



VII SEMESTER B.TECH. (CIVIL ENGINEERING)
END SEMESTER EXAMINATIONS, DEC 2023
SUBJECT: CONTRACT MANAGEMENT [CIE 4077]
REVISED CREDIT SYSTEM
(/ / 2023)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitably assumed.

Q. No.	Questions	M	CO	BL																																																																																										
1A	<p>a) Discuss the ways adopted and possible reasons by tenderers to prevent competitive bidding in engineering contracts. The table below shows the pricing of bids by two bidders for a construction project. The client estimate is 4,60,000 INR.</p> <table border="1"> <thead> <tr> <th colspan="5">Bidder - 1</th> </tr> <tr> <th>Item</th><th>Unit price</th><th>No. of units</th><th>Total cost</th><th>Time of payment</th></tr> </thead> <tbody> <tr> <td>Site clearing</td><td>500/d</td><td>60 days</td><td>30,000</td><td>End of 3rd month</td></tr> <tr> <td>Mobilization</td><td>800/d</td><td>10 days</td><td>8,000</td><td>End of 4th month</td></tr> <tr> <td>Fencing</td><td>15/m</td><td>422 m</td><td>6,330</td><td>End of 5th month</td></tr> <tr> <td>Formwork</td><td>12/m²</td><td>12000 m²</td><td>144,000</td><td>End of 6th month</td></tr> <tr> <td>Concrete</td><td>250/m³</td><td>650 m³</td><td>162,500</td><td>End of 7th month</td></tr> <tr> <td>Asphalt</td><td>12.5/m²</td><td>10000 m²</td><td>125,000</td><td>End of 8th month</td></tr> <tr> <td>Sum (Bid price)</td><td colspan="4">475,830 INR</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="5">Bidder - 2</th> </tr> <tr> <th>Item</th><th>Unit price</th><th>No. of units</th><th>Total cost</th><th>Time of payment</th></tr> </thead> <tbody> <tr> <td>Site clearing</td><td>2000/d</td><td>60 days</td><td>120,000</td><td>End of 3rd month</td></tr> <tr> <td>Mobilization</td><td>1200/d</td><td>10 days</td><td>12,000</td><td>End of 4th month</td></tr> <tr> <td>Fencing</td><td>30/m</td><td>422 m</td><td>6,330</td><td>End of 5th month</td></tr> <tr> <td>Formwork</td><td>9/m²</td><td>12000 m²</td><td>12,660</td><td>End of 6th month</td></tr> <tr> <td>Concrete</td><td>150/m³</td><td>650 m³</td><td>97,500</td><td>End of 7th month</td></tr> <tr> <td>Asphalt</td><td>11/m²</td><td>10000 m²</td><td>110,000</td><td>End of 8th month</td></tr> <tr> <td>Sum (Bid price)</td><td colspan="4">460,160 INR</td></tr> </tbody> </table> <p>b) Justify the basis for selecting the bidder for the above case. c) What could be the possible reasons to prevent true competitive spirit in the tendering process?</p>	Bidder - 1					Item	Unit price	No. of units	Total cost	Time of payment	Site clearing	500/d	60 days	30,000	End of 3 rd month	Mobilization	800/d	10 days	8,000	End of 4 th month	Fencing	15/m	422 m	6,330	End of 5 th month	Formwork	12/m ²	12000 m ²	144,000	End of 6 th month	Concrete	250/m ³	650 m ³	162,500	End of 7 th month	Asphalt	12.5/m ²	10000 m ²	125,000	End of 8 th month	Sum (Bid price)	475,830 INR				Bidder - 2					Item	Unit price	No. of units	Total cost	Time of payment	Site clearing	2000/d	60 days	120,000	End of 3 rd month	Mobilization	1200/d	10 days	12,000	End of 4 th month	Fencing	30/m	422 m	6,330	End of 5 th month	Formwork	9/m ²	12000 m ²	12,660	End of 6 th month	Concrete	150/m ³	650 m ³	97,500	End of 7 th month	Asphalt	11/m ²	10000 m ²	110,000	End of 8 th month	Sum (Bid price)	460,160 INR				4	2	3
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1B	"NHAI plans to award 1,000-1,500 km of projects under BOT model in 2023-24". Discuss the nature, suitability, and advantages of the type of PPP model addressed in the statement.	3	1	3																																																																																										
1C	Consider the following situations: a) Repair of the bridge piers due to severe reinforcement corrosion and b) Contract for a water supply pipeline in a district. Which method of inviting tender is suitable for each of the cases? Justify.	3	2	3																																																																																										
2A	How cost escalation is tackled in construction contracts? List the alternatives for determining the prices for extra items of work.	4	3	2																																																																																										
2B	With the help of a neat sketch, discuss the risk sharing between the contracting parties in a) Measurement contract, b) Costplus contract, and c) Turnkey contract.	3	1	2																																																																																										
2C	List and discuss the importance of construction files and records.	3	3	2																																																																																										
3A	<p>For the following situations, identify the type of breach and discuss its consequences in each case.</p> <p>a) The successful bidder repudiated the contract after the tendering process b) Radical changes suggested by the Owner for specific items of work during the execution of the contract c) Defective/substandard work by the Contractor</p>	4	3	3																																																																																										



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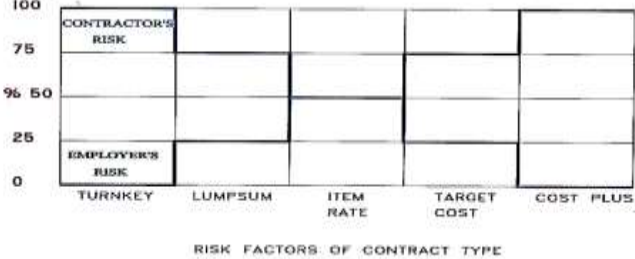
	d) Act of war.			
3B	Discuss the applicability of a) Quantum Meruit and b) Section 74 of the Indian Contract Act as a means of claim to the Contractor due to breach by the Principal.	3	3	2
3C	Identify and discuss the clause that penalizes the Contractor for the time delay in construction.	3	3	2
4A	With the help of a neat sketch, discuss a) the relationship between conflict, claim, and dispute and b) potential sources of conflict in construction contracts.	4	4	2
4B	Litigation is the last resort for dispute resolution. Justify.	4	4	3
4C	Discuss the procedure adopted to give preference to domestic bidders in International Competitive Bidding.	2	5	2
5A	Discuss the unique features of Conciliation as a method of dispute resolution in Indian Contracts.	4	4	2
5B	Discuss the preferred method of dispute resolution for a large and complex engineering contract funded by the World Bank involving multiple functional departments. Justify the basis of selection.	4	4	3
5C	Explain the enforcement of Arbitration awards in foreign countries.	2	5	2



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SCHEME OF VALUATION

Q	Answer	Distribution	marks
1A	<p>Possible ways – Unbalanced bidding – An issue in the Item-rate contracts. Back-loading and quantity exploitation are also implemented sometimes to make the price of the bid the lowest amongst the competitors. Cartel or collusion is also a means to prevent competitive bidding. Possible reasons: Cost of tendering is high, High competition, and the rate of securing the bid is too low.</p> <p>Unbalanced bidding – Front end loading by bidder – 2 by quoting excessively high prices on the items of work to be executed in the initial stages of the contract.</p>	1.5+1.5+1	4
1B	<p>Suitability: Build Operate Transfer: highways and expressways, bridges, tunnels, electricity power generation, and supply that save the cost of operation and/or time of travel for which users will pay reasonable charges.</p> <p>Nature: to design, finance, construct, operate, and maintain the works for a “concession period” in consideration of the exercise and/or enjoyment of the rights, powers, benefits, privileges, authorities, and entitlements, including the amount receivable from the collection of charges levied on the beneficiaries who use the work and in some cases annuity payment each year.</p> <p>Advantage: the state or public authority is not required to finance the project immediately, and the project is made to generate the funds and be self-financing to the extent required</p>	1+1+1	3
1C	<p>Nominated tendering – complexity, urgent, and emergency, involves unique skills and expertise.</p> <p>Unrestricted tendering Openly invited / Pre-registered – conventional work, better possibility to get quality bidder at low price</p>	1.5+1.5	3
2A	<p>Cost escalation:</p> <p>The price adjustments for escalations in costs, when provided for in contracts, will be governed by the following conditions:-</p> <p>i) the materials covered in schedule A, which are issued by the Principal, shall be excluded from the scope of price adjustments for escalations as these would be issued at a fixed price.</p> <p>ii) the price adjustment shall be done from the date indicated in the contract document. (usually date of submission of bid or date of award of contract)</p> <p>iii) the price adjustments will be provided up to date of completion, initially specified in the contract or such extended period of time as sanctioned for reasons not attributable to the Contractor.</p> <p>iv) price adjustments shall be determined for each quarterly or monthly running bill as per, the procedure and based on indices, specified in the contract documents.</p> <p>v) price adjustments shall be given to the extent of 75% to 85% of the escalation in costs.</p> <p>From the similar/allied product in the existing contract, Refer to SoR if not included in the contract, Market survey and rate analysis if not available in SoR</p>	3+1	4



2B	 <p>Turnkey – risk by the Contractor is 100%, and the client is 0% due to the Contractor assuming the role of the Principal. Item-rate – risk sharing is equal – Measurement book and the BoQ, assurance to cater to uncertainty, only the quantity is uncertain, the scope is well defined Costplus – The Contractor's risk is the least as he will manage to get the project cost irrespective of the profits and overheads. The client is uncertain about the pricing as it cannot be done on an ordinary basis.</p>	1+1+1	3
2C	<p>List of construction files: Site order book, physical inspection register (wherever applicable), cement register, dismantle register, etc. Records may be kept not only in terms of measurements, photographs, documents including invoices and correspondence, site books minuting meetings, and videos. The Contractor's records of the requirements, orders, receipt, and use of materials are kept in a form approved by the Nodal Officer or his nominee, and such records shall be available for inspection by the Nodal Officer or his nominee. Reason: The updated files and records help prevent conflicts and resolve issues before they become disputes. It is easier for the parties to identify and settle the claims, if any. The maintenance and documentation of files and records help to resolve the dispute as proof for the claims by the injured party.</p>	2+1	3
3A	<p>a) Anticipatory breach b) Fundamental breach by the Principal c) Fundamental breach by the Contractor d) Force majeure Consequences: a) Forfeiture of EMD, if the losses are more, then the legal steps are taken, abeyance of the Contractor by suspending him from participating in tendering. b) The Contractor can refuse to perform the work. It can also constitute a breach of contract, leading to termination and has the right to claim for the losses incurred. c) The Principal can make the payment at reduced rates under accord and satisfaction. The Principal can waive the breach if pleaded by the Contractor to keep the contract subsisting and alive. This also constitutes a breach and can lead to the termination of the contract with a provision to claim for the losses incurred by the Principal. d) This constitutes force majeure, and none of the parties are liable to pay compensation for the damages.</p>	1+1+1+1	4
3B	<p>Applicability of Quantum meruit (Section 70 of ICA 1872): Claims based on Quantum Meruit can arise and is awarded when the work done/service is rendered by one party for another party in circumstances/situations when either there is no contract or, though there is a contract, such an item/event is not covered in the contract and the party performing it is entitled to receive a reasonable remuneration/compensation as a matter of natural justice and fairness. Applicability of Section 74 of ICA:</p>	1+2	3



	<p>When a contract has been breached, if a sum is specified in the contract as the amount to be paid in case of such an event or if the contract contains a stipulation (or method) for determining the compensation.</p> <p>The party suffering the loss is entitled to receive a reasonable compensation not exceeding the amount so specified in the contract or the amount has arrived at by way of stipulation (or method) in the contract for determining compensation.</p>		
3C	<p>Liquidated damages:</p> <p>The limit of L.D. is mentioned in clause 9 of Standard Contract Clauses.</p> <p>The limit of L.D. is 10% of the contract value</p> <p>L.D. is allowed $\frac{1}{2}$ percent per week of delay.</p> <p>The owner, if satisfied, that the works can be completed by the contractor within a reasonable time after the specified time for completion, may allow further extension of time at its discretion with or without the levy of L.D.</p> <p>The owner, if not satisfied that the works can be completed by the contractor, and in the event of failure on the part of the contractor to complete work within further extension of time allowed as aforesaid, shall be entitled, without prejudice to any other right, or remedy available in that behalf, to rescind the contract.</p>	1+1+1	3
4A			
4B	<p>This is a method for dispute resolution in which a judicial authority – a court of law, a tribunal or a similar body hears the submissions of the parties to the dispute and awards a settlement that is strictly in accordance with the provisions of the laws of the land.</p> <p>Courts follow strict rules of evidence and civil procedure code</p> <p>Very time consuming, laborious and tedious</p> <p>Decision given by the courts strictly according to the law and statutes as they exist. Decision given by the courts strictly according to the law and statutes as they exist.</p> <p>These awards are mandatory, binding on the parties to the dispute and are legally enforceable.</p> <p>Both the parties are put to lot of suffering and hardships. Litigation should be the last resort to settle disputes.</p>	1+1+1+1	4
4C	<p>Preference for about 7.5%-10% of the contract value</p> <p>Procedure to adopt this preference for local bidders.</p> <p>a) After securing all, the rates quoted are converted to a single currency value. Grouped into i) tenders by domestic bidders ii) tenders by foreign bidders.</p> <p>b) Amount equal to a specified % of quoted rates or bid value will be either added to foreign bidders or deducted from domestic bidders</p>	2	2



	c) Comparative statements are then prepared, and tenderers are ranked in the increasing order of their tender sum		
5A	<ul style="list-style-type: none"> There need not be any prior agreement to settle the disputes through conciliation. This method can be used even when parties have initiated arbitration/litigation to resolve the dispute. According to the Arbitration and Conciliation Act 1996, the Arbitrator/court can prompt the parties to settle dispute through conciliation, even when Arbitration/Litigation proceedings are going on. The parties cannot initiate any arbitration/litigation proceedings related to the dispute when the matter is under conciliation proceedings. The ACA 1996 act provides that if the parties arrive at an agreement for settlement of the dispute through conciliation and the agreement is registered, then it will have same status and effect as if it was an arbitration award. <p>In case conciliation fails, the parties resort to arbitration or litigation to resolve the dispute, the views expressed, or concessions offered during conciliation cannot be used as evidence.</p>	1+1+1+1	4
5B	<p>Dispute resolution board / Dispute review board:</p> <p>This method is more suited for large Engineering projects involving multiple contracts, international contract.</p> <p>It starts functioning right from the beginning of the project to its end. It meets periodically to review activities related to the project, identifies, discusses the issues which have the potential to cause disputes before they crop up and suggests measures to prevent disputes.</p> <p>World bank has made it mandatory to constitute DRBs in all projects financed by its aid.</p> <p>Though originated in construction industry, they are now preferred in financial services sector, operation and maintenance contracts for existing plants and industries, companies involving joint ventures, multiple partners, etc.</p> <p>DRBs established under a contract between the Principal and main Contractor are empowered to hear disputes arising out of sub-contractors also.</p> <p>Most of the DRBs decisions are accepted and arbitration/litigations are avoided although its decisions are non-binding and the matter can be referred to arbitration or litigation.</p>	1+1+1+1	4
5C	<p>The enforcement is subject to the following(basis of enforcement):</p> <p>Arbitration agreement is legally valid.</p> <p>The award has been made by the Arbitration panel constituted in the manner agreed upon by the parties and the arbitration proceedings are in conformity with the laws relevant to the Arbitration procedure.</p> <p>The award has been made in accordance with the terms of reference submitted to the arbitrator.</p> <p>The award has become final in the country in which it has been made and there are no cases pending in that country.</p> <p>The recognition and enforcement of the award is not in contrary to the policy or law of the country in which it is to be enforced.</p>	0.5x4	2