



SUMMER – 2015 EXAMINATION

MODEL ANSWER

Subject: Contracts and Accounts

Subject Code: 17603

Important Instructions to examiners:

- 1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
- 2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more importance. (Not applicable for subject English and Communication Skills.)
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by the candidate and those in the model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and the model answer.
- 6) In case of some questions credit may be given by judgment on part of examiner of relevant answer based on candidate's understanding.
- 7) For programming language papers, credit may be given to any other program based on equivalent concept.

Model Answer

Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.1	[A] (a) Ans.	Attempt any THREE of the following: State any four functions of Superintending Engineer of PWD. He is responsible for execution of work in his circle. Functions: i. Administrative approval to the work under his control. ii. He should give technical sanction to estimates within his power. iii. Technical sanction under his control. iv. Inspect work in his circle. v. Arrange payment of store and material. vi. Inspect division in his circle and report to chief engineer. vii. To check progress of work under his circle. viii. Financial control over execution of original repair work.	1 mark each (any four)	4
	(b) Ans.	Define a contract and state its objects. Definition: Contract is an undertaking by person or firm to do work under certain terms and conditions. Objects of contract: i. To execute the work by experienced persons. ii. To execute the work with most competitive rate. iii. To do work as per specification. iv. To use latest machineries and techniques. v. To have free hand for a supervisor to check the work done by contractor without interference.	2 marks ½ mark each (any four)	4



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.1	[A] (c) Ans.	<p>Describe any four requirements of valid contract.</p> <p>Following are the requirements of valid contract:</p> <ol style="list-style-type: none">Contract should be in writing and should be signed by both the parties i.e. owner and contractor.The subject matter of agreement must be legal and definite.If situation arises the contract can be enforced in court of law.Parties should be competent enough to carry out work.Both parties must give their free consent to do work.Contract should be attested by responsible officer.	1 mark each (any four)	4
	(d) Ans.	<p>Define arbitration. State the qualities of arbitrator.</p> <p>Definition: During execution of work owner and contractor may come across situations where disputes may arise. The process of settling the dispute between owner and contractor is called as arbitration.</p> <p>The qualities of arbitrator are as follows:</p> <ol style="list-style-type: none">The arbitrator should be a person having experience of work.He should have in depth knowledge of work.He should know rules, procedures of law.Main thing is he should be impartial and acceptable to both parties.	2 marks	4
	(e) Ans.	<p>Give the meaning of earnest money deposit and security deposit.</p> <p>Earnest money deposit: While submitting tender contractor has to deposit certain amount about 1 to 2% of estimated cost with department. This amount is termed as earnest money deposit. It ensures guarantee of the tender, so that contractor may not refuse to accept work or run away when his tender is accepted.</p> <p>Security deposit: After acceptance of tender, contractor has to deposit a certain amount with the department or owner is called as security deposit, it varies from 5 to 10% of total estimated cost of work.</p>	2 marks 2 marks	4



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.1	[B] (a)	Attempt any ONE of the following: State different methods of executing a work by P.W.D. and explain any one in detail.		6
	Ans.	The following are the various methods for executing a work by P.W.D. i. Rate list method ii. Piece work method iii. Day's work method iv. Employing labour on daily wages	2	
		<u>i. Rate list method:</u> 1. This method is suitable for petty work when the cost is small. Hence various contracting firms are not interested in carrying out work and advertisement in newspaper is not justified for work of small magnitude. 2. For such petty work list of petty workers are kept in the office of executive engineer. 3. Cost of any individual work to be executed does not exceed Rs.3000/- 4. The petty workers will quote rate and lowest offer is accepted.	<i>1 mark each</i>	
		OR		
		<u>ii. Piece work method:</u> 1. This method is suitable for maintenance and repair work. 2. Piece work is the agreement which involves the payment for work done at agreed rate without reference to total quantity of work to be done or time of completion. 3. Agreement contains only description of item to be executed. 4. Form shall be invited from piece worker. The agreement is made on A1 form for percentage basis and A2 form for item rate basis. 5. The piece worker has to arrange all material and labour required for carrying out work.	<i>1 mark each (four points)</i>	6
		OR		
		<u>iii. Day's work method:</u> 1. There are certain works of special nature which can not be measured hence their valuation is made on basis of actual material and labour used. For e.g. decorative plaster work 2. In such cases day work method is adopted for valuation of above items on basis of actual material used and number and class of labour employed and tools and plants required for work. 3. In this method contractor has to maintain day to day account of material consumed, the labour, types of labour, the hours for which each labour is employed is filled in day work sheet. 4. Contractor is paid on the basis of net cost of various material required and wages paid to the labour plus 20- 25 % as his profit.	<i>1 mark each</i>	



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Q.1	[B] (a)	<p style="text-align: center;">OR</p> <p><u>iv. Employing labour on daily wages:</u></p> <ol style="list-style-type: none"> In this method department purchase material directly from supplier and engage labour on daily wages on muster as and when required. The material is supplied by department or can be purchased directly from market. The attendance of total number of labour employed is maintained in muster roll form No.21 by Junior engineer and it is checked by assistant engineer. The payment is made weekly, fortnightly or monthly as per requirement. When muster roll is closed for payment it is necessary to measure the work during that period and enter it in measurement book. <p><i>(Note: Any one method explained should be given full marks.)</i></p>	1 mark each																	
	(b)	<p>State the differences between:</p> <p>(i) Secured Advance and Advance Payment</p> <p>(ii) Running Account bill and Final bill</p>																		
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Q.2	(a)	Attempt any FOUR																										
		Briefly explain administrative approval and technical sanction in connection with government works		16																								
		Ans.	<p>i. <u>Administrative approval:</u> For any work, it is necessary to take formal acceptance with respect to cost and work is called as administrative approval. For this the department sends a proposal to government for taking up the work. After considering all aspects like feasibility of project, financial aspect, government accepts proposal.</p> <p>ii. <u>Technical sanction:</u> Technical sanction means the sanction of the detailed estimate, design, rates and cost of work. It is sanctioned by competent authority. The work is taken for the execution only after the technical sanction.</p>	<i>2 marks</i>	4																							
		(b)	Mention the method of execution of following works you would suggest the reasoning.																									
	Ans.	<p>Concrete lining of a canal - Item rate contract</p> <p>WBM road construction - Item rate contract</p> <p><u>Reasons for above methods:</u></p> <p>i. This method is used for execution as each individual items of work are included.</p> <p>ii. Both works are executed by government organization hence item contract method is suitable for said works.</p>	<i>1 mark</i> <i>1 mark</i> <i>1 mark</i> <i>1 mark</i>	4																								



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Q.2	(c)	Explain cost plus percentage rate contract with its advantages and disadvantages.		
	Ans.	<u>Cost plus percentage rate contract:</u> i. In this type of contract, contractor is paid the actual cost of work plus certain percentage as profit. ii. Various contract documents, drawings, specifications are not necessary at the time of signing agreement. iii. Contractor has to keep all records for cost of material and labours and contractor will be paid accordingly by engineer in charge. iv. This type of contract is suitable for emergency work like difficult foundation condition, construction of expensive structure etc. <u>Advantages:</u> i. Extra item is allowed ii. Suitable for private work iii. Early completion of work is possible iv. Quality of work is assured <u>Disadvantages:</u> i. Total cost of work is not known before completion of work. ii. Not suitable for government work iii. No incentive for contractor for early completion of work iv. Contractor may produce fictitious bill	1 mark each (any two) $\frac{1}{2}$ mark each (any two) $\frac{1}{2}$ mark each (any two)	4
	(d)	State the salient features of BOT project.		
	Ans.	<u>Features of BOT project:</u> i. BOT project means build, operate and transfer project. It is defined as a type of agreement in which private sector builds infrastructure project, operates it and transfers ownership of project to government. ii. Fast development of infrastructure is possible. iii. On completion of project, the expenditure incurred will be collected by toll and this amount is used for maintenance of project. iv. Quality of work is good since public, private partnership is there for construction of project.	1 mark each	4



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Q.2	(e) Ans.	<p>What is measurement book? State its importance.</p> <p>Measurement Book (M.B.): It is the book in which measurement of all works and supplies are recorded in the measurement book form no.23, and payment of all works is made on the basis of measurement recorded.</p> <p>Importance:</p> <ol style="list-style-type: none">It is very important account record.All the payment of all works is done based on entries done in measurement record.	2 marks	4
	(f) Ans.	<p>State the use of i) Cash book ii) NMR iii) Indent iv) Imprest cash</p> <p>The uses of</p> <ol style="list-style-type: none">Cash book: All the transactions relating to the actual receipt and payment of cash are recorded in the cash book.NMR (Nominal Muster Roll): It is necessary to keep the record of attendance of labour.Indent: Procurement of material from store.Imprest Cash: In P.W.D individual officer are given a permanent advance of Rs. 1000/- for the petty expenses to make a payment in connection with government work. From this amount they can pay transport charges, miscellaneous payment of materials and accounting of these works is known as imprest cash account.	1 Mark each	4



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Q.3	(a)	Attempt any FOUR Explain the situation when the lowest tender is rejected. The following are the situation when the lowest tender is rejected: i. When tender is not submitted in particular form sold by department. ii. The lowest tenderer may lack in experience for work. iii. Earnest money is not enclosed along with tender. iv. Unsatisfactory reputation of lowest tender. v. In adequate finance to execute work. vi. Inadequate connection of fair rates is not received. vii. Tender is not signed by contractor. viii. If any page is removed from document. ix. If contractors is black listed by any department.	1 mark (any four)	16																																																									
	(b)	What is unbalanced tender? Explain with example. In case of unit price contract the contractor has to quote his rate for each item. If these rates quoted by contractor are reasonable, the tender is known as balance tender. But sometimes the contractor puts up higher rates for certain items and lower rates for other items so that the total amount of tender remains practically unaffected, such a tender is known as unbalanced tender. The contractor quotes higher rates for those items which are to be completed in the early part of work so that he gets slightly excessive payment from which he can build up working capital. Following is the example of unbalanced tender :																																																											
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Q.3	(b)	<p>Here the contractor P has quoted very high for item no. 1 and very low rate for item no 3. He expects by his judgment after visiting the site and by his experience that the quantity of excavation in soft exceeds the estimated quantity double and the excavation in hard rock and soft rock is negligible.</p> <p><i>(Note: Any two items related with civil engineering works could be considered as examples.)</i></p>		
	(c)	<p>State the general conditions of contract with respect to defective material and workmanship.</p>		
	Ans.	<p>i. If any work is found to be completed with defective material and poor workmanship the contractor is liable to remove these defects in work at own expenses.</p> <p>ii. If he is unable to rectify those defects within a specified period as decided by Engineer in charge, he has to pay compensation about 1% to 10% per day of amount of estimate.</p> <p>iii. If the contractor fails to rectify the defects or remove the defective material, it may be done by inviting another contractor by the engineer in charge at the cost of risk of previous contractor.</p>	<p>2 marks</p> <p>1 mark</p> <p>1 mark</p>	<p>4</p>
	(d)	<p>What is demolition contract? How it is different from construction contracts?</p>		
	Ans.	<p>This type of contract includes the demolition and the removal of structure and its component parts and disposal of demolished material. This is the simplest type of contract in which the owner invites tender for demolition of an existing structure so that the particular land can be developed in any manner.</p> <p>It is different from construction contract due to following reasons:</p> <p>i. The contract is given to contractor who quotes higher amount, and contractor has to pay full amount before demolishing the existing structure.</p> <p>ii. The contract must clearly state the contractor is responsible for making necessary arrangements for cutting off existing service connections of water supply drainage and electricity</p> <p>iii. The contractor should be asked to take insurance policies for labour and third party risk etc.</p>	<p>2 marks</p> <p>1 mark each (any two)</p>	<p>4</p>



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Q.3	(e) Ans.	<p>What is meant by negotiated contract? When is it used?</p> <p>In this contract work is awarded to contractor by mutual negotiation between parties without calling tender but within selected contractor after studying their previous experience and reputation. These contracts are not suitable for PWD work.</p> <p>As contract is given to selected person by mutual negotiation chances of disputes will be less. And quality of work is assured also reliable and efficient contractor is selected for work the disadvantages of these contract are Choice of contractor is not free and fair, Healthy competition is not possible and Contractor may demand higher rates for extra items.</p> <p>Use of negotiated contract:</p> <ol style="list-style-type: none">This type of contract is suitable for work where time is important and work has to complete at short notice.No disputes between parties.Reliable, efficient and resourceful contractor is selected for the work.	2 marks	4
Q.4	[A] (a) Ans.	<p>Attempt any THREE:</p> <p>Define (i) Retention money and (ii) Mobilisation advance</p> <p>(i) Retention money</p> <p>Some amount is to be hold from the security deposit of contractor by the Engineer-in-charge, when there is any claim for the payment arises out of or under the contract against the contactor is called as "Retention Money".</p> <p>(ii) Mobilisation advance</p> <p>Mobilization advance is the amount of money given to the contractor for establishment purpose. Establishment charges may consist of the following work to be done on site under construction. Approach roads, Site office, Go down for storage of building material, Water tank, Electric connection and Other facilities which ensure the safety on projects and smooth working.</p>	2 marks	4



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Q.4	[B] (a)	Attempt any ONE Compare item rate contract and lump sum contract with respect to (i) Nature of agreement (ii) Mode of payment (iii) Contract documents (iv)Merits (v) Demerits and (vi) Suitability		6																					
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iv.	It is suitable for large work. The item rate contract is most commonly used for all types of engineering works financed by public or government bodies.	This type of contract is suitable for small work.																							
v.	Applicable for all government works.	Comparative statement is not required.																							
vi.	Comparative statement is required.	Not applicable for government works.																							



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.4	[B] (b)	<p>State the necessity of interim payments made to contractor also mentions the modes of making the same state the necessary form too.</p>		
	Ans.	<p>The interim payments are necessary due to following reasons.</p> <ol style="list-style-type: none">In case of large project, the contractor has to invest the large amount for a longer duration and this is not suitable or possible to the contractor. Progress of project work may affect due to lack of funds with the contractor. In such case, the interim payment is made to the contractor so as to continue the progress of project without any break.Amount of money is required by contractor against the material purchased by him.The interim payments also indicate the approximate value of work done by contractor.The engineer in charge measured all the work done by him and payment is made after the necessary deductions like recovery of dues, security deposits and advance if any.	<p>1 mark each</p>	
		<p>Interim payment is an amount or money disbursed to contractor on running account payment, advance payment, secured Advance payment, mobilization advance etc.</p>	<p>1 mark</p>	
		<p>PWD form no 47 is used for making interim payment the work done or supplies are duly recorded in MB and contractor is paid from time to time in such way that during progress of work he receives an amount which compounds to the extent of work done by him.</p>	<p>1 mark</p>	6



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.5	(b)	(i) Define value of a property. State its characteristics.		
	Ans.	(ii) Explain the factors affecting value.		
		(i) Value is defined as the desirability of a thing, often in respect of some property such as usefulness or exchangeability; worth, merit, or importance.	1 mark	
		Characteristics of value:		
		i. Value changes from place to place.	1 mark	
		ii. Value depends upon life of building, location of property.	for	
		iii. Value changes with respect to the returns expected.	each	
		iv. Value changes according to law of demand & supply.	(any	
		v. Value is affected by natural disasters, riots etc.	three)	
		vi. Value can be classified as market value, book value, scrap value salvage value.		
		(ii) The factors affecting value of a property are:		8
		i. <u>Forces of demand and supply:</u> Few buyers as compared to a number of properties available for sale in a locality will result in low prices for the property and vice a versa.		
		ii. <u>Cost of construction:</u> The present cost of construction affects the value due to rapid change of price index in comparison with the rate of depreciation.		
		iii. <u>Increase in population:</u> Rise in population due to growth of new industries or influx or by multiplication will result in heavy demand of land, buildings and properties.		
		iv. <u>Riots, war, flood and other natural calamities:</u> Due to insecure conditions values may drop and remain so for a considerable period.	1 mark	
		v. <u>Improvement of Public schemes:</u> The taking up of any public schemes like sewer lines, water line, means of transportation will trend to make the area more attractive followed by increase in and value.	each	
		vi. <u>Interest on Banks:</u> by lowering the bank interest rates, more money will be available for investment in property and vice versa.	(any	
		vii. Cost of labour.	four)	
		viii. Inflation.		
		ix. Monopoly of a property in market.		
		x. Location of property.		
		xi. Returns from property.		
		xii. Life and age of building.		



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.5	(c)	<p>A building is newly constructed at the cost of Rs. 15,00,000 on a plot of 1000 sq.m. fix the monthly rent of this property from the following data:</p> <p>Rate of land = Rs. 100/sq.m. Return expected on cost on building and land = 8% Life of building = 50 years Rate of interest for sinking fund = 3% Scrap Value = 10% of construction cost Other outgoings = 30% of gross rent</p>		
	Ans.	<p>Cost of Plot= 1000×100 = Rs.100000</p>	1 mark	
		<p>Cost of Construction = Rs. 1500000</p>		
		<p>Total cost = $100000 + 1500000$ = 1600000</p>	1 mark	
		<p>Net Return expected on land & building at 8% = 1600000×0.08 = Rs128000</p>	1 mark	
		<p>Building cost = construction cost- scrap value = $1500000 - (0.1 \times 1500000)$ = 1350000/-</p>	1 mark	
		<p>Now work out sinking fund = $is / (1 + is)^n - 1$ = $0.03 / (1 + 0.03)^{50} - 1$ = 0.0089</p>	1 mark	8
		<p>Annual sinking fund= Net building cost X 0.0089 = 1350000×0.0089 = 12015/-</p>	1 mark	
		<p>Now assume gross rent is X Outgoings are sinking fund installment & other outgoings X = NET INCOME + OUTGOING X = $128000 + (0.3X + 12015)$ $0.7X = 128000 + 12015$ = 140015 X = $140015 / 0.7$ = 200021.43/- Say 200022</p>	1 mark	
		<p>Rent per month= $200022/12$ = Rs. 16668.5 per month</p>	1 mark	



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.6	(a)	<p>Attempt any FOUR:</p> <p>Draft a detailed specification for external plastering in cm (1: 4) with 20 mm thickness of a new brick wall.</p> <p>Ans. (i)Material: Cement: Ordinary Portland cement shall be used .The cement shall conform to IS: 269 latest versions. Sand: Fine aggregate shall be natural sand obtained from a river bed and shall conform to 15:383-1 and to the relevant portion of IS: 515-1959. Sand shall be clean, hard, strong, durable and free from organic matter, dust, clay, shale, alkali, salts, soft or flaky particles or other injurious substances. Water: Potable water shall be used for mixing the mortar.</p> <p>(ii)Proportion: Cement and sand shall be mixed in the proportion of one part of cement to four parts of sand. Mixing: Mortar shall be mixed in a mechanical mixer of an approved pattern at the site of work The drum shall be rotated for a minimum period of 2 minutes The mortar shall be used within 30 minutes of adding water or by hand mixing</p> <p>(iii)Plastering: The mortar shall be firmly applied on the surface from top to down and well pressed into the joints. The mortar shall then be rubbed and leveled with a flat wooden rule until a perfectly plane and even surface is achieved. All corners shall be finished to their angles, unless otherwise directed by the engineer: The jambs and reveals Of door and window openings shall be finished perpendicular to the sill and lintel bottom. Plastering shall be done in squares or strips as directed by the engineer. Strips or squares shall be so formed that day-to-day breaks are made to coincide with architectural breaks. Finish: While the plastered surface is fresh, a thick coat of cement slurry shall be applied and rubbed smooth. Curing: All plastered surfaces shall be kept continuously damp for -a period of 14 days.</p> <p>(iv)Mode of Measurements: The unit of measurement shall be the square meter as per IS: 1200.</p>		16
	(b)	<p>Mention the purposes of writing specifications.</p> <p>Ans. Purpose of Specifications:</p> <ol style="list-style-type: none">To give the required information for an item of work.To help the contractor in giving necessary quotation for work.To carry out supervision work effectively during construction.For necessary execution of the work.It protects the owner from any damage due to bad workmanship or low quality of material.Witness in the court to settle the disputes.To avoid extra items.	<i>1 mark each</i>	4



Que. No.	Sub. Que.	Model Answers	Marks	Total Marks
Q.6	(e)	A property fetches a monthly rent of Rs. 6000/- . The outgoings including sinking fund are upto 25% of gross income. If the rate of interest is 12% p.a., calculate year purchase and capitalized value.		
	Ans.	Monthly rent is Rs.6000/- Therefore gross annual income = 12×6000 $= 72000/-$	1 mark	
		Outgoings = $25 / 100 \times 72000$ $= 18000$		
		Gross income = Net income + Outgoings $72000 = \text{Net income} + 18000$ Net income = 54000/-	1 mark	4
		Years purchase= $100/12$ $=8.33$	1 mark	
		Capitalized value = Net income x Years purchase $= 54000 \times 8.33$ $= 450000/-$	1 mark	