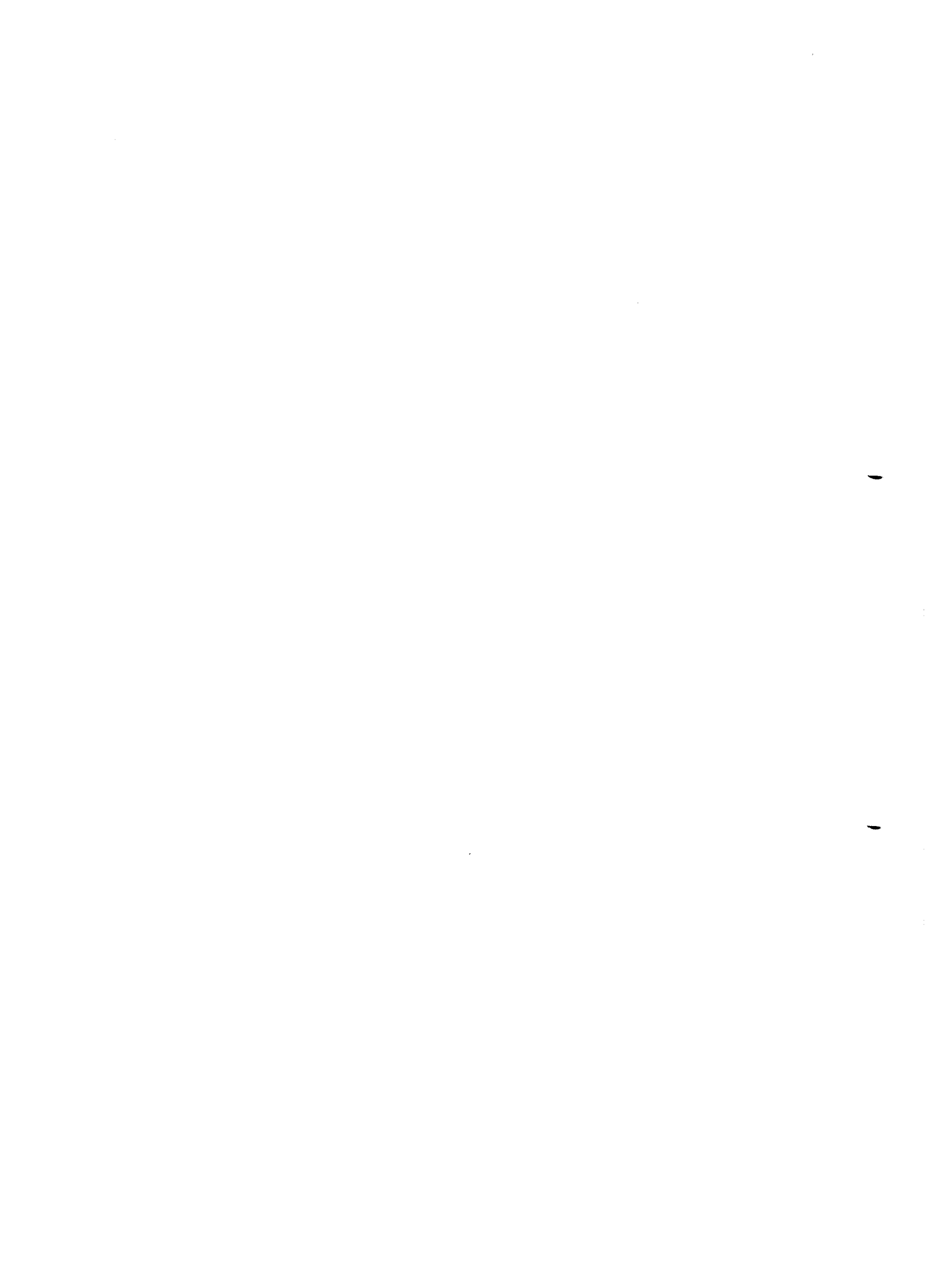
GCC 16.1—The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:

Payment Terms for Goods supplied:

On opening of Letter of Credit (LC) against bank guarantee which shall be confirmed/provided by the authorized manufacturer / Supplier thru its own bank to the bank confirmed by the Procuring Agency against assured amount of Letter of Credit with following conditions

- a. LC on Sight
- b. LC for 60 Days

Procuring Agency and Supplier will decide on mutual acceptance of above.



12. Prices (GCC Clause 17)

As per GCC Clause 17

13. Liquidated Damages (GCC Clause 23)

GCC 23.1—Applicable rate:

Maximum deduction:

(0.5) percent per week and the maximum shall not exceed ten

(10) percent of the Contract Price.]

14. Resolution of Disputes (GCC Clause 28)

GCC 28.3—The dispute resolution mechanism to be applied pursuant to GCC Clause 28.2 shall be as follows:

In the case of a dispute between the Procuring agency and the Supplier, the dispute shall be referred to adjudication or arbitration in accordance with the laws of the Procuring agency's country under the provisions of SPPRA Rules 2010 (amended 2013) of the Rule 31, 32, 33 & 34.

15. Governing Language (GCC Clause 29)

GCC 29.1—The Governing Language shall be: English

16. Applicable Law (GCC Clause 30)

GCC 30.1-The Contract shall be interpreted in accordance with the laws of Islamic Republic of Pakistan which includes the following legislation:

The Employment of Children (ECA) Act 1991

The Bonded Labour System (Abolition) Act of 1992

The Factories Act 1934

THE SINDH PUBLIC PROCUREMENT ACT, 2009

SINDH ACT NO: IV OF 2009

17. Notices (GCC Clause 31)

GCC 31.1—Procuring agency's address for notice purposes:

DAWOOD UNIVERSITY OF ENGINEERING & TECHNOLOGY (DUET),

New M.A. JINNAH ROAD, KARACHI-74800 (PAKISTAN)

—Supplier's address for notice purposes:



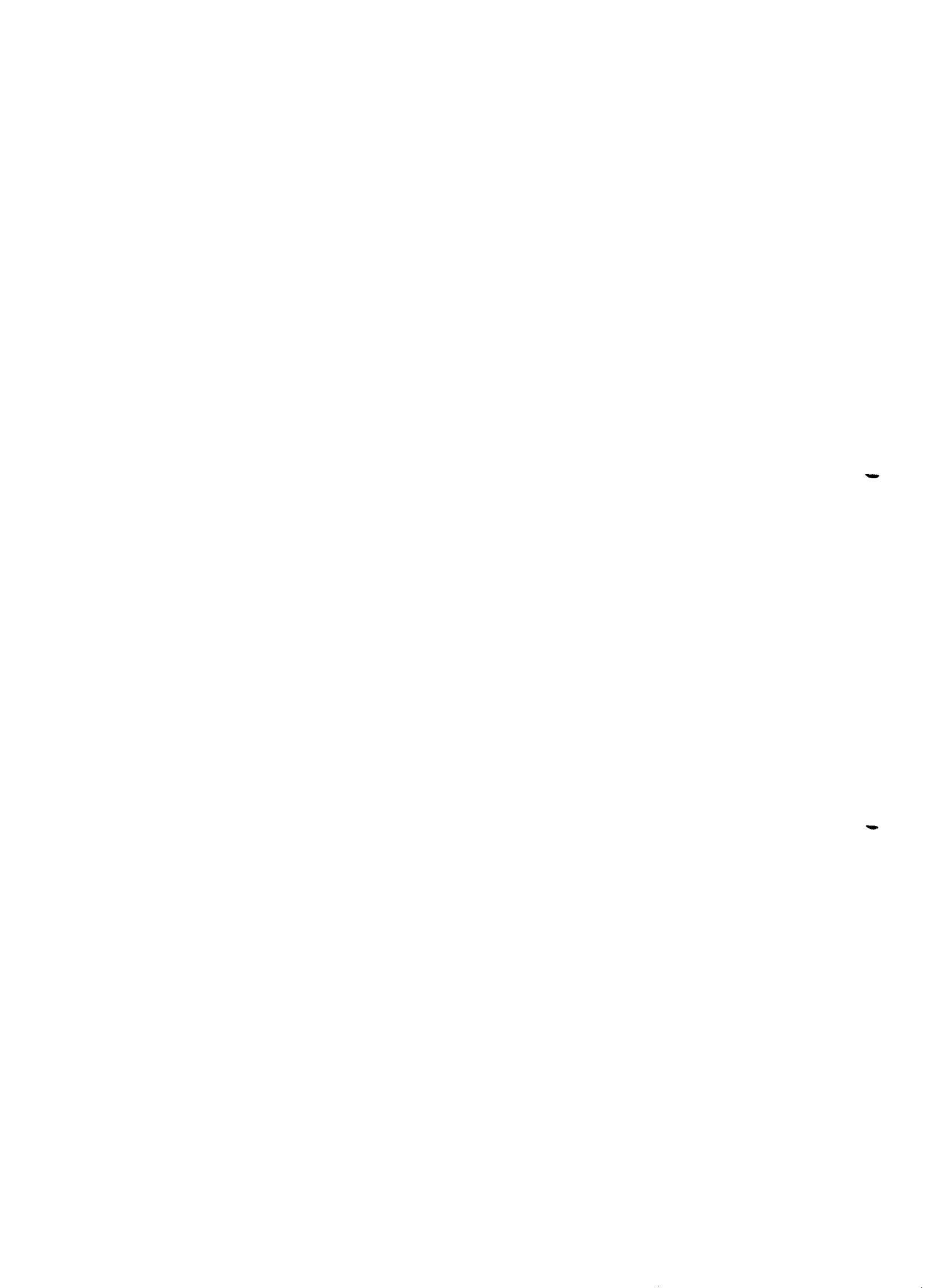
Section IV. Schedule of Requirements

Notes for Preparing the Schedule of Requirements

The Schedule of Requirements shall be included in the bidding documents by the Procuring agency, and shall cover, at a minimum, a description of the goods and services to be supplied and the delivery schedule.

The objective of the Schedule of Requirements is to provide sufficient information to enable bidders to prepare their bids efficiently and accurately, in particular, the Price Schedule, for which a form is provided in Section VI. In addition, the Schedule of Requirements, together with the Price Schedule, should serve as a basis in the event of quantity variation at the time of award of contract pursuant to ITB Clause 29.

The date or period for delivery should be carefully specified, taking the date prescribed herein from which the Procuring agency's delivery obligations start (i.e., notice of award, contract signature, opening or confirmation of the letter of credit).



Schedule of Requirements

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery required.

S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
DLD LAB						
01	<p>OSCILLOSCOPES GDS-2202A – 200 MHz</p> <p>FEATURES</p> <ul style="list-style-type: none"> • 200MHz Bandwidth with 2 input channel • 2GSa/s maximum real time sampling rate and 100 Gsa/s equivalent time sampling rate • 2M points Maximum Record Length • VPO Technology to Display less frequently occurred signals. • Fast upload rate of 80,000 wave form per second. • 8 inch 800*600 High Resolution TFT LCD Display • Built-in Segmented Memory and Waveform Search Functions to Optimize the Efficiency of Record Length • Zoom Window and Play/Pause can Rapidly Navigate the Waveforms • 36 Automatic Measurement Functions Offers Various Measurement Selections • Optional 8 or 16 digital channel with Logic analyser (MSO) • Optional Function Generator • Flexible Remote Control Connectivity(Standard:USB ;Option:LAN/GPIB) • Upgradable CAN/LIN bus analysis ,Advanced Logic ,Data log ,DVM and H-expansion functionalities <p>SPECIFICATIONS</p> <p>Wave form Technology</p> <ul style="list-style-type: none"> • VPO (Visual Persistence Oscilloscope) <p>Bandwidth (MHz): 200MHz</p> <ul style="list-style-type: none"> • Display: 8" TFT LCD SVGA • Number of Channel: 2 • Power Source: AC 100V ~ 240V 	<p>Equipment is required for the course of Digital and sequential logic design, circuit analysis and basic electronics</p>	10			45 Days

1

2

S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<ul style="list-style-type: none"> • Interface: USB Host/Device, RS-232, GPIB, (Opt.), Lan(Opt.) • Memory Depth: Max. 2Mpts • Sample Rate: 2GSa/s/(RTS), 100 Gsa/s (ETS) • Vertical Resolution: 8 bit • Vertical Sensitivity: 1mV.div ~ 10V/div • Time Base Range: 1ns/div ~ 100s/div • Input Impedance Selection: 1MΩ • Auto Measurement: 36 • Wave form memory: 24 • Panel Setup: 20 <p style="text-align: center;">OR AT LEAST EQUIVALENT</p>					
02	<p>Power Supplies GW-Instek GPSx303 Series</p> <p>GPS-3303</p> <p>Features.</p> <ul style="list-style-type: none"> • 4 Independent Isolated Output • Four "3 Digits" LED Displays • 0.01% Load and Line Regulation • Low Ripple and Noise • Tracking Operation and Auto Series/Parallel Operation • Output ON/OFF Switch • Output Voltage and Current Setting When Output Disable • Fan Speed Control Circuit to Minimize Fan Noise • Over Load and Reverse Polarity Protection • Optional European Jack Type Terminal <p>Specification</p> <p>DC Output(CH1,2), CH 3</p> <ul style="list-style-type: none"> • Voltage 0~30 V, 5V Fix • Current 0~3A, 3A Max • Tracking Series Voltage 0~60V • Tracking Parallel Current 0~6A <p>Constant Voltage Operation CH1,CH2</p>		10			45 Days

2
1
2
1
2

2

2

S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<ul style="list-style-type: none"> GPIO includes 8 LED, 6 button, & 8 slide switches <p>The Spartan-6 LX45 is optimized for high performance logic and offers:</p> <ul style="list-style-type: none"> 6,822 slices each containing four 6-input LUTs and eight flip-flops 2.1 Mbits of fast block RAM 4 clock tiles (8 DCMs & 4 PLLs) 6 phased-locked loops 58 DSP slices 500 MHz + clock speed <p>OR AT LEAST EQUIVALENT</p>					
04	<p>Modular Robotic Tool Kit (Lego mindstrom kit NXT)</p> <p>The "NXT" generation of buildable, programmable robots is here!</p> <p>LEGO® MINDSTORMS® NXT is back and better than ever, with new robot models, even more customizable programming, and all-new technology including a color sensor! MINDSTORMS NXT 2.0 combines the unlimited versatility of the LEGO building system with an intelligent microcomputer brick and intuitive drag-and-drop programming software. The new 2.0 toolkit features everything you need to create your first robot in 30 minutes and then tens of thousands of other robotic inventions that do what you want! Key elements and features:</p> <p>The intelligent NXT LEGO brick features 32-bit microprocessor, a large matrix display, 4 input and 3 output ports, and Bluetooth and USB communication link. Three interactive servo motors. Four sensors: Ultrasonic Sensor, 2 Touch Sensors and the all-new Color Sensor. Color Sensor has triple functionality: distinguishes colors and light settings, and functions as a lamp. Easy-to-use software (PC and Mac) with icon-based drag-and-drop programming and 16 fun building and programming challenges.</p> <p>All the LEGO® elements (612 pcs) you need for creating incredible robots.</p> <p>OR AT LEAST EQUIVALENT</p>	<p>The Kit is required to Demonstrate the functions of Robot and AI. This requires for the course of Robotics and AI</p>	5			45 Days

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S#	Description	Justification	Qty.	Unit Price (S.)	Total Price (S.)	Delivery Schedule after opening of LC
	<ul style="list-style-type: none"> • Line Regulation $\leq 0.01\% + 3mV$ • Load Regulation $\leq 0.01\% + 3mV$ (rating current $\leq 3A$) $\leq 0.02\% + 5mV$ (rating current $> 3A$) • Ripple & Noise $\leq 1mV_{rms}$ 5Hz ~ 1MHz • Recovery Time $\leq 100\mu S$ (50% Load change, Minimum load 0.5A) <p>Constant Current Operation (CH1, CH2)</p> <ul style="list-style-type: none"> • Line Regulation $\leq 0.2\% + 3mA$ • Load Regulation $\leq 0.2\% + 3mA$ • Ripple Current $\leq 3mA_{rms}$ <p>Tracking Operation (CH1, CH2)</p> <ul style="list-style-type: none"> • Tracking Error $\leq 0.5\% + 10mV$ of CH1 • Series Regulation $\leq 0.01\% + 5mV$ • Load Regulation $\leq 300mV$ • Ripple & Noise $\leq 2mV_{rms}$, 5Hz ~ 1MHz <p>CH3 Operation (For GPS-3303)</p> <ul style="list-style-type: none"> • CH3 Voltage 2.2V ~ 5.2V • Line Regulation $\leq 5mV$ • Load Regulation $\leq 15mV$ • Ripple & Noise $\leq 2mV_{rms}$ 5Hz ~ 1MHz • Current Output 1A <p>Meter</p> <ul style="list-style-type: none"> • Digital 3 Digits 0.5" LED Display • Accuracy GPS-4303/3303 Out ON Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$, GPS-4303/3303 Out OFF Accuracy $\pm (0.5\% \text{ of rdg} + 8 \text{ digits})$, GPS-2303 Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$ <p>Insulation</p> <ul style="list-style-type: none"> • Chassis and Terminal $\geq DC 500V / 20M\Omega$ • Chassis and AC Cord $\geq DC 500V / 30M\Omega$ <p>Power Source AC 100V/120V/220V $\pm 10\%$, 230V(+10% ~ -6%), 50/60Hz</p> <p>Dimension and Weight 255(W) x 145(H) x 265(D)mm, Approx. 7kg</p>					

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	OR AT LEAST EQUIVALENT					
03	<p>Function Generator</p> <p>Arbitrary Function Generator AFG-2112</p> <p>Features</p> <ul style="list-style-type: none"> • 0.1Hz to 5/12/25 MHz with in 0.1Hz Resolution • Sine, Square, Triangular, Noise and Arbitrary Waveform • 20MSa/s Sampling Rate, 10 bit Vertical Resolution and 4k Point Memory for Arbitrary Waveform • 1% ~ 99% adjustable duty cycle for Square Waveform • Waveform Parameter Setting Through Numeric Keypad Entry & Knob Selection • Amplitude, DC Offset and Other Key Setting Information Shown on the 3.5" LCD Screen Simultaneously • AM/FM/FSK Modulation, Sweep, and Frequency Counter Functions (AFG-2100 only) • USB Device Interface for Remote Control and Waveform Editing • PC Arbitrary Waveform Editing Software <p>Specifications</p> <p>Main</p> <ul style="list-style-type: none"> • Frequency SFG-2110 : 0.1Hz ~ 10MHz • Frequency Range (Triangle) 0.1Hz~1MHz • Frequency Resolution. 0.1Hz • Frequency Stability. ± 20 ppm • Frequency Accuracy. ± 20 ppm • Aging ± 5 ppm /year. • Output Function. Sine, Square, Triangle • Amplitude Range 2mV~10Vpp(50Ω Load) • Impedance 50$\Omega$$\pm$10% • Attenuator -20dB\pm1dB\times2 • DC Offset <-5V~>+5V(50Ω Load) • Duty Cycle 20% to 80%, 2Hz~1MHz (Only Square) • Range Resolution 1% • Display 9 位 LED display <p>Sine Wave</p> <ul style="list-style-type: none"> • Harmonics Distortion - 55dBc,0.1Hz ~ 200kHz; - 	Equipment is required for the course of Digital and sequential logic design, circuit analysis and basic electronics	10			45 Days

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<p>40dBc,0.2MHz ~ 4MHz; -</p> <p>30dBc,4MHz ~ 10MHz, (Specification applied to both TTL/CMOS OFF and from MAX. to 1/10 level)</p> <ul style="list-style-type: none"> Flatness (Relative to 1 kHz). $< \pm 0.3\text{dB}, 0.1\text{Hz} \sim 1\text{MHz}; < \pm 0.5\text{dB}, 1\text{MHz} \sim 4\text{MHz}; < \pm 2\text{dB}, 4\text{MHz} \sim 10\text{MHz}$ <p>Tringle Wave</p> <ul style="list-style-type: none"> Linearity $\geq 98\%, 0.1\text{Hz} \sim 100\text{kHz}; \geq 95\%, 100\text{kHz} \sim 1\text{MHz}$ <p>Square Wave</p> <ul style="list-style-type: none"> Symmetry $\pm 1\%$ of period +4ns to 0.1Hz ~ 100kHz Rise or Fall Time $\leq 25\text{ns}$ at maximum output.(into 50 load) <p>CMOS Output</p> <ul style="list-style-type: none"> Level $4\text{Vpp} \pm 1\text{Vpp} \sim 15\text{Vpp} \pm 1\text{Vpp}$ adjustable; Rise or Fall Time $\leq 120\text{ns}$ <p>TTL Output</p> <ul style="list-style-type: none"> Level $\geq 3\text{Vpp}$; Fan out; 20 TTL Load ;Rise and Fall Time $\leq 25\text{ns}$ <p>Sweep operation</p> <ul style="list-style-type: none"> Rate 100:1 ratio max. and adjustable (In order to get the maximum sweep span, the sweep time needs to be tuned on when adjusting the sweep span.) Time 1Sec ~ 30Sec adjustable (When the sweep time is too long, the stop frequency will reach and stay at the maximum frequency of the instrument until the end of the sweep cycle.) Mode Lin./Log. switch selector <p>Amplitude Modulation</p> <ul style="list-style-type: none"> Depth & Modulation Frequency 0 ~ 100% ; 400Hz(INT), DC ~ 1MHz(EXT) Carrier BW 100Hz ~ 5MHz(-3dB) EXT Modulation Sensitivity $\leq 10\text{Vpp}$ 100% modulation <p>Frequency Modulation</p> <ul style="list-style-type: none"> Deviation & Modulation Frequency 0 ~ $\pm 50\text{kHz}$, center at 1MHz, 400Hz fixed(INT), 1kHz fixed(EXT) 					

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<ul style="list-style-type: none"> EXT Modulation Sensitivity $\leq 10V_{pp}$ 在 10% modulation (center at 1MHz) <p>Frequency Counter</p> <ul style="list-style-type: none"> Range 5Hz ~ 150MHz Accuracy Time base accuracy ± 1位 Time base $\pm 20ppm(23^{\circ}C \pm 5^{\circ}C)$ after 30 minutes warm up後 Input Impedance $1M\Omega/150pf$ Sensitivity $\leq 35mV_{rms}$ (5Hz~100MHz), $\leq 45mV_{rms}$ (100MHz~150MHz) <p>Store/ Recall Function</p> <ul style="list-style-type: none"> 10 groups of panel settings <p>Power Source</p> <ul style="list-style-type: none"> AC115V$\pm 10\%$, AC 230V+10%/-15%, 50/60Hz <p>Accessories</p> <ul style="list-style-type: none"> User Manual$\times 1$ Power Cord x 1 GTL-101 x 1(SFG-2000 Series) GTL-101$\times 2$ (SFG-2110) <p>Dimension</p> <ul style="list-style-type: none"> 266(W)\times107(H)\times293(D)mm, Approx 3.2 Kg <p>OR AT LEAST EQUIVALENT</p>					
04	<p>DLD Trainer KIT</p> <p>KL-300 Digital Logic Lab</p> <p>Features</p> <ul style="list-style-type: none"> Suitable for combination logic, sequential logic and microprocessor circuits design and experiments Ideal tool for learning the basics of digital logic circuits Comprehensive power, signal supply and testing devices for convenient experiments Experiments are expandable and flexible with universal breadboard Capable of processing TTL, CMOS, NMOS, PMOS and ECL circuits All supply units are equipped with overload 	<p>The Kit is required for the courses of Digital and Sequential Logic the Kit explain the working of TTL, CMOS and other Logic Circuits</p>	5			45 Days

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<p>protection for safety purpose</p> <ul style="list-style-type: none"> All modules equipped with 8-bit DIP switch for fault simulations Individual keeping cases for all modules for easy storing and carrying All signal generators have independent and simultaneous TTL and CMOS level output terminal. <p>Specifications</p> <p>Main Unit (KL-31001)</p> <p>Dual Dc Power Supply</p> <ul style="list-style-type: none"> Voltage Range: +5v, 1.5A: -5V, 0.3A, +12V, 03.A With output overload protection <p>Adjustable DC Power Supply</p> <ul style="list-style-type: none"> Voltage range: +1.5V~+15V Maximum Current output: 0.5A With output overload protection <p>Standard Frequency</p> <ul style="list-style-type: none"> Frequency: 1MHz, 60Hz, 1Hz Accuracy: ±0.1% (1MHz) Fan out: 10 TTL <p>Clock Signal Generator</p> <ul style="list-style-type: none"> Frequency: 1Hz-1MHz (6ranges) <p>A. 1Hz~10Hz, B. 10Hz~100Hz, C. 100Hz~1KHz, D. 1KHz~10KHz, E. 10KHz~100KHz, F. 100KHz~1MHz</p> <p>Fan Out</p> <ul style="list-style-type: none"> 10TTL load <p>Data Switch</p> <ul style="list-style-type: none"> 8-bit DIP switchx2, 16-bit TTL level output Toggle switchx4 each with DEBOUNCE circuit Fan out: 10 TTL load <p>Pulser Switch</p> <ul style="list-style-type: none"> 2 sets of independent control output Each set with Q, Q output, pulse width >5ms Each set of switch with DEBOUNCE circuit 					

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<ul style="list-style-type: none"> • Fan out: 10 TTL load <p>Line Signal Generator</p> <ul style="list-style-type: none"> • Frequency: 50/60 Hz • Output voltage: 6Vrms • With overload protection <p>Thumbwheel switch</p> <ul style="list-style-type: none"> • 2-digit, BCD code output and common point input <p>Logic Indicator</p> <ul style="list-style-type: none"> • 16 sets of independent 7 segment LED display • With BCD 7-segment decoder/driver and DP input • Input with 8-4-2-1 code <p>Logic Probe</p> <ul style="list-style-type: none"> • TTL and CMOS level • 5mm LED displays • "Lo" and "Hi" LED display and low and high logic state respectively <p>Speaker</p> <ul style="list-style-type: none"> • One 8Ω, 0.25W speaker with driver circuit <p>Breadboard Modules (AC-90001)</p> <ul style="list-style-type: none"> • 1680 tie-point breadboard on top panel can be easily put into and taken off. <p>Included All Modules</p> <p style="text-align: center;">OR AT LEAST EQUIVALENT</p>					
MICROPROCESSOR/ AI and Robotics LAB						
01	<p>Microprocessor Trainer</p> <p>16Bit Processor 8086 Bard</p> <p>Specifications:</p> <ul style="list-style-type: none"> • Example software disk: 1 set • RS-232C Cable: 1ea • User Manual: 1 book • <p style="text-align: center;">OR AT LEAST EQUIVALENT</p>		8			45 Days

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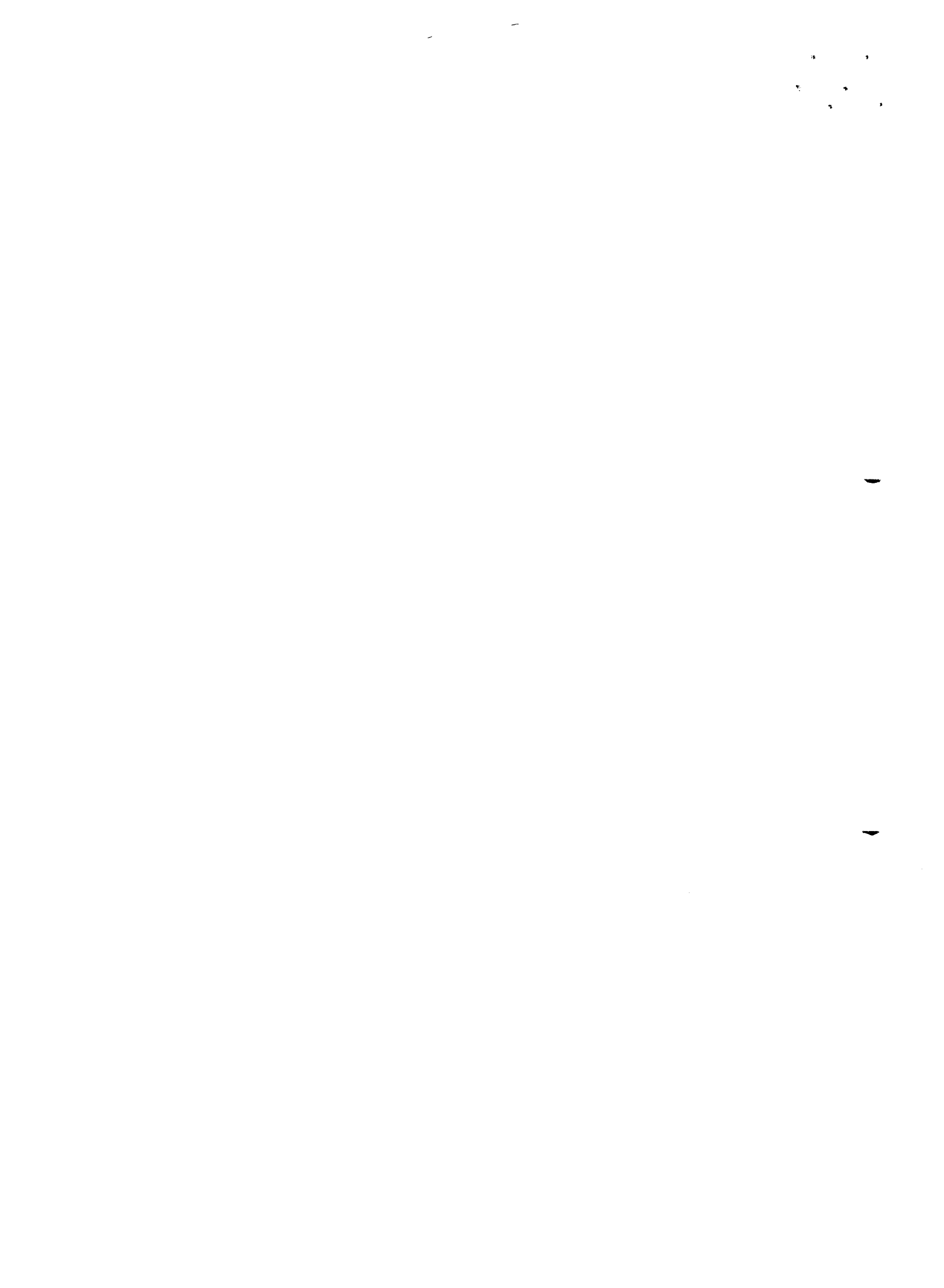
S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
02	<p>DSP Board</p> <p>Manufacture Part# TMS320C6416TBCLZ1</p> <p>Texas instruments</p> <p>DSP fixed-point 3-Bit 1GHz 8000MIPS 532-pin FC/CSP</p> <ul style="list-style-type: none"> • Embedded JTAG support via USB • High quality 24-Bit Stereo code • Four 3.5mm audio jacks for microphone, line in, speaker and line out • 512 words of flash and 16 MB SDRAM • Expansion port connector for plug-in modules • On-board standard IEEE JTAG interface • +5V universal power supply <p>A complete integrated development environment (IDE), an efficient optimizing C/C++ compiler assembler, linker, debugger, data visualization, a profiler, advanced optimization tools and a flexible project manager</p> <ul style="list-style-type: none"> • DSP/BIOS™ real-time kernel • Target error recovery software • DSK diagnostic tool • Plug-in ability for third party software for additional functionality <p>OR AT LEAST EQUIVALENT</p>		8			45 Days
03	<p>NEXYS™ Artix-7 FPGA Board</p> <p>Features KIT INCLUDES</p> <ul style="list-style-type: none"> • Xilinx Spartan-6 LX45 FPGA,324-Pin BGA package • 128 Mbyte DDR 16 bit wide data • 10/100/1000 Ethernet by PHY • On-board USB2 ports for programming and data transfer • USB-UART and USB-HID port (for mouse/keyboard) • Two HDMI Video input ports and two HDMI output ports • AC-97 codec with line-in, line-out, mic & headphone • Real time power monitor on all power rails • 16Mbyt x4 SPI flash for configuration and data storage • 100MHz CMOS oscillator • 48 I/O routed to expansion connectors 	<p>The Kit is required to demonstrate the machine interfacing with computer it helpful in the courses of MBSD, DSP and Robotics</p>	5			45 Days

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
Department Office Equipment						
01	<p>HP LaserJet Pro 400 Printer M401dn(CF278A)</p> <p>Print speed black:</p> <p>Normal: Up to 33 ppm <i>(Measured using ISO/IEC 24734, excludes first set of test documents. For. Exact speed varies depending on the system configuration, software application, driver, and document complexity.)</i></p> <p>First page out (ready)</p> <p>Black: As fast as 8 sec <i>(Exact speed varies depending on the system configuration, software application, driver and document complexity.)</i></p> <p>Print quality black (best)</p> <ul style="list-style-type: none"> • Up to 1200 x 1200 dpi <p>Duty cycle (monthly, A4)</p> <p>Up to 50,000 pages <i>(Duty cycle is defined as the maximum number of pages per month of imaged output. This value provides a comparison of product robustness in relation to other HP LaserJet or HP Color LaserJet devices, and enables appropriate deployment of printers and MFPs to satisfy the demands of connected individuals or groups.)</i></p> <p>Recommended monthly page volume</p> <p>750 to 3000 pages <i>(HP recommends that the number of printed pages per month be within the stated range for optimum device performance, based on factors including supplies replacement intervals and device life over an extended warranty period.)</i></p> <p>Print technology</p> <ul style="list-style-type: none"> • Laser <p>Print languages</p> <p>HP PCL 5e, HP PCL 6, HP Postscript Level 3 emulation, direct PDF (v 1.7) printing</p>	<p>Printer is Required for the office purpose day. It also requires for the office staff and faculty to print out the office documents</p>	6			45 Days



S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<p>Display</p> <ul style="list-style-type: none"> 8.89 cm touchscreen control panel, CGD (Colour Graphic Display) <p>Replacement cartridges</p> <ul style="list-style-type: none"> HP 80A Black LaserJet Toner Cartridge (~2700 pages), CF280A HP 80X Black LaserJet Toner Cartridge (~6900 pages), CF280X <p>Connectivity, standard</p> <ul style="list-style-type: none"> 1 Hi-Speed USB 2.0 1 Host USB 1 Ethernet 10/100/1000T network 1 Walk-up USB <p>Network ready</p> <p>Standard (built-in Gigabit Ethernet)</p> <p>Minimum system requirements</p> <ul style="list-style-type: none"> Windows 10 (32-bit/64-bit) Windows 8 (32-bit/64-bit), Windows 7 (32-bit/64-bit), Windows Vista (32-bit/64-bit): 1 GHz 32-bit (x86) or 64-bit (x64) processor, 1 GB RAM (32-bit) or 2 GB RAM (64-bit), 400 MB available hard disk space, CD-ROM/DVD-ROM or Internet, USB or network port Mac OS X v10.5, v10.6, v10.7 PowerPC G4, G5, or Intel® Core™ Processor 500 MB hard disk CD-ROM/DVD-ROM or Internet USB or Network <p>Compatible operating systems</p> <p>Full software installs supported on: Windows 10 (32-bit/64-bit), Windows 8 (32-bit/64-bit), Windows 7 (32-bit and 64-bit), Windows Vista (32-bit/64-bit)</p> <p>Driver only installs supported on: Windows Server 2008 (32-bit/64-bit), Windows Server 2003 (32-bit) (SP3 or higher)</p> <p>Mac OS X v10.5, v10.6, v10.7</p> <p>Linpus Linux : 9.4, 9.5</p> <p>Red Hat Enterprise Linux: 5.0, 6.0</p> <p>OpenSuSE: 11.3, 11.4</p> <p>Fedora: 14, 15</p> <p>Ubuntu: 10.04, 10.10, 11.04</p> <p>Debian: 5.0, 6.0 and HPUX11i</p> <p>OR AT LEAST EQUIVALENT</p>					

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
02	<p>Brand New Photo Copier Machine</p> <p>Cannon IR-2525</p> <ul style="list-style-type: none"> Type: Monochrome Digital Multifunction Imaging System <p>Functions Standard: Copy, Print (UFR II LT), Scan Optional: Print (PCL, PostScript 3 Emulation), Send (Color Send, Searchable PDF), Fax</p> <ul style="list-style-type: none"> Operation Panel 5.7" QVGA Black-and-White LCD Touch-Screen Image Server Memory: Standard: 512MB RAM Maximum: 512MB RAM <p>Network Interface Connection Ethernet 10/100Base-TX</p> <ul style="list-style-type: none"> Other Interface Standard: USB 2.0 (Host)x1, USB 2.0 (Device)x1 Optional: USB 2.0 (Host)x3 (USB Application 3-Port Interface Kit-A1), Serial Interface, Copy Control Interface Letter: Up to 25 ppm, Legal: Up to 13 ppm, Ledger: Up to 15 ppm, First copy time: 5.4 Seconds (Letter), Multiple copies: 1 to 999, Copy Exposure Automatic or Manual (9 Levels) Print controller technology: UFR II LT, PostScript 3 Emulation: Windows® (Windows 2000/XP/Vista®/Windows 7/Server 2003/Server 2008), Citrix Presentation Server 4.0/4.5, Citrix XenApp 5.0, XenDesktop 2.0/2.1/3.0, Macintosh® (OS X 10.6.1), SAP (PS3 Only) PCL 5e/6: Windows (Windows 2000/XP/Vista/Windows 7/Server 2003/Server 2008), Citrix Presentation Server 4.0/4.5, Citrix XenApp 5.0, XenDesktop 2.0/2.1/3.0, SAP Power requirements: 120V AC, 60Hz, 6.9A, Plug NEMA 5-15P File Format: TIFF, JPEG, PDF, PDF 	It requires in the departmental office to expedite the official work	1			45 Days

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	(Compact), PDF (OCR)*** I-Fax Data Format TIFF (MH) OR AT LEAST EQUIVALENT					
CCN LAB Computer Communication and Network						
01	<p>Series: Cisco Catalyst 2960 Series Switches</p> <p>Product ID: View All PIDs</p> <ul style="list-style-type: none"> • CAB-STK-E-0.5M • CAB-STK-E-1M • CAB-STK-E-3M • CAB-STK-E-3M-WS • RCKMNT-19-CMPCT= • RCKMNT-23-CMPCT= • RCKMNT-HPC= • WS-C2960-24-S • WS-C2960-24-S-RF <p>Status: End of Sale EOL Details</p> <p>Compatibility: Twin Gig Converter Module</p> <p>End-of-Sale Date: 31-OCT-2014 Details</p> <p>End-of-Support Date: 31-OCT-2019 Details</p> <p>Release Date: 14-AUG-2007</p> <p>Packets per second (Mpps): 3.6</p> <p>Power: Measured 100% Throughput</p>	<p>The equipment is required to conduct the practical related to data and computer communication. This equipment's is also helpful in the professional training of CCNA</p>	4			45 Days

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	<p>Consumption: (with Max. PoE loads) of 22</p> <p>Max. Watt Power Consumption: 30</p> <p>Dimensions (HxWxD): 1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm)</p> <p>AC/DC Support: AC only</p> <p>OR AT LEAST EQUIVALENT</p> <p>Cisco Catalyst 2960-24-S Switch</p>					
02	<p>Cisco 1801 Integrated Services Router Series: Cisco 1800 Series Integrated Services Routers</p> <p>Product ID: View All PIDs</p> <p>Status: Orderable How to Buy</p> <p>End-of-Sale Date: None Announced</p> <p>End-of-Support Date: None Announced</p> <p>OR AT LEAST EQUIVALENT</p>	<p>The equipment is required to conduct the practical related to data and computer communication. This equipment's is also helpful in the professional training of CCNA</p>	5			45 Days
03	<p>Network Communication Rack</p> <ul style="list-style-type: none"> • Size: 600x800 • Cable manager • PDU • 4 cooling fans • 18 Gauge <p>OR AT LEAST EQUIVALENT</p>		1			45 Days

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S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
04	<p>Mobile Trainer MT-3000 Features: Full Duplex Voice & Data Communication Half Duplex Voice & Data Communication Practice of RF interference & mobile environment Chatting by using Computer. Board level and full system level experiment is available using one set Auto Mode and Manual mode can be selectable Built-in Software equal to the Commercial Products. Operating like as Commercial Mobile Products in Auto Mode. 16 x 2 Character LCD. LED Indicator. Over Charge Protection.</p> <p>OR AT LEAST EQUIVALENT</p>	The trainer is required for the course of Mobile computing and Data Com. For the practical related to communication and RF	1			45 Days
05	<p>Wireless LAN WLAN TS-1000 Wi-Fi practice board Wireless standards : IEEE802.11b/g/n Frequency range : 2.421~2.485GHz Data transmitting speed : 54Mbps ~ 1Mbps Serial cable connection to Wi-Fi Server Target Socket connection : Max 5 sec Best security via 64/128bit WEP, WPA, WPA2 Simple AT command practice 2) Wireless LAN Protocol Analyzer The ability to capture : Protocol capture to 802.11 and higher-layer Frequency band : b/g/n Number of Protocol analyzer : Max 256 Operating system : Windows XP Others : Channel switching function OR AT LEAST EQUIVALENT</p>	The Trainer helpful the concept of wireless LAN and protocols	1			45 Days
06	<p>MW-1000 Features 1) Study the microstrip line design theory 2) Study the basic theory of microwave component 3) Microwave component design & simulation 4) Microwave component manufacturing 5) Microwave component measurement 6) Microwave component analysis of characteristics OR AT LEAST EQUIVALENT</p>	This trainer is helpful to design and study for microwave components and their characteristics	1			45 Days
07	<p>WATS- 2002 Features Most experiment is possible without extra measuring equipment.</p>	The equipment is required in the course of Mobile Computing and Communication&	1			

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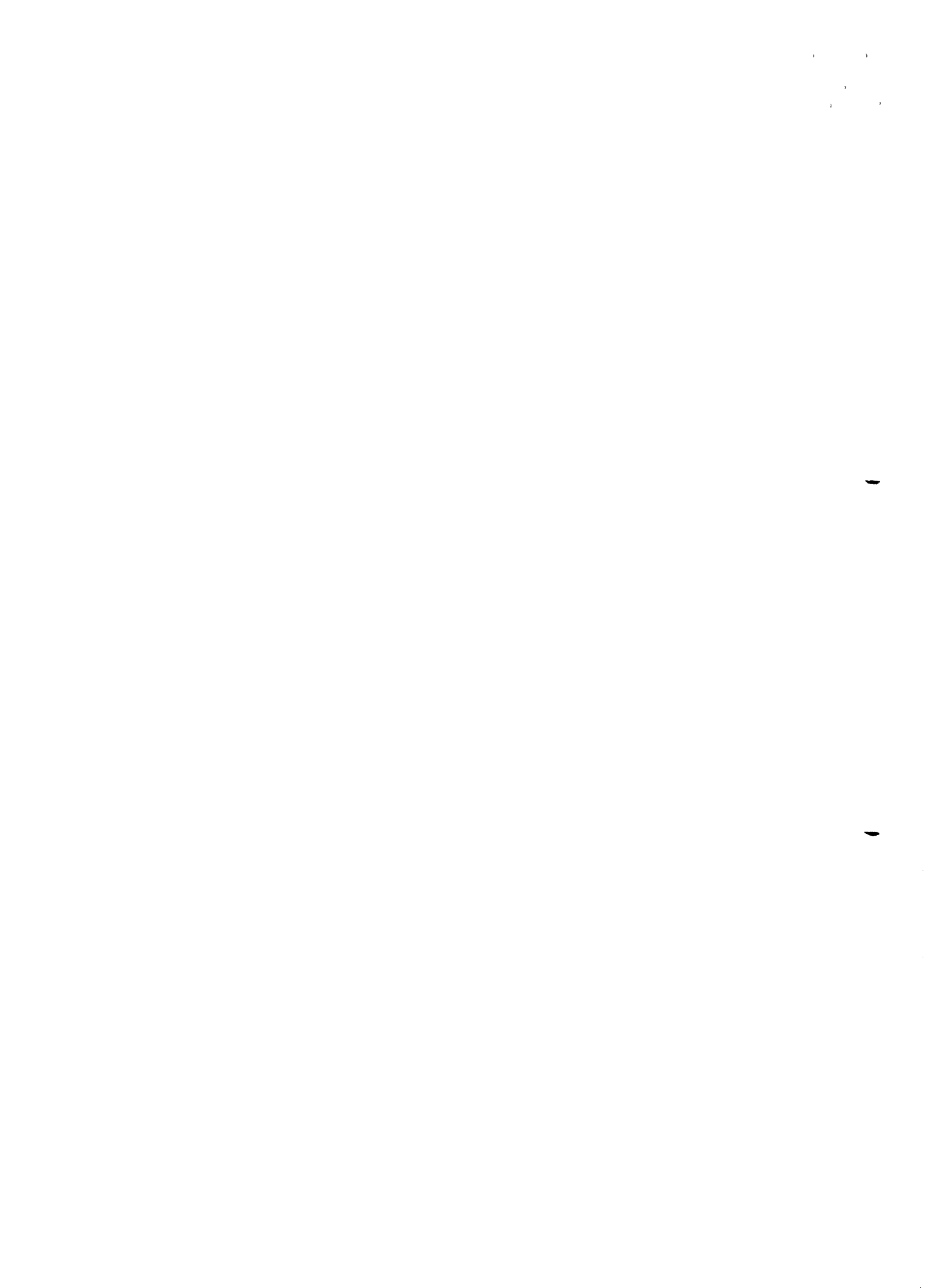
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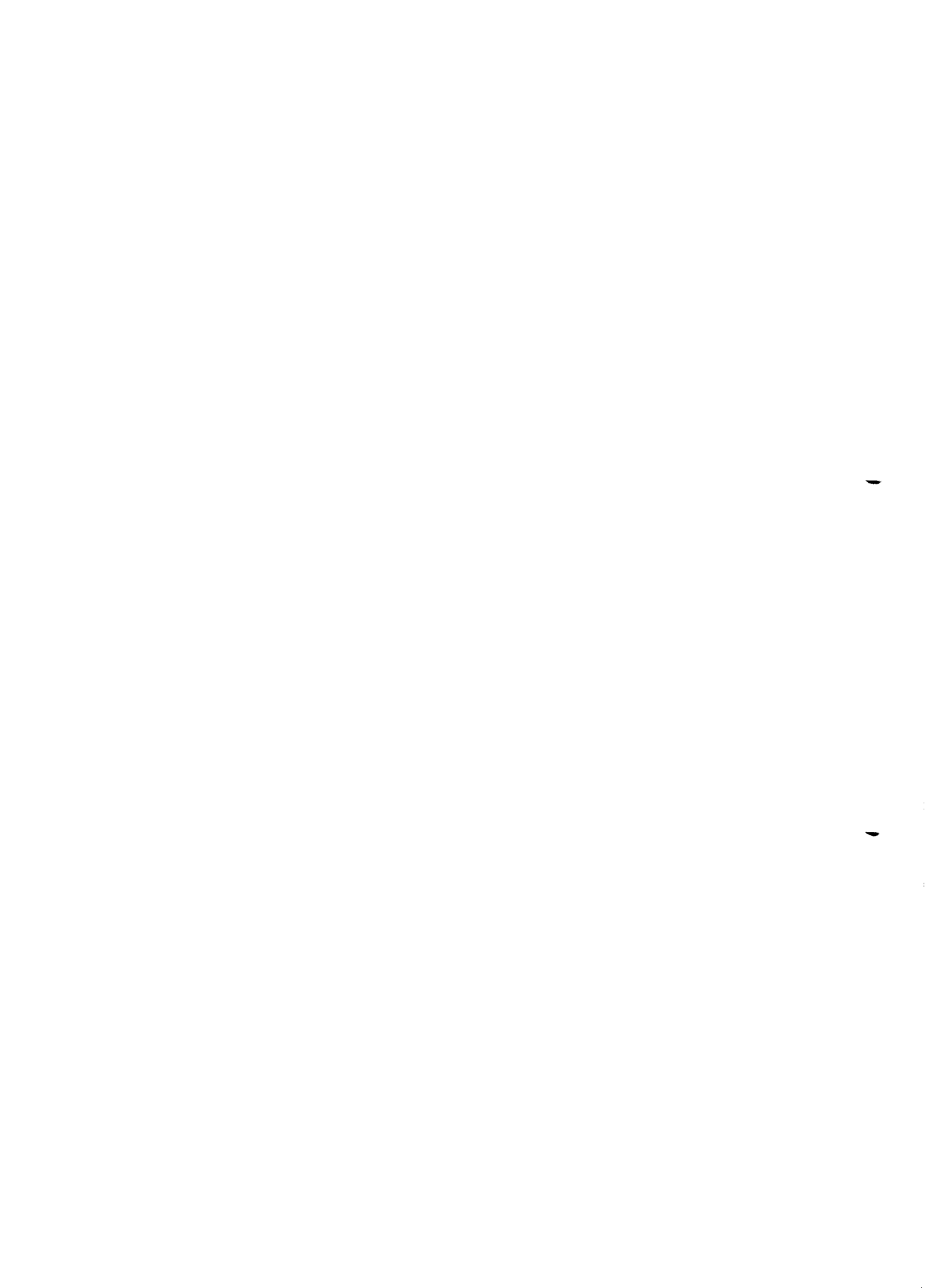
S#	Description	Justification	Qty.	Unit Price (\$.)	Total Price (\$.)	Delivery Schedule after opening of LC
	Antenna characteristics measurement. Mobile communication propagation experiment. Propagation modeling & Loss Simulation. Auto Calibration. User interface with GUI windows. OR AT LEAST EQUIVALENT	Networks. The equipment is used to demonstrate the characteristics of antenna and propagation modeling				45 Days

Note:

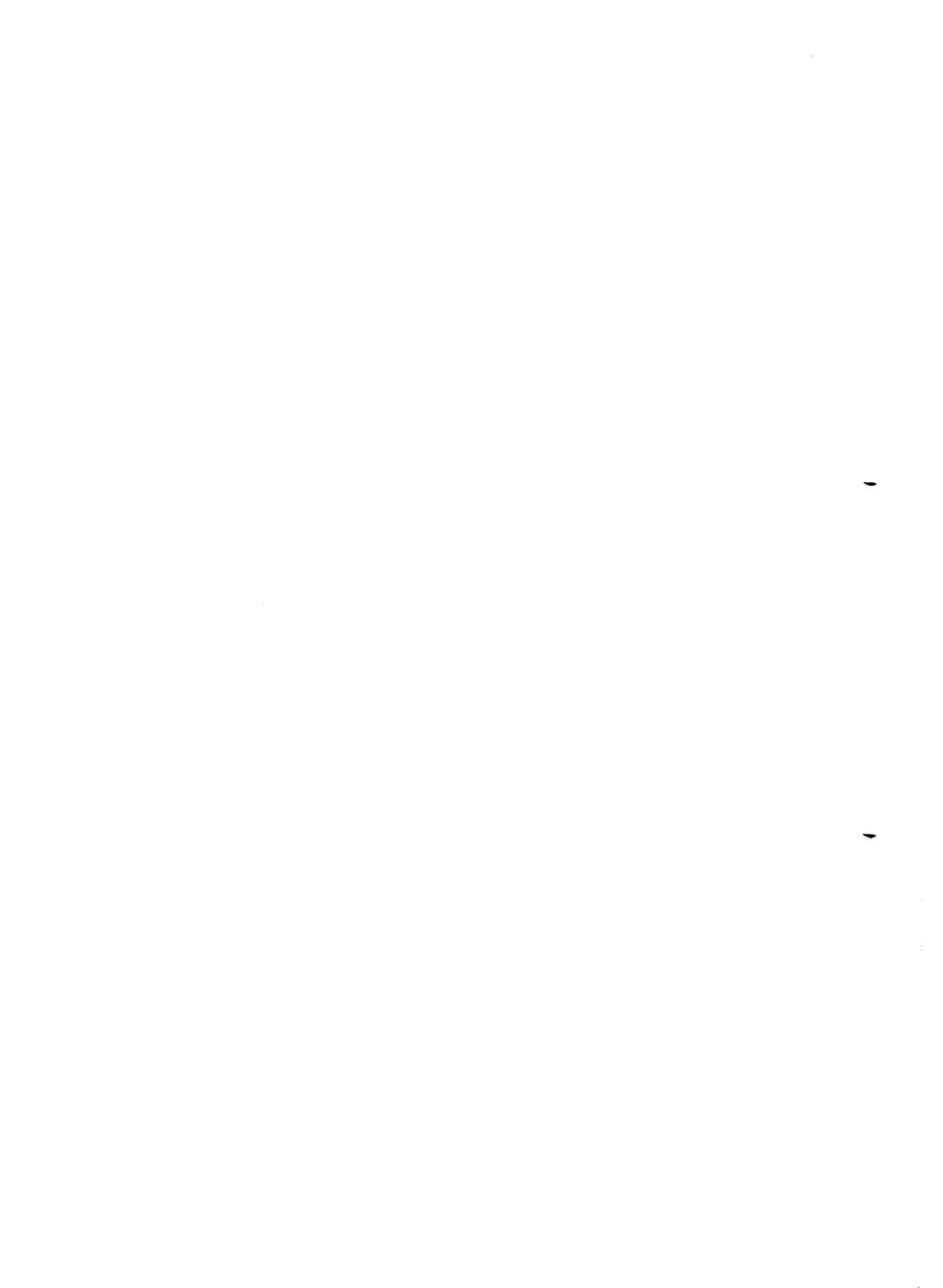
INSTALLATION CDS AND LAB MANUAL MUST BE PROVIDED BY BIDDER/SUPPLIER/AUTHORIZE MANUFACTURER AT FREE OF COST



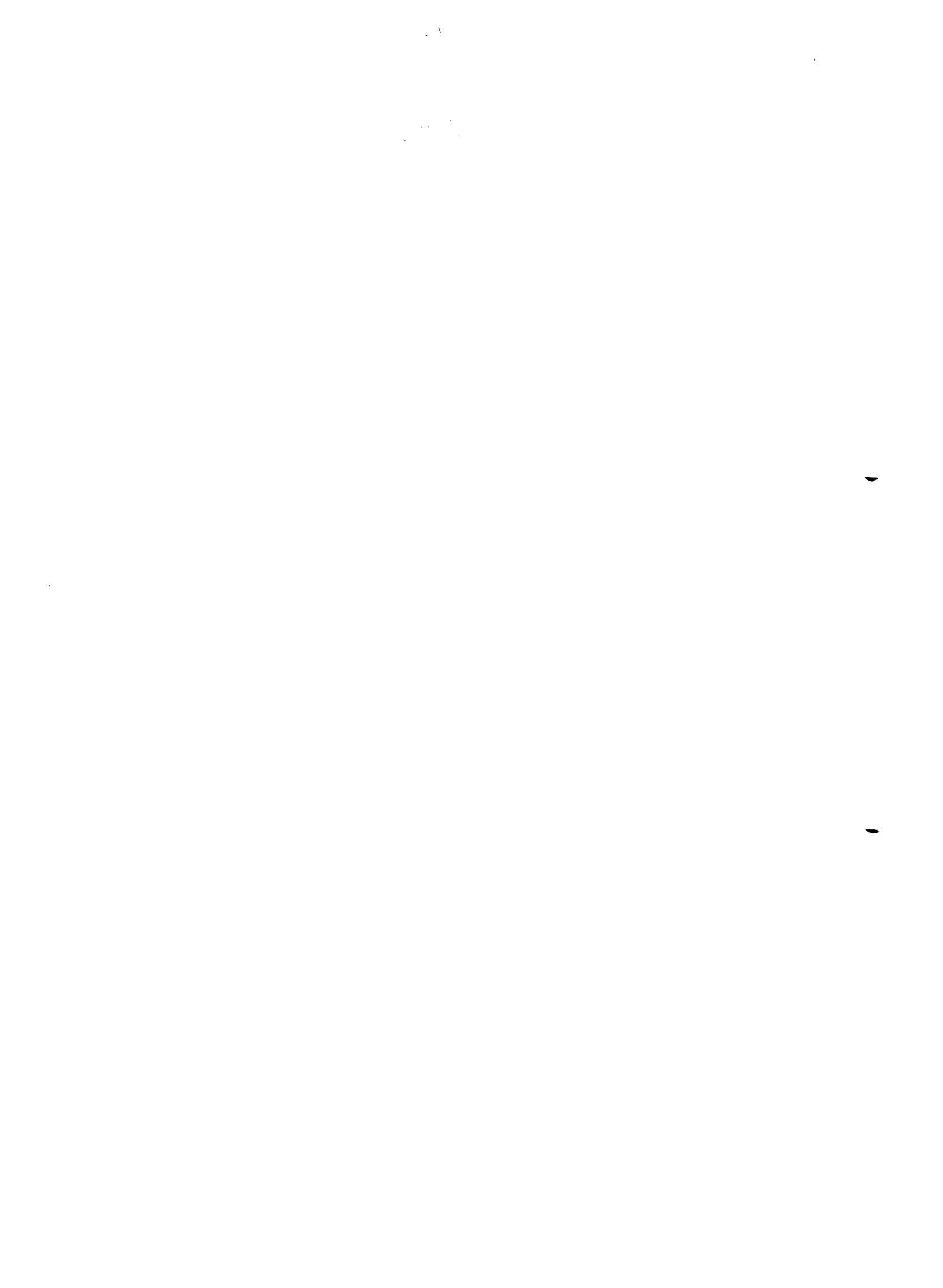
S No.	Name of Item	Technical Specifications
DLD LAB		
		<ul style="list-style-type: none"> • Frequency Resolution. 0.1Hz • Frequency Stability. ± 20 ppm • Frequency Accuracy. ± 20 ppm • Aging ± 5 ppm /year. • Output Function. Sine, Square, Triangle • Amplitude Range 2mV~10Vpp(50Ω Load) • Impedance 50$\Omega$$\pm 10\%$ • Attenuator -20dB± 1dB$\times 2$ • DC Offset <-5V~>+5V(50Ω Load) • Duty Cycle 20% to 80%, 2Hz~1MHz (Only Square) • Range Resolution 1% • Display 9 位 LED display <p>Sine Wave</p> <ul style="list-style-type: none"> • Harmonics Distortion -55dBc,0.1Hz ~ 200kHz; -40dBc,0.2MHz ~ 4MHz; -30dBc,4MHz ~ 10MHz, (Specification applied to both TTL/CMOS OFF and from MAX. to 1/10 level) • Flatness (Relative to 1 kHz). $< \pm 0.3$dB,0.1Hz~1MHz; $< \pm 0.5$dB,1MHz~4MHz; $< \pm 2$dB, 4MHz~10MHz <p>Tringle Wave</p> <ul style="list-style-type: none"> • Linearity $\geq 98\%$,0.1Hz~100kHz;$\geq 95\%$,100kHz~1MHz <p>Square Wave</p> <ul style="list-style-type: none"> • Symmetry $\pm 1\%$ of period +4ns to 0.1Hz~100kHz • Rise or Fall Time ≤ 25ns at maximum output.(into 50 load) <p>CMOS Output</p> <ul style="list-style-type: none"> • Level 4Vpp± 1Vpp ~ 15Vpp± 1Vpp adjustable; Rise or Fall Time ≤ 120ns <p>TTL Output</p> <ul style="list-style-type: none"> • Level ≥ 3Vpp ; Fan out; 20 TTL Load ;Rise and Fall Time ≤ 25ns <p>Sweep operation</p> <ul style="list-style-type: none"> • Rate 100:1 ratio max. and adjustable (In order to get the maximum sweep span, the sweep time needs to be tuned on when adjusting the sweep span.) • Time 1Sec~30Sec adjustable (When the sweep time is too long, the stop frequency will reach and stay at the maximum frequency of the instrument until the end of the sweep cycle.) • Mode Lin./Log. switch selector <p>Amplitude Modulation</p> <ul style="list-style-type: none"> • Depth & Modulation Frequency 0 ~ 100% ; 400Hz(INT), DC ~ 1MHz(EXT) • Carrier BW 100Hz~5MHz(-3dB) • EXT Modulation Sensitivity ≤ 10Vpp 100% modulation



S No.	Name of Item	Technical Specifications
DLD LAB		
		<p>CH3 Operation (For GPS-3303)</p> <ul style="list-style-type: none"> • CH3 Voltage 2.2V ~ 5.2V • Line Regulation $\leq 5\text{mV}$ • Load Regulation $\leq 15\text{mV}$ • Ripple & Noise $\leq 2\text{mVrms}$ 5Hz ~ 1MHz • Current Output 1A <p>Meter</p> <ul style="list-style-type: none"> • Digital 3 Digits 0.5" LED Display • Accuracy GPS-4303/3303 Out ON Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$, GPS-4303/3303 Out OFF Accuracy $\pm (0.5\% \text{ of rdg} + 8 \text{ digits})$, GPS-2303 Accuracy $\pm (0.5\% \text{ of rdg} + 2 \text{ digits})$ <p>Insulation</p> <ul style="list-style-type: none"> • Chassis and Terminal $\geq \text{DC } 500\text{V} / 20\text{M}\Omega$ • Chassis and AC Cord $\geq \text{DC } 500\text{V} / 30\text{M}\Omega$ <p>Power Source AC 100V/120V/220V $\pm 10\%$, 230V(+10% ~ -6%), 50/60Hz</p> <p>Dimension and Weight 255(W) x 145(H) x 265(D)mm, Approx. 7kg</p> <p>OR AT LEAST EQUIVALENT</p>
03	<p>Function Generator</p> <p>Arbitrary Function Generator AFG-2112</p> <p>OR AT LEAST EQUIVALENT</p>	<p>Features</p> <ul style="list-style-type: none"> • 0.1Hz to 5/12/25 MHz with in 0.1Hz Resolution • Sine, Square, Triangular, Noise and Arbitrary Waveform • 20MSa/s Sampling Rate, 10 bit Vertical Resolution and 4k Point Memory for Arbitrary Waveform • 1% ~ 99% adjustable duty cycle for Square Waveform • Waveform Parameter Setting Through Numeric Keypad Entry & Knob Selection • Amplitude, DC Offset and Other Key Setting Information Shown on the 3.5" LCD Screen Simultaneously • AM/FM/FSK Modulation, Sweep, and Frequency Counter Functions (AFG-2100 only) • USB Device Interface for Remote Control and Waveform Editing • PC Arbitrary Waveform Editing Software <p>Specifications</p> <p>Main</p> <ul style="list-style-type: none"> • Frequency SFG-2110 : 0.1Hz ~ 10MHz • Frequency Range (Triangle) 0.1Hz~1MHz

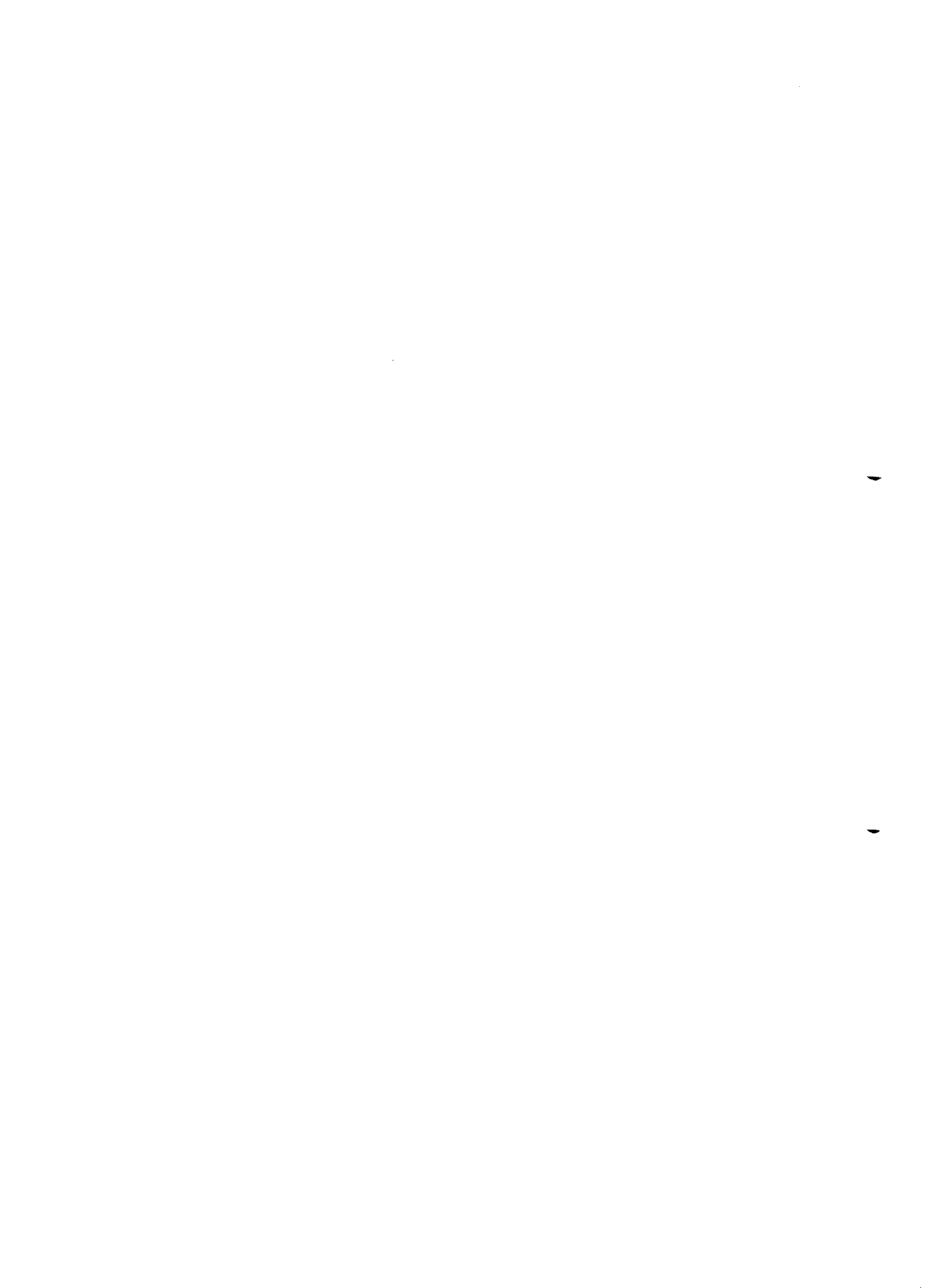


S No.	Name of Item	Technical Specifications
DLD LAB		
		OR AT LEAST EQUIVALENT
02	Power Supplies GW-Instek GPSx303 Series GPS-3303 OR AT LEAST EQUIVALENT	Features. <ul style="list-style-type: none"> • 4 Independent Isolated Output • Four "3 Digits" LED Displays • 0.01% Load and Line Regulation • Low Ripple and Noise • Tracking Operation and Auto Series/Parallel Operation • Output ON/OFF Switch • Output Voltage and Current Setting When Output Disable • Fan Speed Control Circuit to Minimize Fan Noise • Over Load and Reverse Polarity Protection • Optional European Jack Type Terminal Specification DC Output(CH1,2), CH 3 <ul style="list-style-type: none"> • Voltage 0~30 V, 5V Fix • Current 0~3A, 3A Max • Tracking Series Voltage 0~60V • Tracking Parallel Current 0~6A Constant Voltage Operation CH1,CH2 <ul style="list-style-type: none"> • Line Regulation $\leq 0.01\% + 3mV$ • Load Regulation $\leq 0.01\% + 3mV$ (rating current $\leq 3A$) $\leq 0.02\% + 5mV$ (rating current $> 3A$) • Ripple & Noise $\leq 1mV_{rms}$ 5Hz ~ 1MHz • Recovery Time $\leq 100\mu S$ (50% Load change, Minimum load 0.5A) Constant Current Operation (CH1, CH2) <ul style="list-style-type: none"> • Line Regulation $\leq 0.2\% + 3mA$ • Load Regulation $\leq 0.2\% + 3mA$ • Ripple Current $\leq 3mArms$ Tracking Operation (CH1, CH2) <ul style="list-style-type: none"> • Tracking Error $\leq 0.5\% + 10mV$ of CH1 • Series Regulation $\leq 0.01\% + 5mV$ • Load Regulation $\leq 300mV$ • Ripple & Noise $\leq 2mV_{rms}$, 5Hz ~ 1MHz

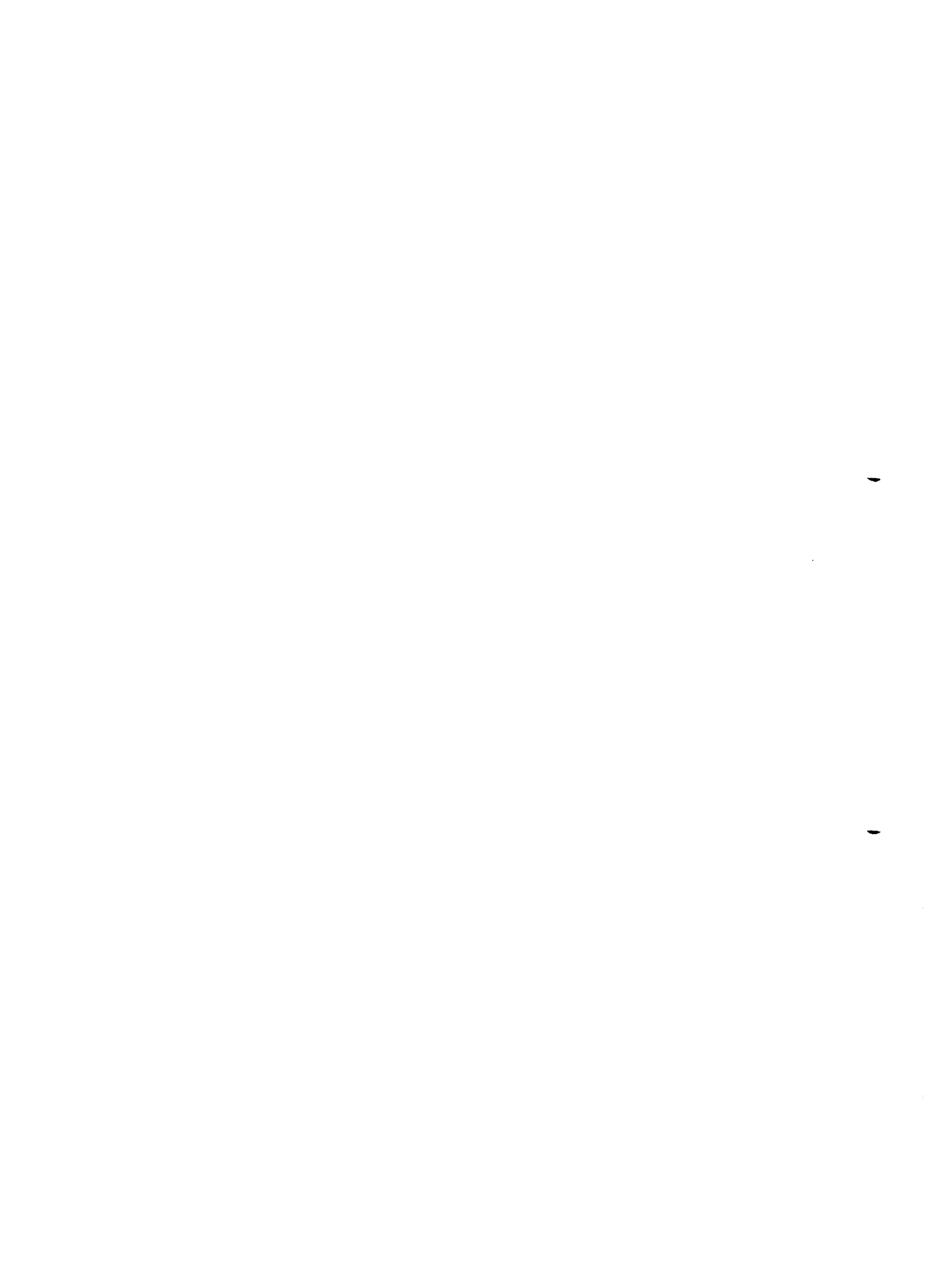


Technical Specifications

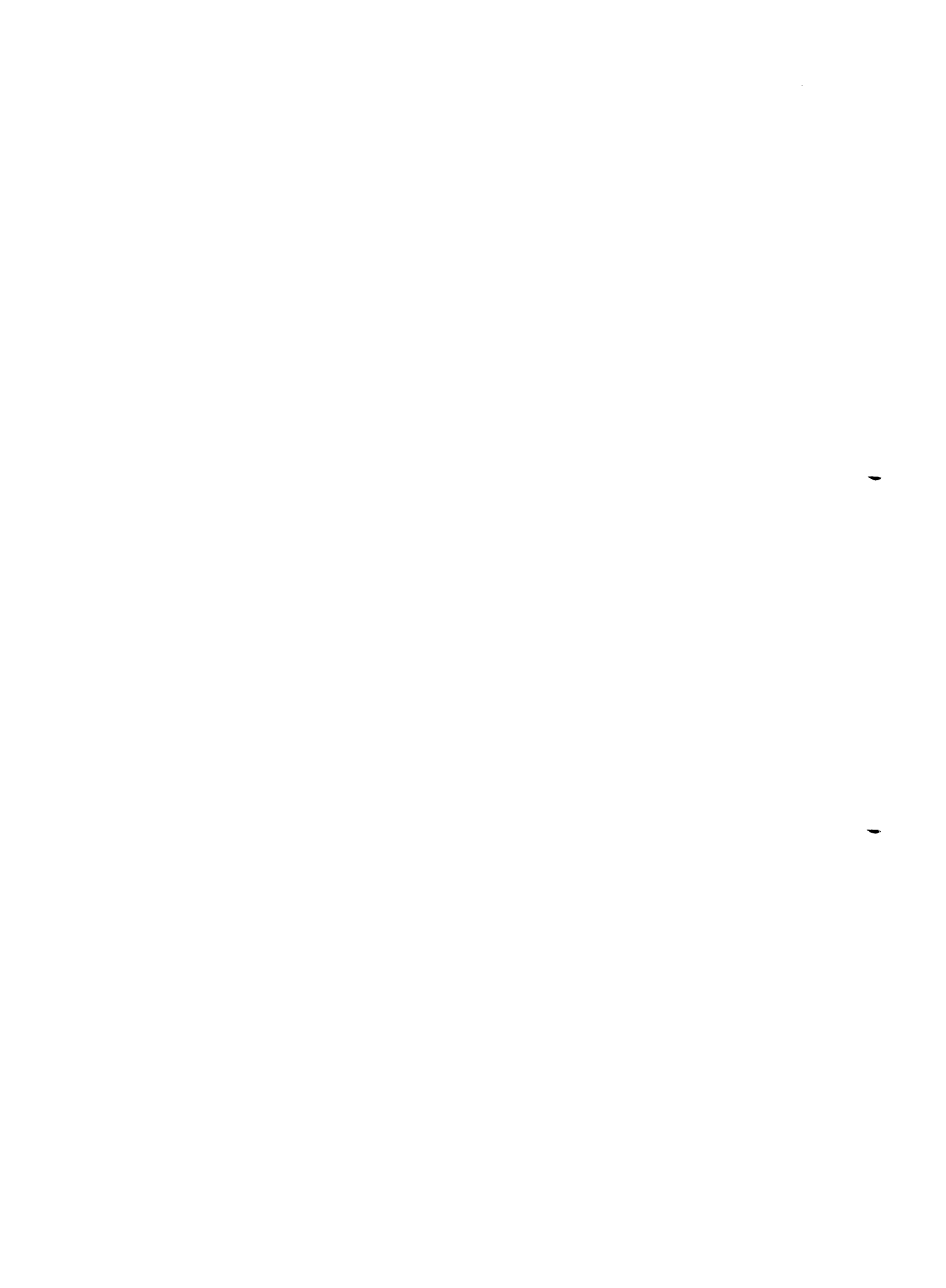
S No.	Name of Item	Technical Specifications
DLD LAB		
01	OSCILLOSCOPES GDS-2202A – 200 MHz OR AT LEAST EQUIVALENT	FEATURES <ul style="list-style-type: none"> • 200MHz Bandwidth with 2 input channel • 2GSa/s maximum real time sampling rate and 100 Gsa/s equivalent time sampling rate • 2M points Maximum Record Length • VPO Technology to Display less frequently occurred signals. • Fast upload rate of 80,000 wave form per second. • 8 inch 800*600 High Resolution TFT LCD Display • Built-in Segmented Memory and Waveform Search Functions to Optimize the Efficiency of Record Length • Zoom Window and Play/Pause can Rapidly Navigate the Waveforms • 36 Automatic Measurement Functions Offers Various Measurement Selections • Optional 8 or 16 digital channel with Logic analyser (MSO) • Optional Function Generator • Flexible Remote Control Connectivity(Standard:USB ;Option:LAN/GPIB) • Upgradable CAN/LIN bus analysis ,Advanced Logic ,Data log ,DVM and H-expansion functionalities SPECIFICATIONS Wave form Technology <ul style="list-style-type: none"> • VPO (Visual Persistence Oscilloscope) Bandwidth (MHz): 200MHz <ul style="list-style-type: none"> • Display: 8" TFT LCD SVGA • Number of Channel: 2 • Power Source: AC 100V ~ 240V • Interface: USB Host/Device, RS-232, GPIB, (Opt.), Lan(Opt.) • Memory Depth: Max. 2Mpts • Sample Rate: 2GSa/s/(RTS), 100 Gsa/s (ETS) • Vertical Resolution: 8 bit • Vertical Sensitivity: 1mV.div ~ 10V/div • Time Base Range: 1ns/div ~ 100s/div • Input Impedance Selection: 1MΩ • Auto Measurement: 36 • Wave form memory: 24 • Panel Setup: 20



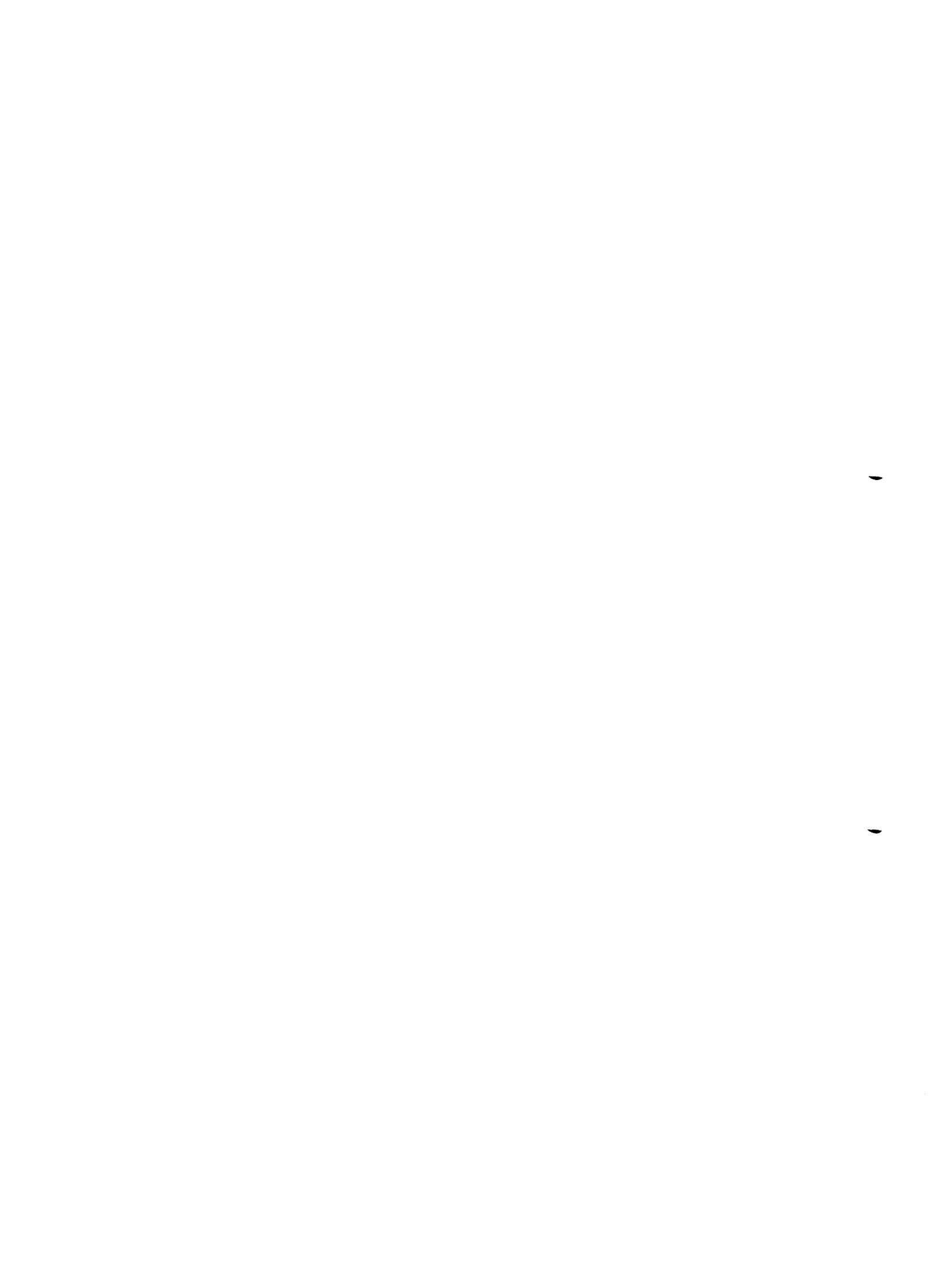
S No.	Name of Item	Technical Specifications
DLD LAB		
		<p>Frequency Modulation</p> <ul style="list-style-type: none"> • Deviation & Modulation Frequency 0~±50kHz, center at 1MHz, 400Hz fixed(INT), 1kHz fixed(EXT) • EXT Modulation Sensitivity $\leq 10\text{Vpp}$ 在 10% modulation (center at 1MHz) <p>Frequency Counter</p> <ul style="list-style-type: none"> • Range 5Hz ~ 150MHz • Accuracy Time base accuracy ± 1位 • Time base $\pm 20\text{ppm}$(23°C± 5°C) after 30 minutes warm up後 • Input Impedance 1MΩ/150pf • Sensitivity $\leq 35\text{mVrms}$ (5Hz~100MHz), $\leq 45\text{mVrms}$ (100MHz~150MHz) <p>Store/ Recall Function</p> <ul style="list-style-type: none"> • 10 groups of panel settings <p>Power Source</p> <ul style="list-style-type: none"> • AC115V$\pm 10\%$, AC 230V+10%/-15%, 50/60Hz <p>Accessories</p> <ul style="list-style-type: none"> • User Manual$\times 1$ Power Cord x 1 GTL-101 x 1(SFG-2000 Series) GTL-101$\times 2$ (SFG-2110) <p>Dimension</p> <ul style="list-style-type: none"> • 266(W)x107(H)x293(D)mm, Approx 3.2 Kg <p>OR AT LEAST EQUIVALENT</p>
04	<p>DLD Trainer KIT</p> <p>KL-300 Digital Logic Lab</p> <p>OR AT LEAST EQUIVALENT</p>	<p>Features</p> <ul style="list-style-type: none"> • Suitable for combination logic, sequential logic and microprocessor circuits design and experiments • Ideal tool for learning the basics of digital logic circuits • Comprehensive power, signal supply and testing devices for convenient experiments • Experiments are expandable and flexible with universal breadboard • Capable of processing TTL, CMOS, NMOS, PMOS and ECL circuits • All supply units are equipped with overload protection for safety purpose • All modules equipped with 8-bit DIP switch for fault simulations • Individual keeping cases for all modules for easy storing and carrying • All signal generators have independent and simultaneous TTL and CMOS level output terminal. <p>Specifications</p>



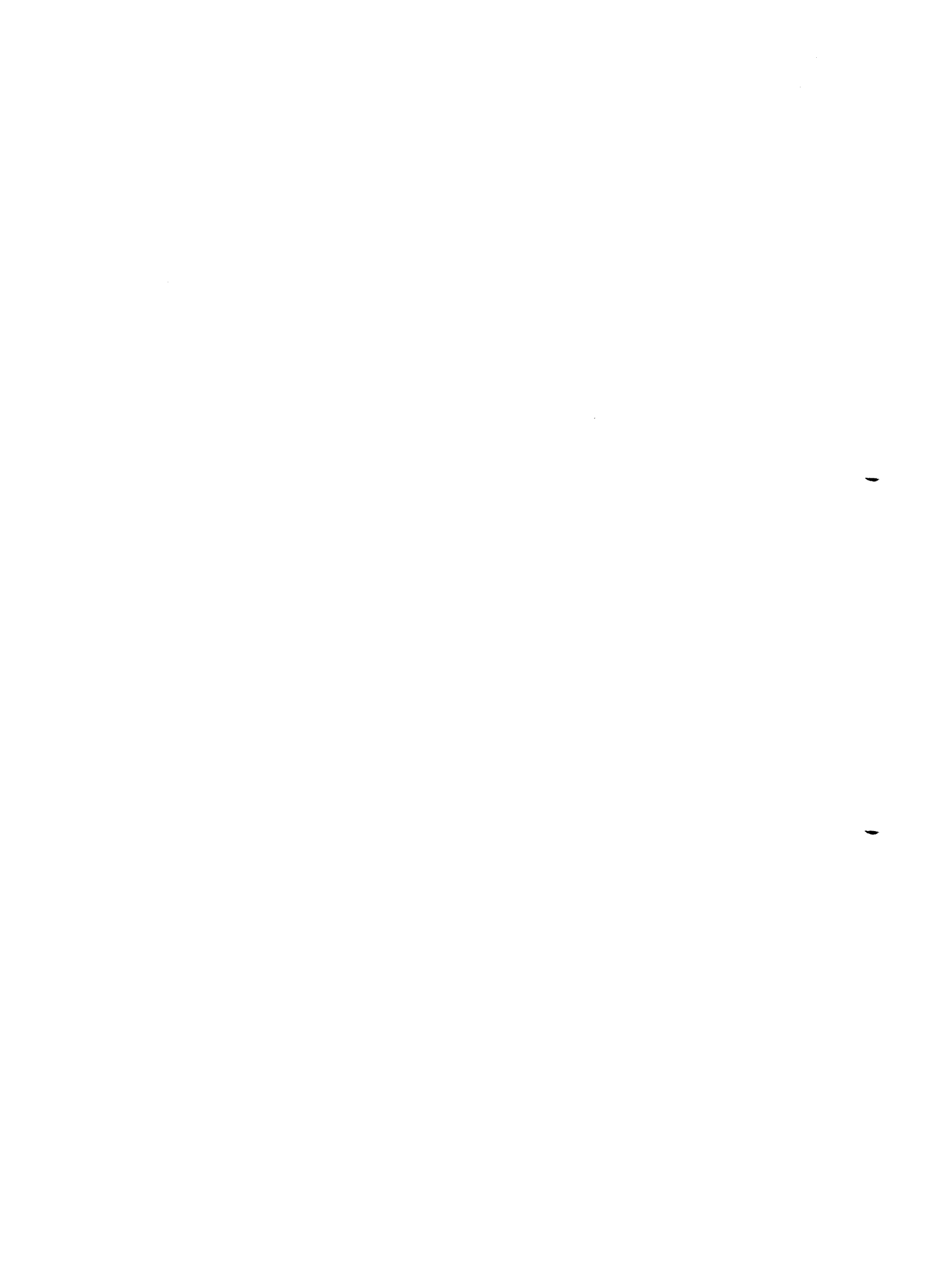
S No.	Name of Item	Technical Specifications
DLD LAB		
		<p>Main Unit (KL-31001)</p> <p>Dual Dc Power Supply</p> <ul style="list-style-type: none"> • Voltage Range: +5v, 1.5A: -5V, 0.3A, +12V, 0.3A • With output overload protection <p>Adjustable DC Power Supply</p> <ul style="list-style-type: none"> • Voltage range: +1.5V~+15V • Maximum Current output: 0.5A • With output overload protection <p>Standard Frequency</p> <ul style="list-style-type: none"> • Frequency: 1MHz, 60Hz, 1Hz • Accuracy: ±0.1% (1MHz) • Fan out: 10 TTL <p>Clock Signal Generator</p> <ul style="list-style-type: none"> • Frequency: 1Hz-1MHz (6ranges) <p>A. 1Hz~10Hz, B. 10Hz~100Hz, C. 100Hz~1KHz, D. 1KHz~10KHz, E. 10KHz~100KHz, F. 100KHz~1MHz</p> <p>Fan Out</p> <ul style="list-style-type: none"> • 10TTL load <p>Data Switch</p> <ul style="list-style-type: none"> • 8-bit DIP switchx2, 16-bit TTL level output • Toggle switchx4 each with DEBOUNCE circuit • Fan out: 10 TTL load <p>Pulser Switch</p> <ul style="list-style-type: none"> • 2 sets of independent control output • Each set with Q, Q output, pulse width >5ms • Each set of switch with DEBOUNCE circuit • Fan out: 10 TTL load <p>Line Signal Generator</p> <ul style="list-style-type: none"> • Frequency: 50/60 Hz • Output voltage: 6Vrms • With overload protection <p>Thumbwheel switch</p> <ul style="list-style-type: none"> • 2-digit, BCD code output and common point input <p>Logic Indicator</p> <ul style="list-style-type: none"> • 16 sets of independent 7 segment LED display • With BCD 7-segment decoder/driver and DP input • Input with 8-4-2-1 code <p>Logic Probe</p> <ul style="list-style-type: none"> • TTL and CMOS level • 5mm LED displays • “Lo” and “Hi” LED display and low and high logic state



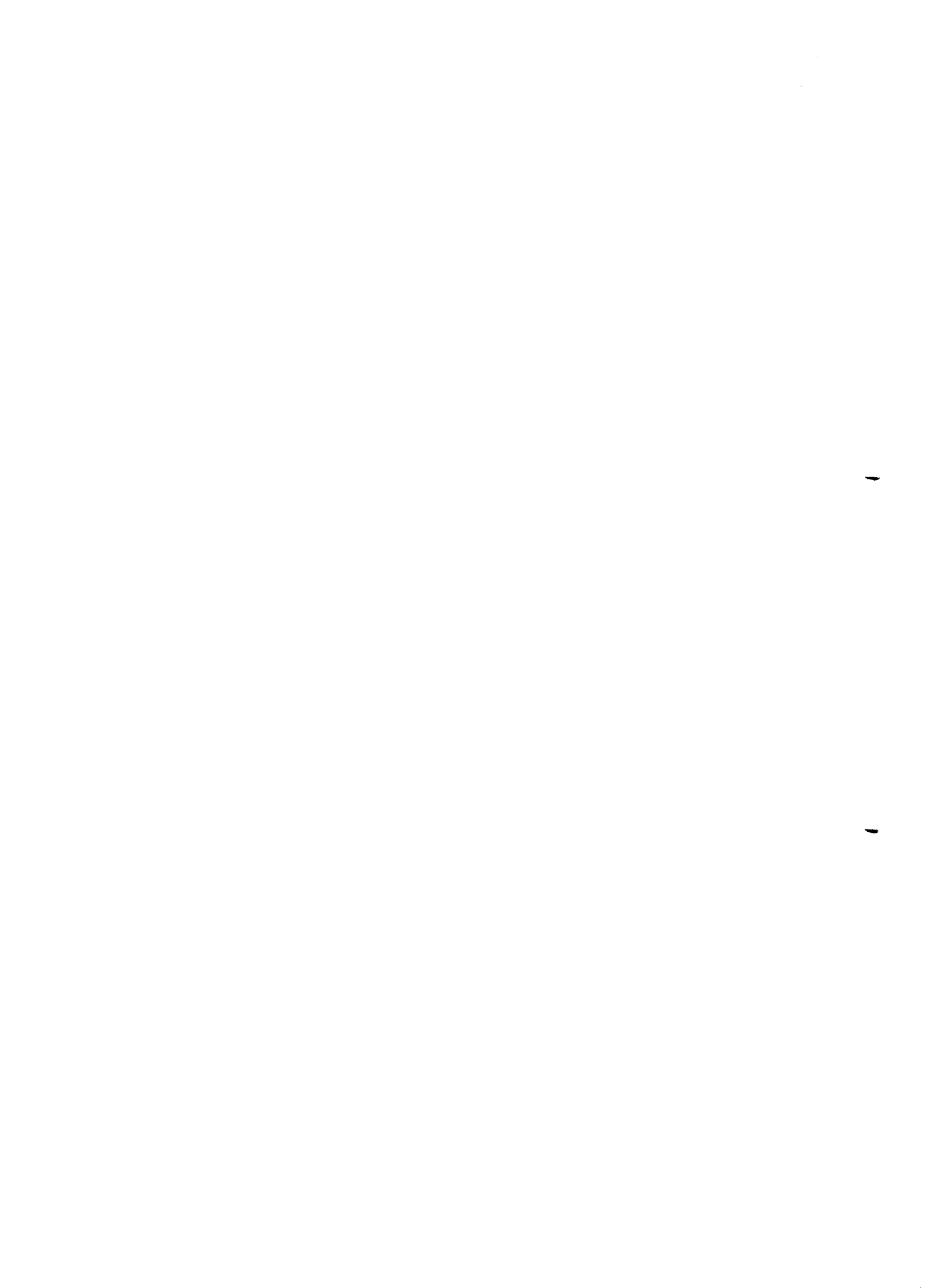
S No.	Name of Item	Technical Specifications
DLD LAB		
		<p>respectively</p> <p>Speaker</p> <ul style="list-style-type: none"> • One 8Ω, 0.25W speaker with driver circuit <p>Breadboard Modules (AC-90001)</p> <ul style="list-style-type: none"> • 1680 tie-point breadboard on top panel can be easily put into and taken off. <p>Included All Modules</p> <p>OR AT LEAST EQUIVALENT</p>
MICROPROCESSOR/ AI and Robotics LAB		
05	<p>Microprocessor Trainer</p> <p>16Bit Processor 8086 Bard</p> <p>OR AT LEAST EQUIVALENT</p>	<p>Specifications:</p> <ul style="list-style-type: none"> • Example software disk: 1 set • RS-232C Cable: 1ea • User Manual: 1 book • <p>OR AT LEAST EQUIVALENT</p>
06	<p>DSP Board</p> <p>OR AT LEAST EQUIVALENT</p>	<p>Manufacture Part# TMS320C6416TBCLZ1</p> <p>Texas instruments</p> <p>DSP fixed-point 3-Bit 1GHz 8000MIPS 532-pin FC/CSP</p> <ul style="list-style-type: none"> • Embedded JTAG support via USB • High quality 24-Bit Stereo code • Four 3.5mm audio jacks for microphone, line in, speaker and line out • 512 words of flash and 16 MB SDRAM • Expansion port connector for plug-in modules • On-board standard IEEE JTAG interface • +5V universal power supply <p>A complete integrated development environment (IDE), an efficient optimizing C/C++ compiler assembler, linker, debugger, data visualization, a profiler, advanced optimization tools and a flexible project manager</p> <ul style="list-style-type: none"> • DSP/BIOS™ real-time kernel • Target error recovery software • DSK diagnostic tool • Plug-in ability for third party software for additional functionality <p>OR AT LEAST EQUIVALENT</p>
07	<p>NEXYS™ Artix-7 FPGA Board</p>	<p>Features KIT INCLUDES</p>



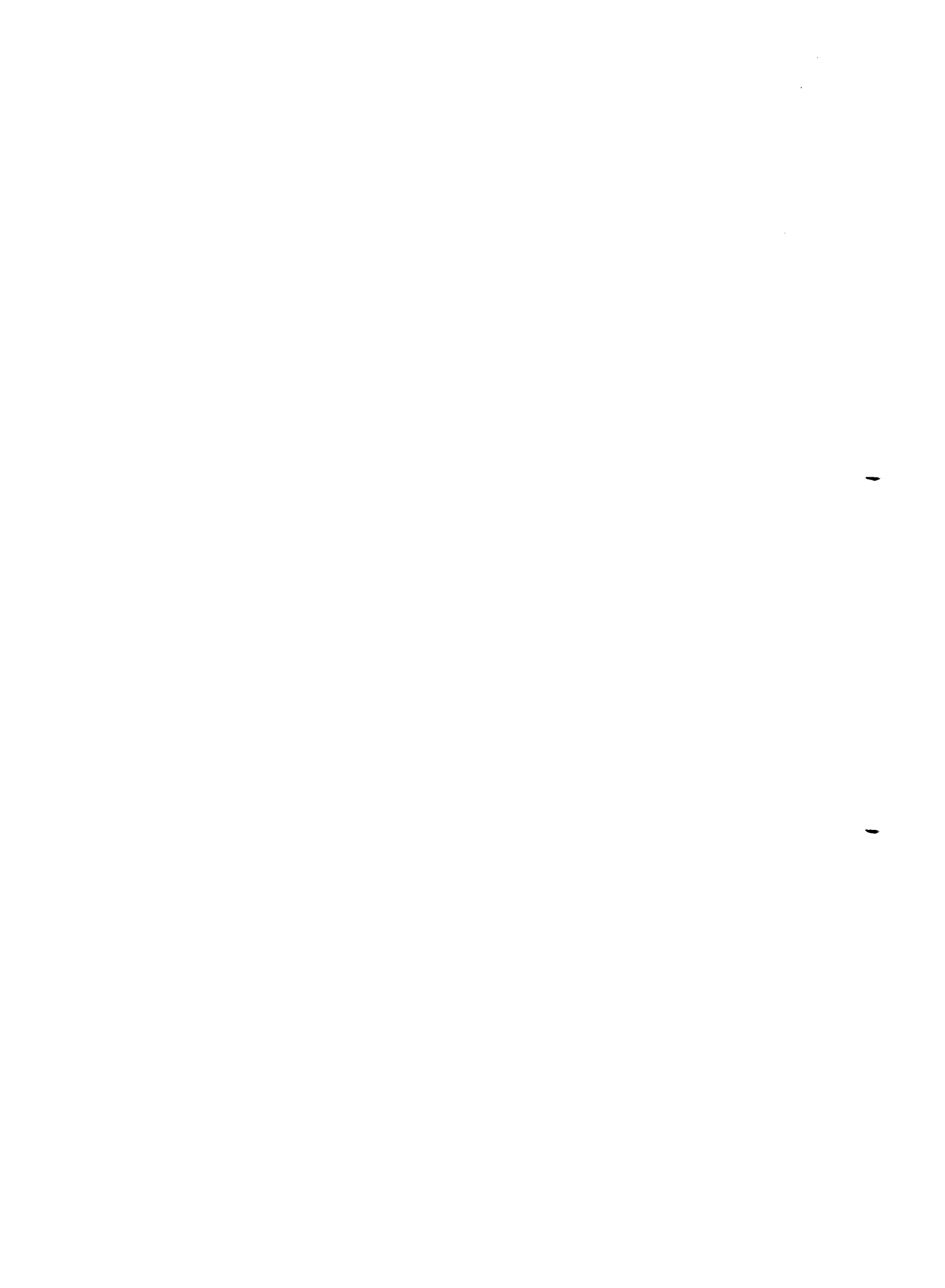
S No.	Name of Item	Technical Specifications
DLD LAB		
	OR AT LEAST EQUIVALENT	<ul style="list-style-type: none"> • Xilinx Spartan-6 LX45 FPGA,324-Pin BGA package • 128 Mbyte DDR 16 bit wide data • 10/100/1000 Ethernet by PHY • On-board USB2 ports for programming and data transfer • USB-UART and USB-HID port (for mouse/keyboard) • Two HDMI Video input ports and two HDMI output ports • AC-97 codec with line-in, line-out, mic & headphone • Real time power monitor on all power rails • 16Mbytx4 SPI flash for configuration and data storage • 100MHz CMOS oscillator • 48 I/O routed to expansion connectors • GPIO includes 8 LED, 6 button, & 8 slide switches <p>The Spartan-6 LX45 is optimized for high performance logic and offers:</p> <ul style="list-style-type: none"> • 6,822 slices each containing four 6-input LUTS and eight-flip-flops • 2.1 Mbits of fast block RAM • 4 clock tiles (8DCMs & 4 PLLs) • 6 phased-locked loops • 58 DSP slices • 500 MHz + clock speed <p style="text-align: center;">OR AT LEAST EQUIVALENT</p>
08	Modular Robotic Tool Kit (Lego mindstrom kit	The "NXT" generation of buildable, programmable robots is here! LEGO® MINDSTORMS® NXT is back and better than ever, with new



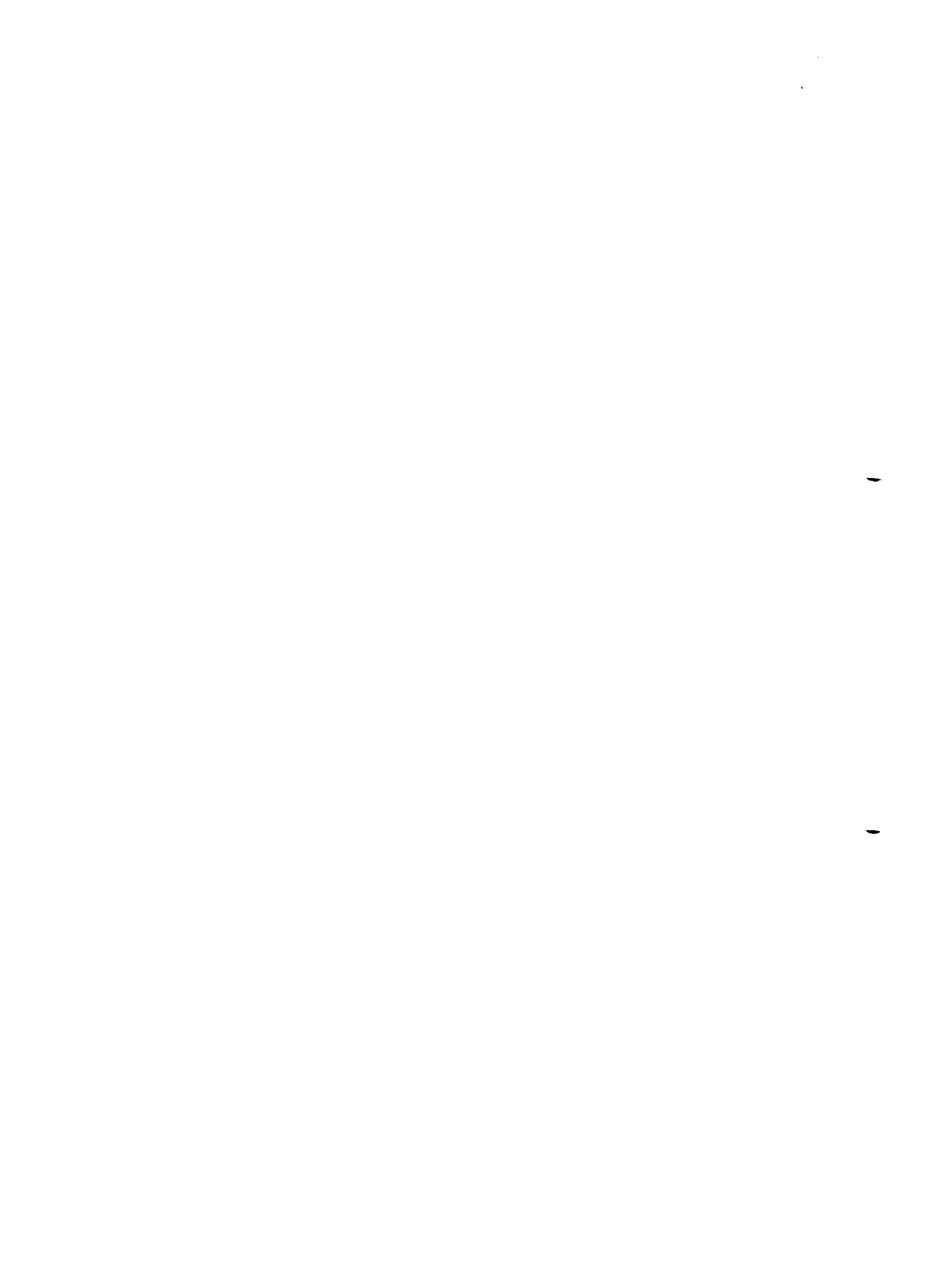
S No.	Name of Item	Technical Specifications
DLD LAB		
	<p>NXT)</p> <p>OR AT LEAST EQUIVALENT</p>	<p>robot models, even more customizable programming, and all-new technology including a color sensor! MINDSTORMS NXT 2.0 combines the unlimited versatility of the LEGO building system with an intelligent microcomputer brick and intuitive drag-and-drop programming software. The new 2.0 toolkit features everything you need to create your first robot in 30 minutes and then tens of thousands of other robotic inventions that do what you want! Key elements and features:</p> <p>The intelligent NXT LEGO brick features 32-bit microprocessor, a large matrix display, 4 input and 3 output ports, and Bluetooth and USB communication link. Three interactive servo motors. Four sensors: Ultrasonic Sensor, 2 Touch Sensors and the all-new Color Sensor. Color Sensor has triple functionality: distinguishes colors and light settings, and functions as a lamp. Easy-to-use software (PC and Mac) with icon-based drag-and-drop programming and 16 fun building and programming challenges.</p> <p>All the LEGO® elements (612 pcs) you need for creating incredible robots.</p> <p>OR AT LEAST EQUIVALENT</p>
Department Office Equipment		
09	<p>HP LaserJet Pro 400 Printer M401dn(CF278A)</p> <p>OR AT LEAST EQUIVALENT</p>	<p>Print speed black:</p> <p>Normal: Up to 33 ppm <i>(Measured using ISO/IEC 24734, excludes first set of test documents. For. Exact speed varies depending on the system configuration, software application, driver, and document complexity.)</i></p> <p>First page out (ready)</p> <p>Black: As fast as 8 sec <i>(Exact speed varies depending on the system configuration, software application, driver and document complexity.)</i></p> <p>Print quality black (best)</p> <ul style="list-style-type: none"> Up to 1200 x 1200 dpi <p>Duty cycle (monthly, A4)</p> <p>Up to 50,000 pages <i>(Duty cycle is defined as the maximum number of pages per month of imaged output. This value provides a comparison of product robustness in relation to other HP LaserJet or HP Color LaserJet devices, and enables appropriate deployment of printers and MFPs to satisfy the demands of connected individuals or groups.)</i></p> <p>Recommended monthly page volume</p> <p>750 to 3000 pages <i>(HP recommends that the number of printed pages per month</i></p>



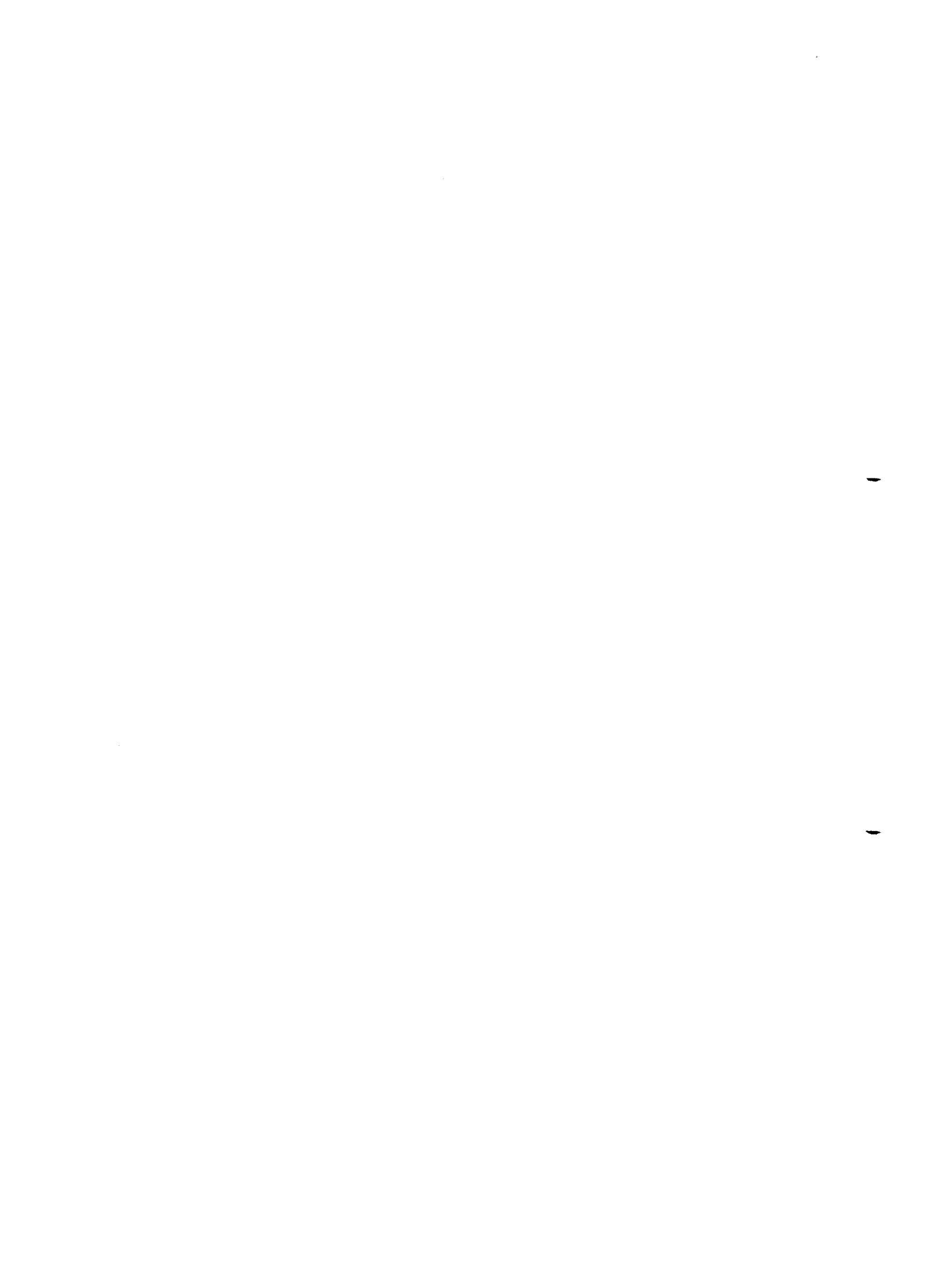
S No.	Name of Item	Technical Specifications
DLD LAB		
		<p>be within the stated range for optimum device performance, based on factors including supplies replacement intervals and device life over an extended warranty period.)</p> <p>Print technology</p> <ul style="list-style-type: none"> • Laser <p>Print languages</p> <p>HP PCL 5e, HP PCL 6, HP Postscript Level 3 emulation, direct PDF (v 1.7) printing</p> <p>Display</p> <ul style="list-style-type: none"> • 8.89 cm touchscreen control panel, CGD (Colour Graphic Display) <p>Replacement cartridges</p> <ul style="list-style-type: none"> • HP 80A Black LaserJet Toner Cartridge (~2700 pages), CF280A • HP 80X Black LaserJet Toner Cartridge (~6900 pages), CF280X <p>Connectivity, standard</p> <ul style="list-style-type: none"> • 1 Hi-Speed USB 2.0 • 1 Host USB • 1 Ethernet 10/100/1000T network • 1 Walk-up USB <p>Network ready</p> <p>Standard (built-in Gigabit Ethernet)</p> <p>Minimum system requirements</p> <ul style="list-style-type: none"> • Windows 10 (32-bit/64-bit) Windows 8 (32-bit/64-bit), Windows 7 (32-bit/64-bit), Windows Vista (32-bit/64-bit): 1 GHz 32-bit (x86) or 64-bit (x64) processor, 1 GB RAM (32-bit) or 2 GB RAM (64-bit), 400 MB available hard disk space, CD-ROM/DVD-ROM or Internet, USB or network port • Mac OS X v10.5, v10.6, v10.7 • PowerPC G4, G5, or Intel® Core™ Processor • 500 MB hard disk • CD-ROM/DVD-ROM or Internet • USB or Network <p>Compatible operating systems</p> <p>Full software installs supported on: Windows 10 (32-bit/64-bit), Windows 8 (32-bit/64-bit), Windows 7 (32-bit and 64-bit), Windows Vista (32-bit/64-bit)</p> <p>Driver only installs supported on: Windows Server 2008 (32-bit/64-bit), Windows Server 2003 (32-bit) (SP3 or higher)</p> <p>Mac OS X v10.5, v10.6, v10.7</p> <p>Linpus Linux : 9.4, 9.5</p> <p>Red Hat Enterprise Linux: 5.0, 6.0</p> <p>OpenSuSE: 11.3, 11.4</p>



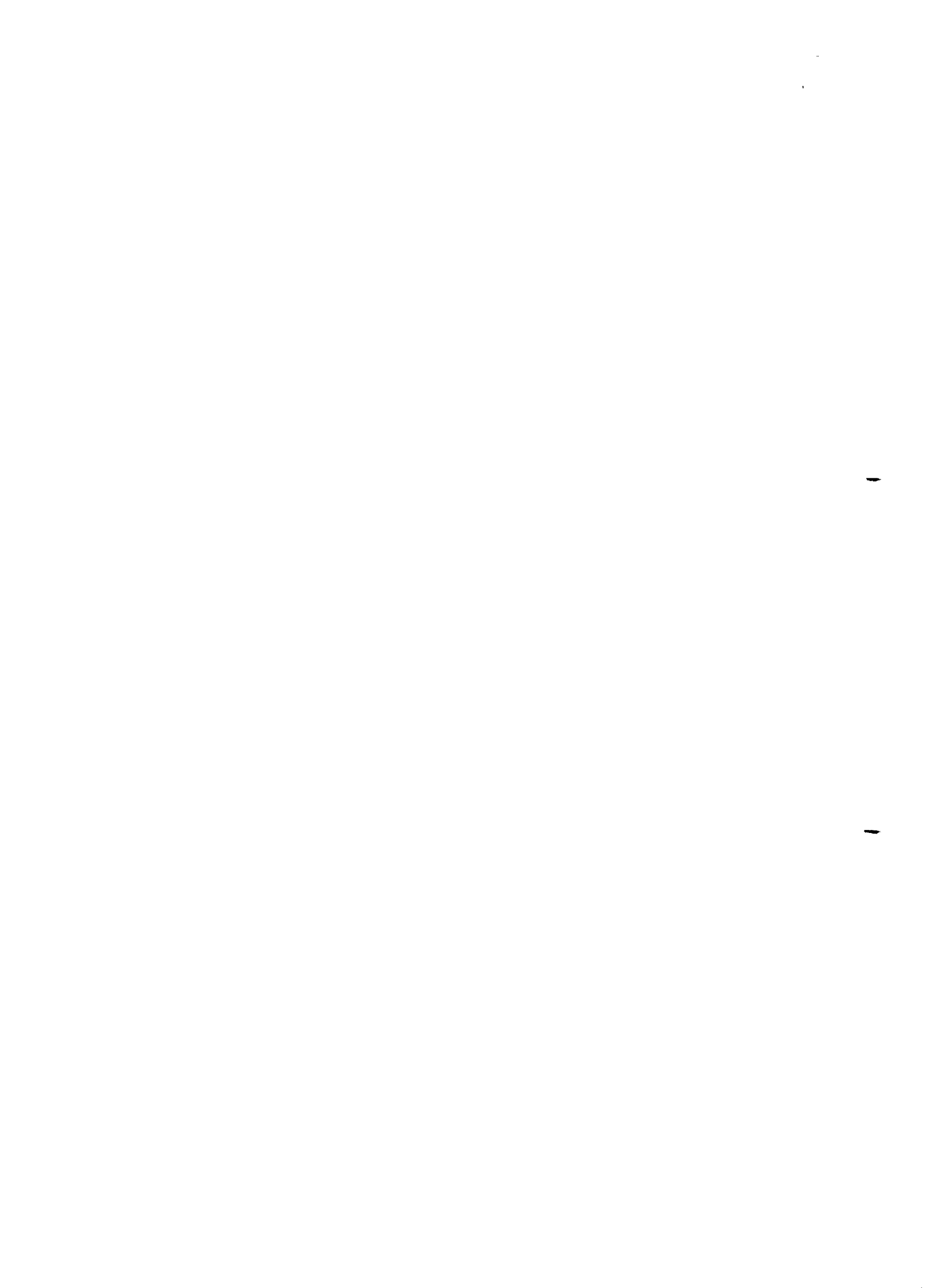
S No.	Name of Item	Technical Specifications
DLD LAB		
		Fedora: 14, 15 Ubuntu: 10.04, 10.10, 11.04 Debian: 5.0, 6.0 and HPUX11i OR AT LEAST EQUIVALENT
10	Brand New Photo Copier Machine Cannon IR-2525 OR AT LEAST EQUIVALENT	<ul style="list-style-type: none"> • Type: Monochrome Digital Multifunction Imaging System Functions Standard: Copy, Print (UFR II LT), Scan Optional: Print (PCL, PostScript 3 Emulation), Send (Color Send, Searchable PDF), Fax <ul style="list-style-type: none"> • Operation Panel 5.7" QVGA Black-and-White LCD Touch-Screen • Image Server Memory: Standard: 512MB RAM Maximum: 512MB RAM Network Interface Connection Ethernet 10/100Base-TX <ul style="list-style-type: none"> • Other Interface Standard: USB 2.0 (Host)x1, USB 2.0 (Device)x1 Optional: USB 2.0 (Host)x3 (USB Application 3-Port Interface Kit-A1), Serial Interface, Copy Control Interface • Letter: Up to 25 ppm, Legal: Up to 13 ppm, Ledger: Up to 15 ppm. First copy time: 5.4 Seconds (Letter), Multiple copies: 1 to 999, Copy Exposure Automatic or Manual (9 Levels) • Print controller technology: UFR II LT, PostScript 3 Emulation: Windows® (Windows 2000/XP/Vista®/Windows 7/Server 2003/Server 2008), Citrix Presentation Server 4.0/4.5, Citrix XenApp 5.0, XenDesktop 2.0/2.1/3.0, Macintosh® (OS X 10.6.1), SAP (PS3 Only) PCL 5e/6: Windows (Windows 2000/XP/Vista/Windows 7/Server 2003/Server 2008), Citrix Presentation Server 4.0/4.5, Citrix XenApp 5.0, XenDesktop 2.0/2.1/3.0, SAP • Power requirements: 120V AC, 60Hz, 6.9A, Plug NEMA 5-15P • File Format: TIFF, JPEG, PDF, PDF (Compact), PDF (OCR)*** I-Fax Data Format TIFF (MH) <p style="text-align: center;">OR AT LEAST EQUIVALENT</p>
10	Cisco Catalyst 2960-24-S Switch Series: Cisco Catalyst 2960 Series Switches	Product ID: View All PIDs CAB-STK-E-0.5M CAB-STK-E-1M



S No.	Name of Item	Technical Specifications
DLD LAB		
	OR AT LEAST EQUIVALENT	CAB-STK-E-3M CAB-STK-E-3M-WS RCKMNT-19-CMPCT= RCKMNT-23-CMPCT= RCKMNT-HPC= WS-C2960-24-S WS-C2960-24-S-RF Status: End of Sale EOL Details Compatibility: TwinGig Converter Module End-of-Sale Date: 31-OCT-2014 Details End-of-Support Date: 31-OCT-2019 Details Release Date: 14-AUG-2007 Packets per second (Mpps): 3.6 Power Consumption: Measured 100% Throughput (with Max. PoE loads) of 22 Max. Watt Power Consumption: 30 Dimensions (HxWxD): 1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm) AC/DC Support: AC only OR AT LEAST EQUIVALENT
11	Cisco 1801 Integrated Services Router Series: Cisco 1800 Series Integrated Services Routers OR AT LEAST EQUIVALENT	Product ID: View All PIDs Status: Orderable How to Buy End-of-Sale Date: None Announced End-of-Support Date: None Announced OR AT LEAST EQUIVALENT
12	Network Communication Rack	<ul style="list-style-type: none"> • Size: 600x800 • Cable manager • PDU • 4 cooling fans • 18 Gauge OR AT LEAST EQUIVALENT
13	Mobile Trainer MT-3000 OR AT LEAST	Features: Full Duplex Voice & Data Communication Half Duplex Voice & Data Communication



S No.	Name of Item	Technical Specifications
DLD LAB		
	EQUIVALENT	Practice of RF interference & mobile environment Chatting by using Computer. Board level and full system level experiment is available using one set Auto Mode and Manual mode can be selectable Built-in Software equal to the Commercial Products. Operating like as Commercial Mobile Products in Auto Mode. 16 x 2 Character LCD. LED Indicator. Over Charge Protection. OR AT LEAST EQUIVALENT
14	Wireless LAN WLAN TS-1000 OR AT LEAST EQUIVALENT	Wi-Fi practice board Wireless standards : IEEE802.11b/g/n Frequency range : 2.421~2.485GHz Data transmitting speed : 54Mbps ~ 1Mbps Serial cable connection to Wi-Fi Server Target Socket connection : Max 5 sec Best security via 64/128bit WEP, WPA, WPA2 Simple AT command practice 2) Wireless LAN Protocol Analyzer The ability to capture : Protocol capture to 802.11 and higher-layer Frequency band : b/g/n Number of Protocol analyzer : Max 256 Operating system : Windows XP Others : Channel switching function OR AT LEAST EQUIVALENT
15	MW-1000 OR AT LEAST EQUIVALENT	Features 1) Study the microstrip line design theory 2) Study the basic theory of microwave component 3) Microwave component design & simulation 4) Microwave component manufacturing 5) Microwave component measurement 6) Microwave component analysis of characteristics OR AT LEAST EQUIVALENT
16	WATS- 2002 OR AT LEAST EQUIVALENT	Features Most experiment is possible without extra measuring equipment. Antenna characteristics measurement. Mobile communication propagation experiment.



S No.	Name of Item	Technical Specifications
DLD LAB		
		Propagation modeling & Loss Simulation. Auto Calibration. User interface with GUI windows. OR AT LEAST EQUIVALENT

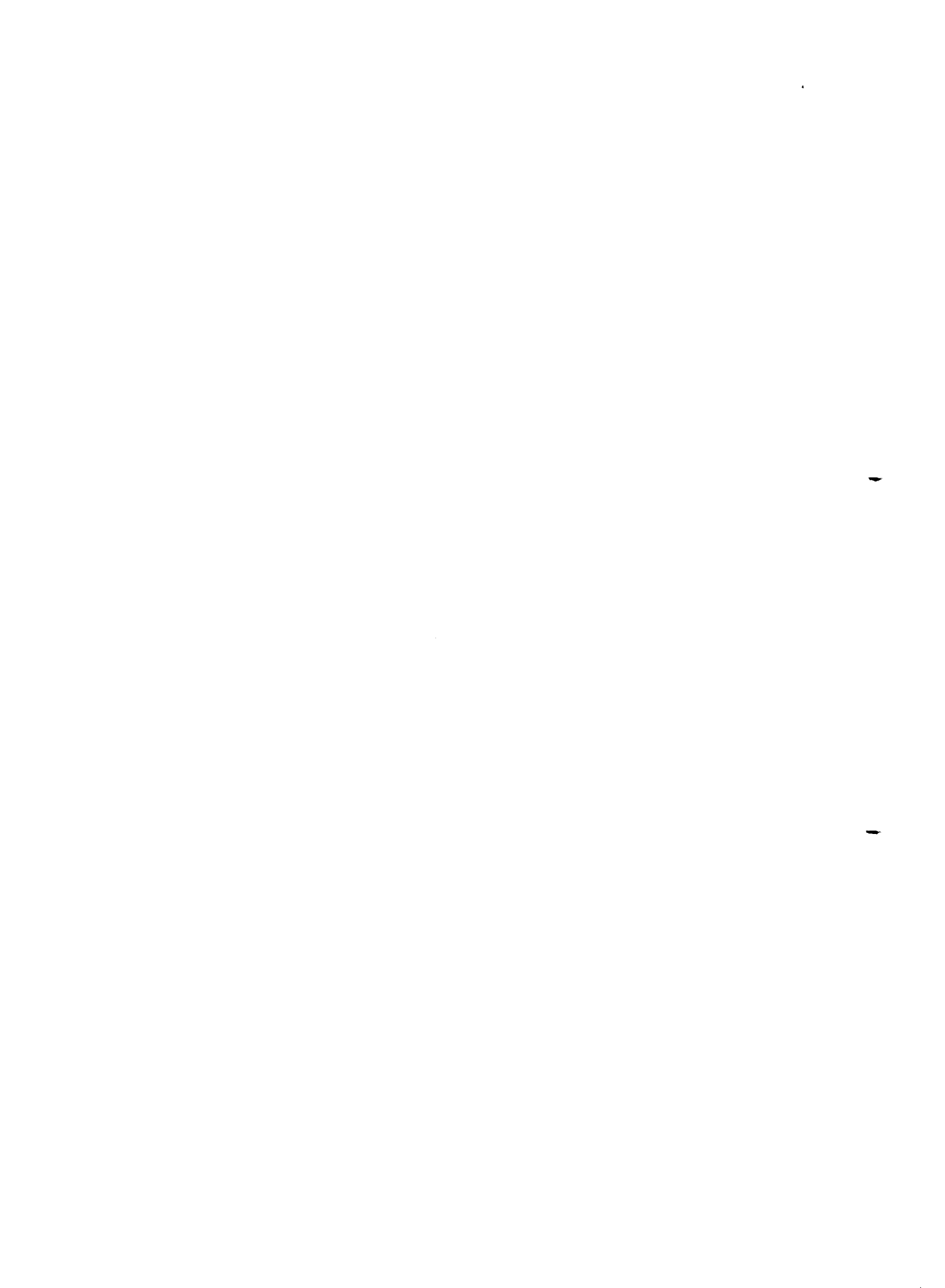


Technical Evaluation Sheet

Technical Evaluation (TE)

Minimum Passing Score=60%

1	Technical Specifications (As per species in Tender Documents)		20
	100%	20	
	Below 100 %	0	
2	Delivery (as per Schedule of Requirements in Tender Documents)		20
	45 Days /(7 weeks)	20	
	More than 7 Weeks	00	
3	Warranty Provided (as per tender document & as per ITB Clause 15.1 & 15.2 i.e. 12 Months minimum)		10
	Provided by bidder (in case of computer 3 years' service and maintenance required)	10	
	Not Provided by bidder	0	
4	Manufacturer Authorization Certificate Mentioned in Tender Documents & in the Bid Data Sheet		10
	Provided	10	
	Not Provided	0	
5	Model: Subject to no of experiments required per module		5
	100%	5	
	less than 100% above 75%	3	
6	Free of Cost Training of Procuring Agency Personnel on Equipment as per ITB Clause 13.1 e		10
	Mentioned by bidder Free of Cost	10	
	Not Mentioned by bidder or Cost Basis	0	
7	Make/Manufacturer		5
	U.S.A	5	
	Japan / Korea / Taiwan/Europe	3	
	China & local others	2	
8	Relevant Experience in Academia		5
	10 or More Years	5	
	Less than 10 Years	2	
9	Installation		5
	(a) Free of Cost	5	
	(b) On cost basis	00	
10	Fulfillment of requirements	10	10
	Total Marks for TE		100



Section VI. Sample Forms

Notes on the Sample Forms

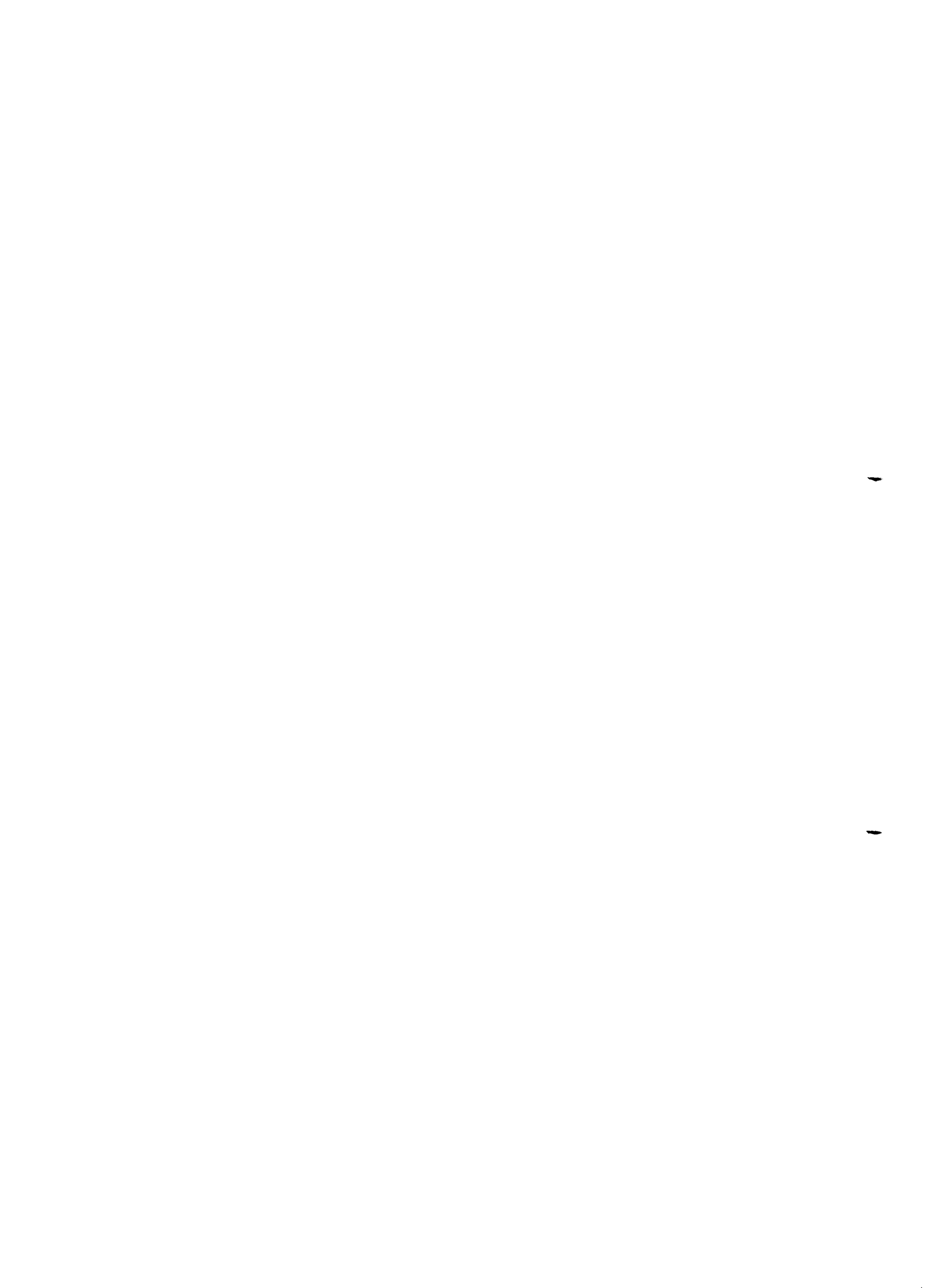
The Bidder shall complete and submit with its bid the **Bid Form** and **Price Schedules** pursuant to ITB Clause 9 and in accordance with the requirements included in the bidding documents.

When requested in the Bid Data Sheet, the Bidder should provide the **Bid Security**, either in the form included hereafter or in another form acceptable to the Procuring agency, pursuant to ITB Clause 15.3.

The **Contract Form**, when it is finalized at the time of contract award, should incorporate any corrections or modifications to the accepted bid resulting from price corrections pursuant to ITB Clause 16.3 and GCC Clause 17, acceptable deviations (e.g., payment schedule pursuant to ITB Clause 25.4 (c), spare parts pursuant to ITB Clause 25.4 (d), or quantity variations pursuant to ITB Clause 29. The Price Schedule and Schedule of Requirements deemed to form part of the contract should be modified accordingly.

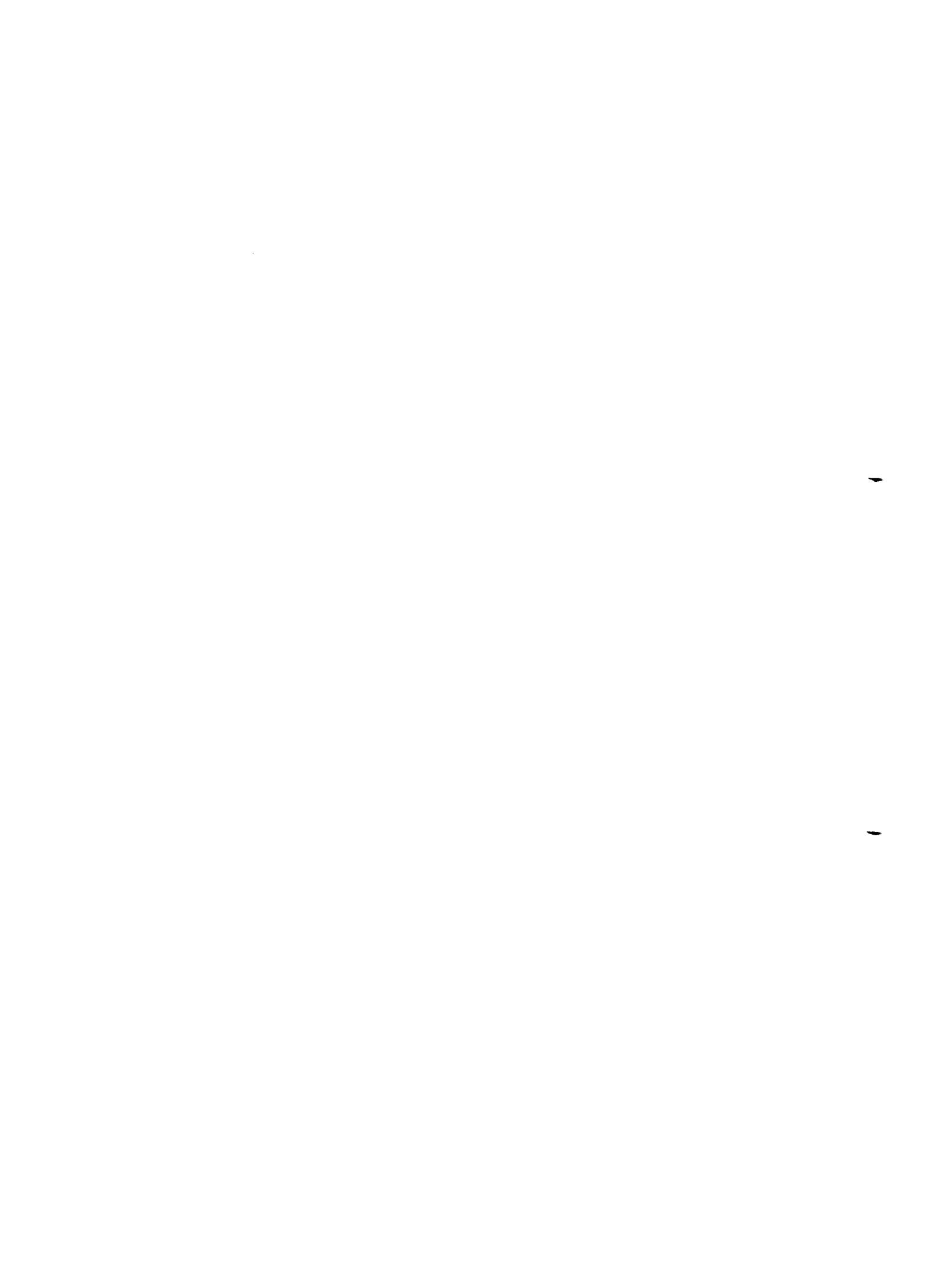
The **Performance Security** and **Bank Guarantee for Advance Payment** forms should not be completed by the bidders at the time of their bid preparation. Only the successful Bidder will be required to provide performance security and bank guarantee for advance payment in accordance with one of the forms indicated herein or in another form acceptable to the Procuring agency and pursuant to GCC Clause 7.3 and SCC 11, respectively.

The **Manufacturer's Authorization** form should be completed by the Manufacturer, as appropriate, pursuant to ITB Clause 13.3 (a).



Sample Forms

1. <i>BID FORM AND PRICE SCHEDULES</i>	23
2. <i>BID SECURITY FORM</i>	26
3. <i>CONTRACT FORM</i>	27
4. <i>PERFORMANCE SECURITY FORM</i>	28
5. <i>BANK GUARANTEE FOR ADVANCE PAYMENT</i>	29
6. <i>MANUFACTURER'S AUTHORIZATION FORM</i>	30



1. Bid Form and Price Schedules

Date: _____
IFB N^o: _____

To: *[name and address of Procuring Agency]*

Gentlemen and/or Ladies:

Having examined the bidding documents including Addenda Nos. *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver *[description of goods and services]* in conformity with the said bidding documents for the sum of *[total bid amount in words and figures]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we will obtain the guarantee of a bank in a sum equivalent to _____ percent of the Contract Price for the due performance of the Contract, in the form prescribed by the Procuring agency.

We agree to abide by this Bid for a period of *[number]* days from the date fixed for Bid opening under Clause 22 of the Instructions to Bidders, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

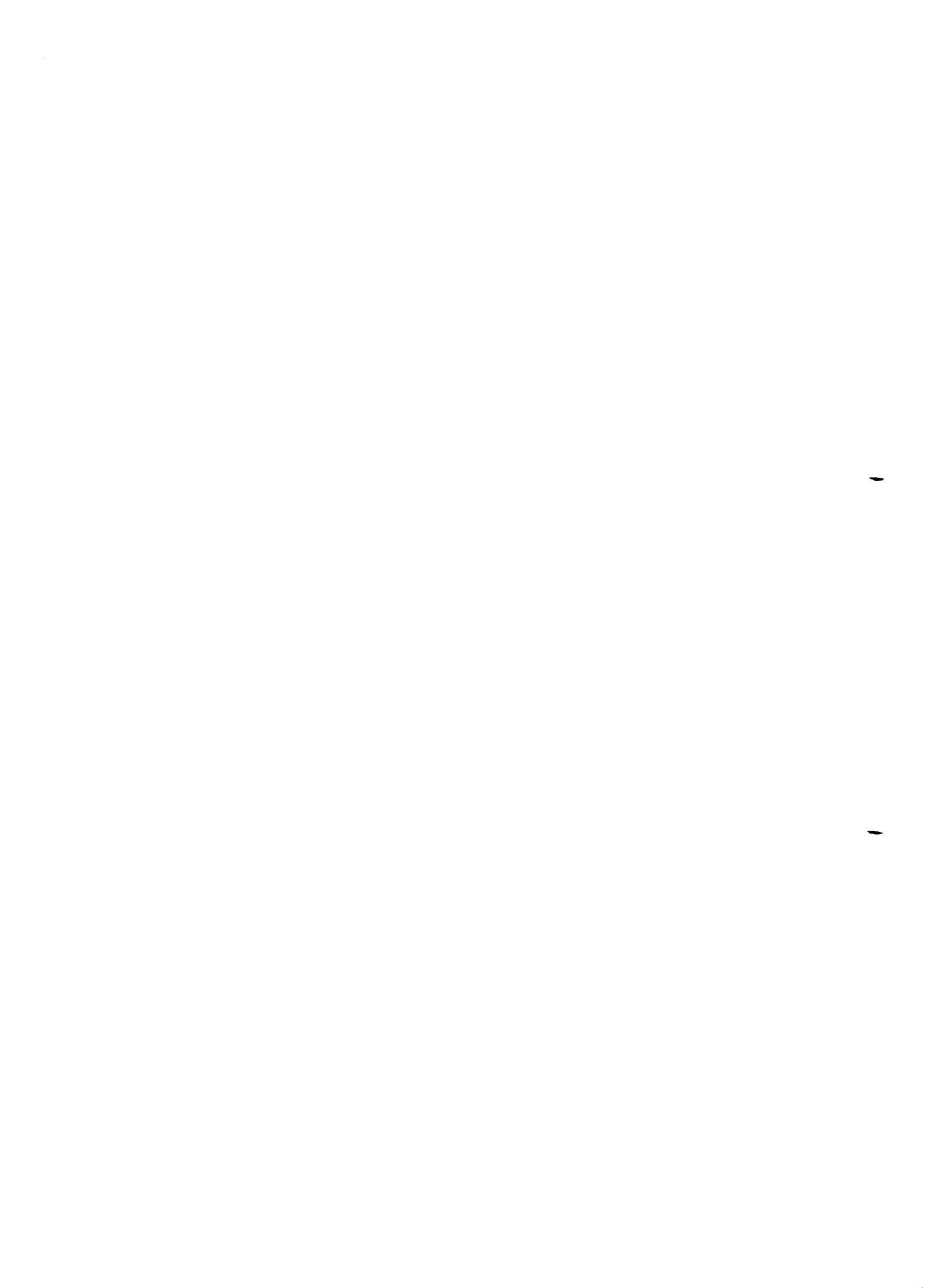
Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of agent	Amount and Currency	Purpose of Commission or gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "none")

We understand that you are not bound to accept the lowest or any bid you may receive.

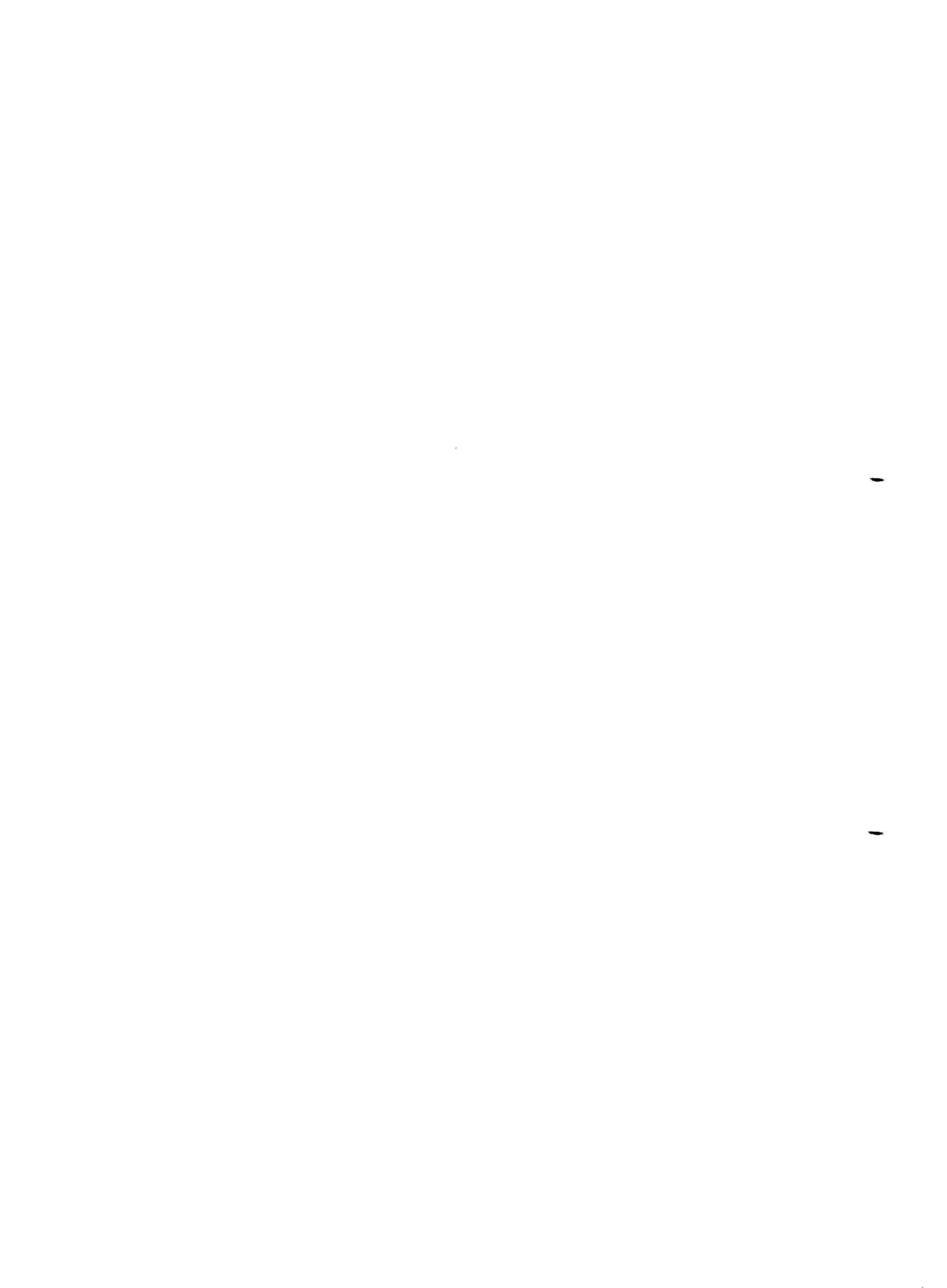


Dated this _____ day of _____ 19 _____.

[signature]

[in the capacity of]

Duly authorized to sign Bid for and on behalf of _____



Price Schedule in Pak. Rupees

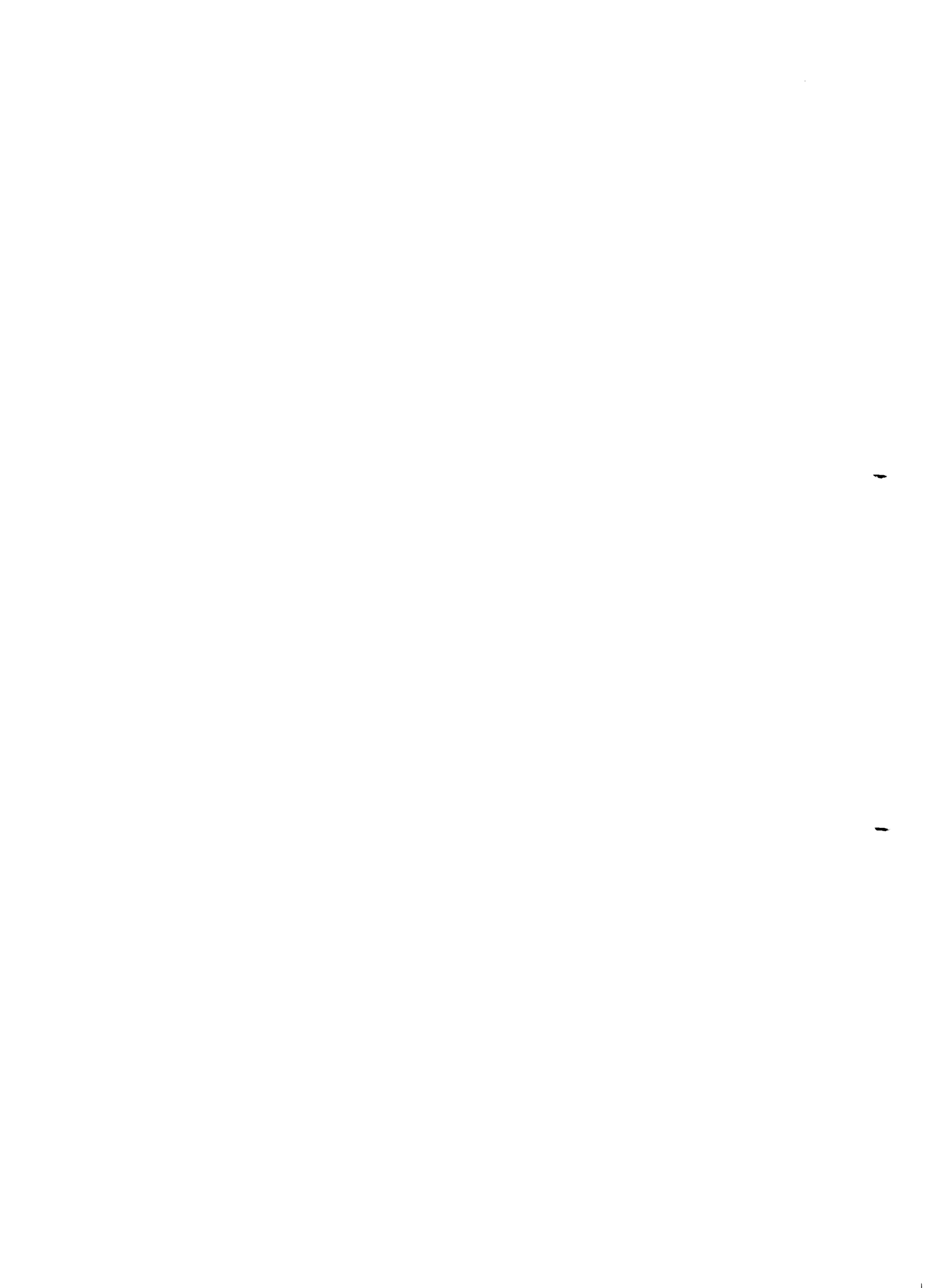
Name of Bidder _____ . IFB Number _____ . Page of _____ .

1	2	3	4	5	6	7
Item	Description	Country of origin	Quantity	Unit price DDP named place	Total DDP per item	Unit price of Delivered duty paid (DDP) to final destination plus price of other incidental services if required ³

Signature of Bidder _____

Note: In case of discrepancy between unit price and total, the unit price shall prevail.

³ Must be included if required under ITB 11.2



2. Bid Security Form

Whereas *[name of the Bidder]* (hereinafter called "the Bidder") has submitted its bid dated *[date of submission of bid]* for the supply of (hereinafter called "the Bid") *[name and/or description of the goods]*.

KNOW ALL PEOPLE by these presents that WE *[name of bank]* of *[name of country]*, having our registered office at *[address of bank]* (hereinafter called "the Bank"), are bound unto *[name of Procuring agency]* (hereinafter called "the Procuring agency") in the sum of for which payment well and truly to be made to the said Procuring agency, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this ____ day of _____ 19____.

THE CONDITIONS of this obligation are:

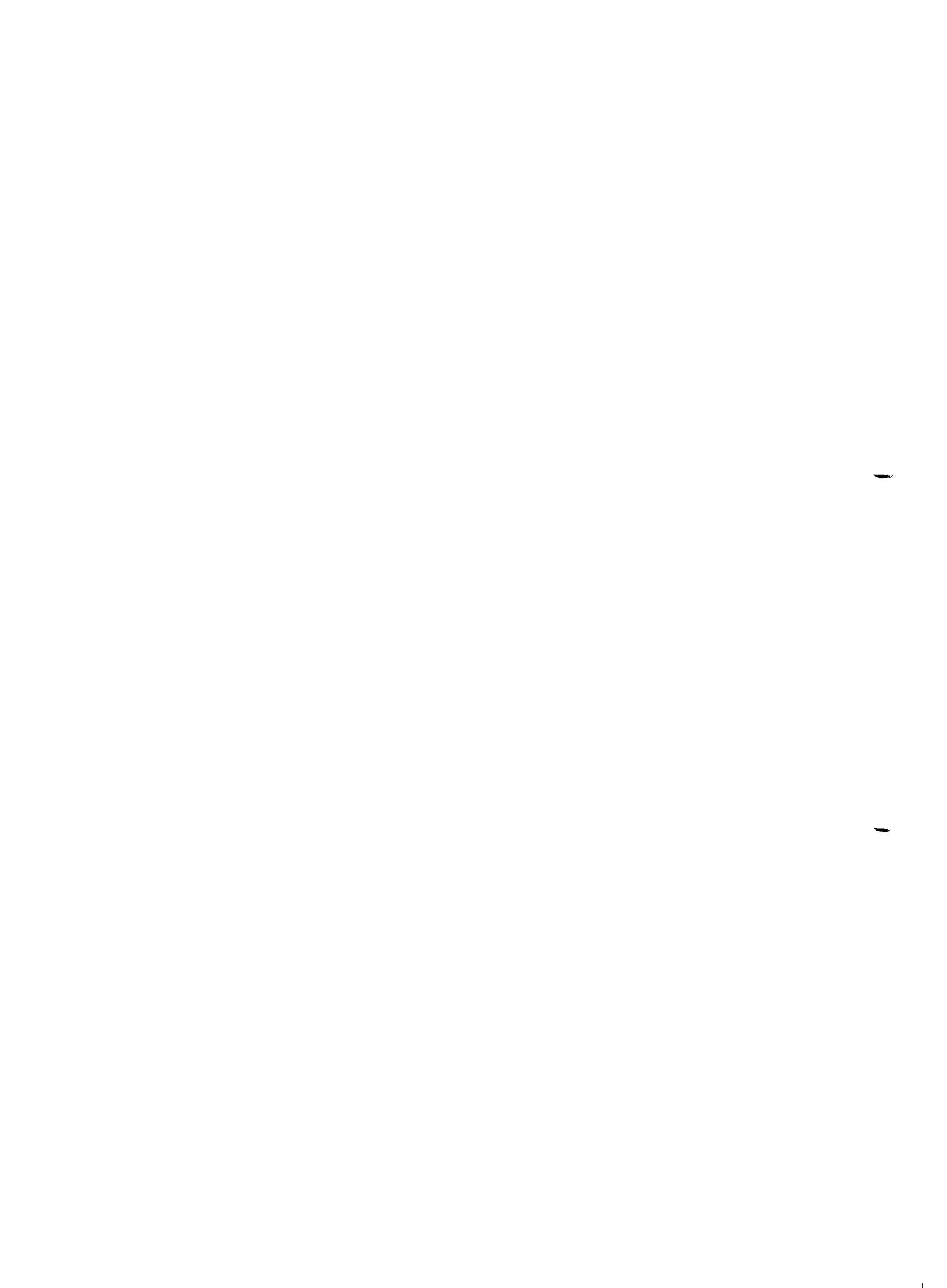
and Services in Bank Financed Procurement

1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
2. If the Bidder, having been notified of the acceptance of its Bid by the Procuring agency during the period of bid validity:
 - (a) fails or refuses to execute the Contract Form, if required; or
 - (b) fails or refuses to furnish the performance security, in accordance with the Instructions to Bidders;

we undertake to pay to the Procuring agency up to the above amount upon receipt of its first written demand, without the Procuring agency having to substantiate its demand, provided that in its demand the Procuring agency will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including twenty eight (28) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

[signature of the bank]



3. Contract Form

THIS AGREEMENT made the _____ day of _____ 19____ between *[name of Procuring Agency]* of *[country of Procuring agency]* (hereinafter called “the Procuring agency”) of the one part and *[name of Supplier]* of *[city and country of Supplier]* (hereinafter called “the Supplier”) of the other part:

WHEREAS the Procuring agency invited bids for certain goods and ancillary services, viz., *[brief description of goods and services]* and has accepted a bid by the Supplier for the supply of those goods and services in the sum of *[contract price in words and figures]* (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

- (a) the Bid Form and the Price Schedule submitted by the Bidder;
- (b) the Schedule of Requirements;
- (c) the Technical Specifications;
- (d) the General Conditions of Contract;
- (e) the Special Conditions of Contract; and
- (f) the Procuring agency’s Notification of Award.

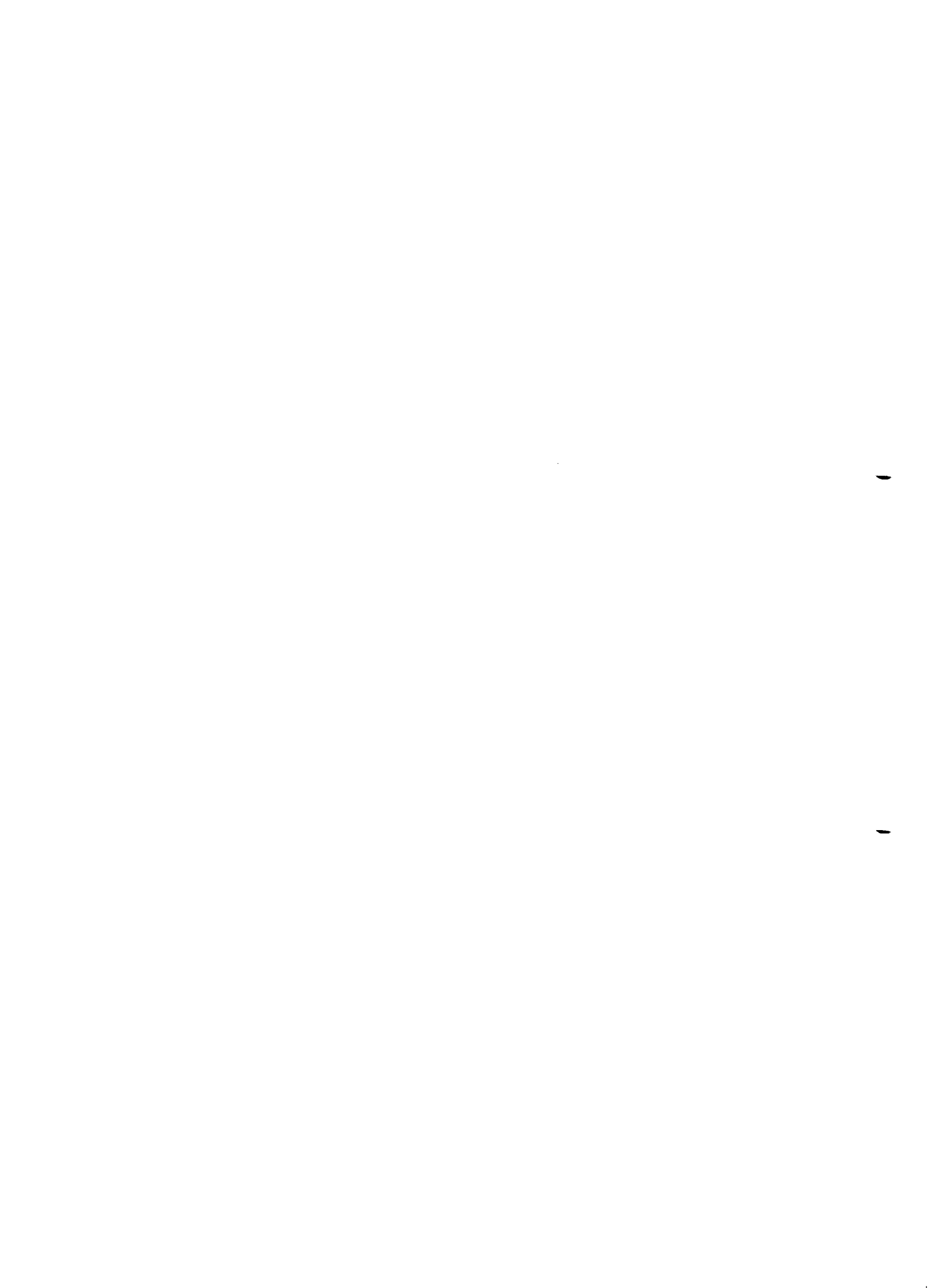
3. In consideration of the payments to be made by the Procuring agency to the Supplier as hereinafter mentioned, the Supplier hereby covenants with the Procuring agency to provide the goods and services and to remedy defects therein in conformity in all respects with the provisions of the Contract

4. The Procuring agency hereby covenants to pay the Supplier in consideration of the provision of the goods and services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by _____ the _____ (for the Procuring agency)

Signed, sealed, delivered by _____ the _____ (for the Supplier)



4. Performance Security Form

To: *[name of Procuring agency]*

WHEREAS *[name of Supplier]* (hereinafter called "the Supplier") has undertaken, in pursuance of Contract No. *[reference number of the contract]* dated _____ 19____ to supply *[description of goods and services]* (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish you with a bank guarantee by a reputable bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier a guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of *[amount of the guarantee in words and figures]*, and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limits of *[amount of guarantee]* as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

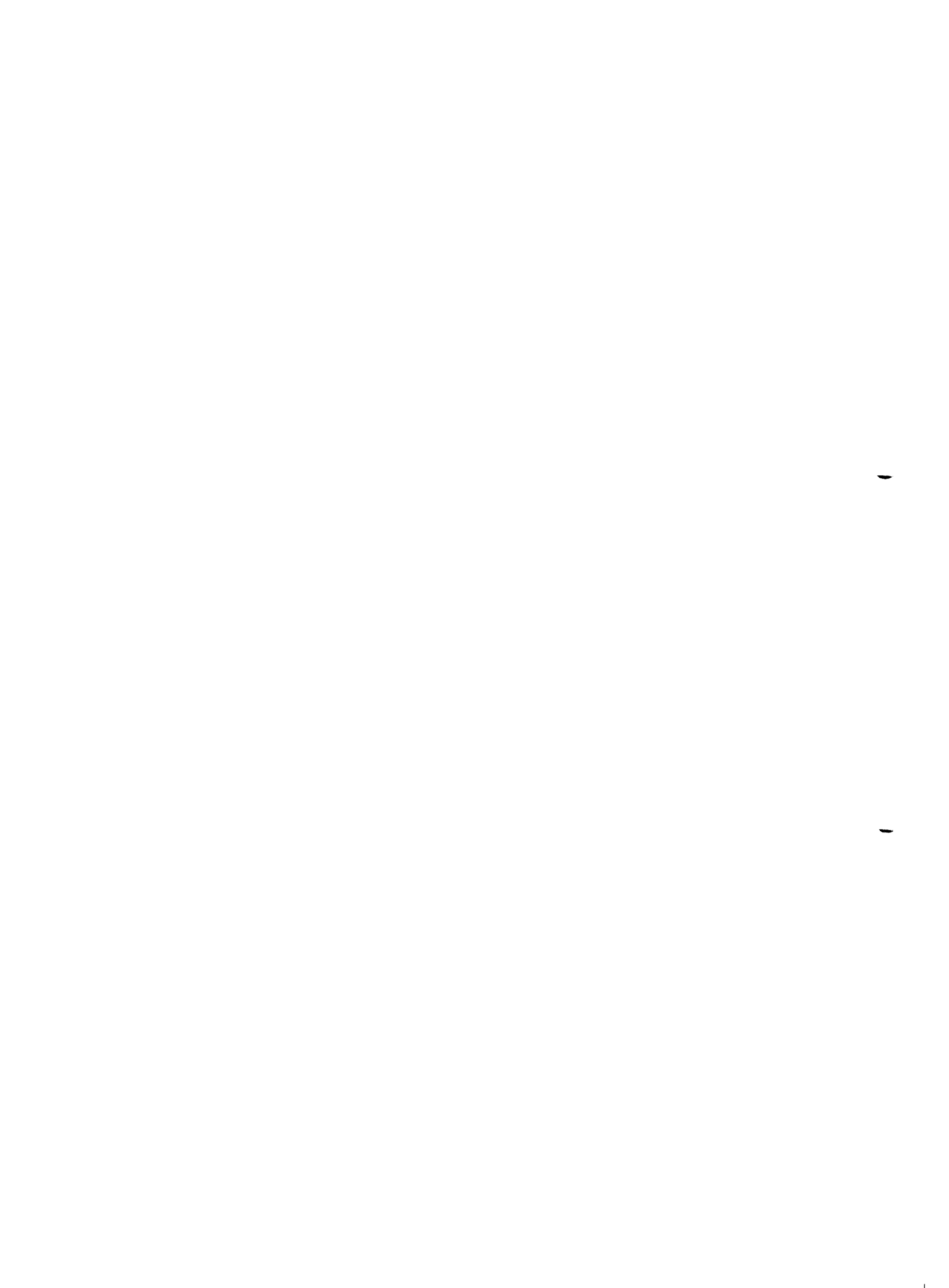
This guarantee is valid until the _____ day of _____ 19_____.

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]



5. Bank Guarantee for Advance Payment

To: *[name of Procuring agency]*

[name of Contract]

Gentlemen and/or Ladies:

In accordance with the payment provision included in the Special Conditions of Contract, which amends Clause 16 of the General Conditions of Contract to provide for advance payment, *[name and address of Supplier]* (hereinafter called "the Supplier") shall deposit with the Procuring agency a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract in an amount of *[amount of guarantee in figures and words]*.

We, the *[bank or financial institution]*, as instructed by the Supplier, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the Procuring agency on its first demand without whatsoever right of objection on our part and without its first claim to the Supplier, in the amount not exceeding *[amount of guarantee in figures and words]*.

We further agree that no change or addition to or other modification of the terms of the Contract to be performed thereunder or of any of the Contract documents which may be made between the Procuring agency and the Supplier, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment received by the Supplier under the Contract until *[date]*.

Yours truly,

Signature and seal of the Guarantors

[name of bank or financial institution]

[address]

[date]



6. Manufacturer's Authorization Form

[See Clause 13.3 (a) of the Instructions to Bidders.]

To: *[name of the Procuring agency]*

WHEREAS *[name of the Manufacturer]* who are established and reputable manufacturers of *[name and/or description of the goods]* having factories at *[address of factory]*

do hereby authorize *[name and address of Agent]* to submit a bid, and subsequently negotiate and sign the Contract with you against IFB No. *[reference of the Invitation to Bid]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Bids.

[signature for and on behalf of Manufacturer]

Note: This letter of authority should be on the letterhead of the Manufacturer and should be signed by a person competent and having the power of attorney to bind the Manufacturer. It should be included by the Bidder in its bid.

