SRM VALLIAMMAI ENGINEERING COLLEGE

(An Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

DEPARTMENT OF CIVIL ENGINEERING





CE 8701 ESTIMATION, COSTING AND VALUATION ENGINEERING

Regulation - 2017

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Prepared by

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DEPARTMENT OF CIVIL ENGINEERING

QUESTION BANK

SUBJECT : CE 8701 ESTIMATION, COSTING AND VALUATION

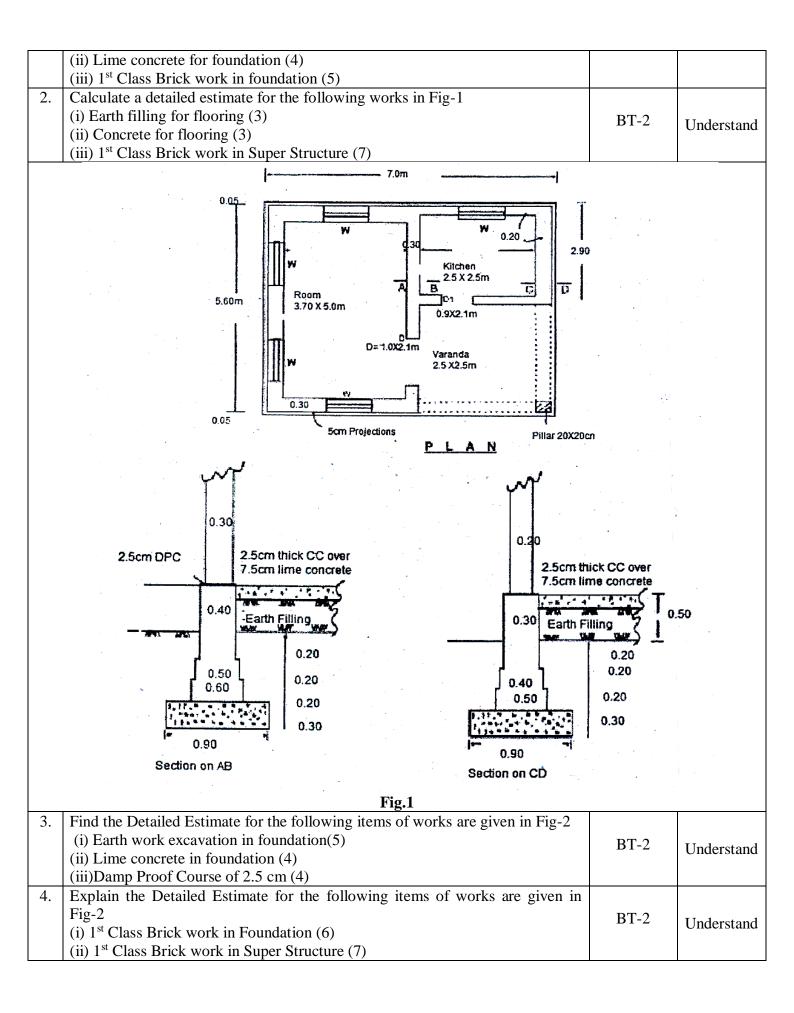
ENGINEERING

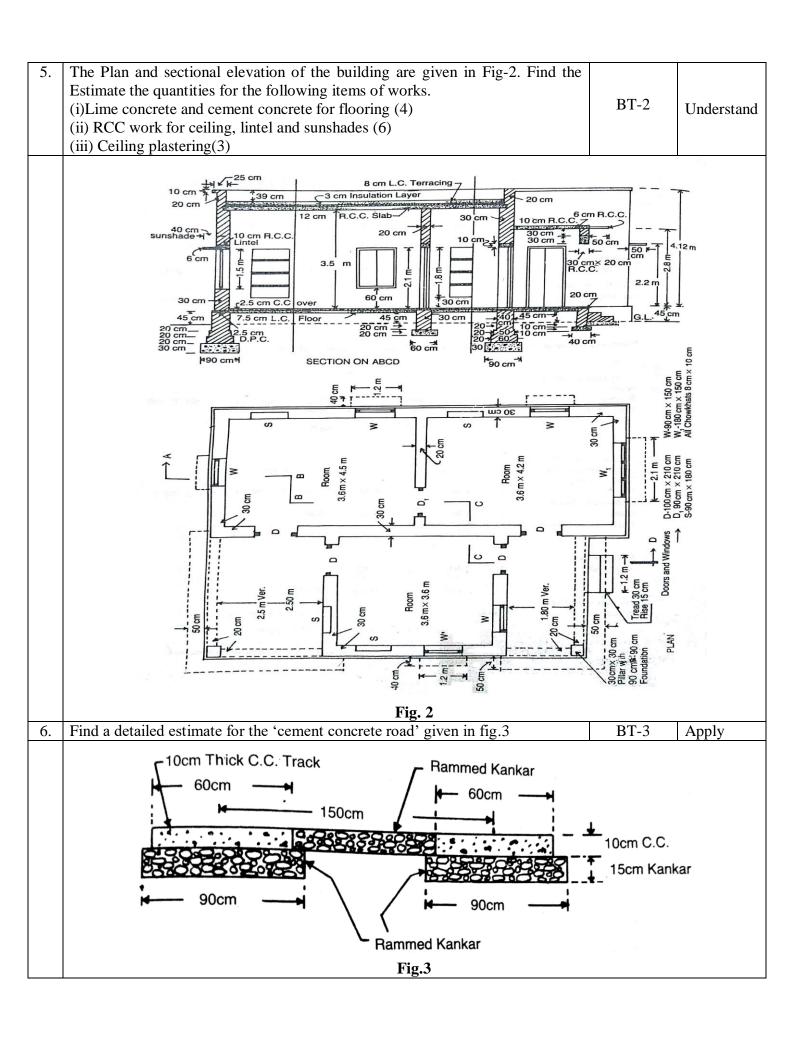
SEM / YEAR : VII / IV

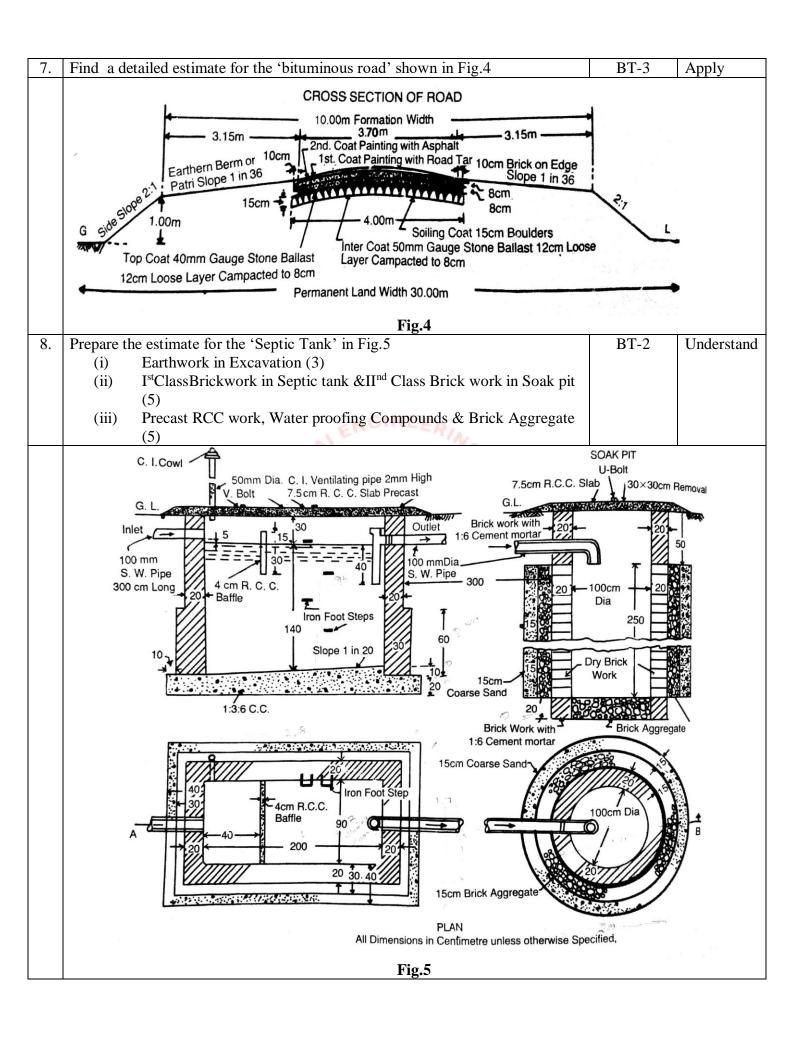
UNIT I – QUANTITY ESTIMATION

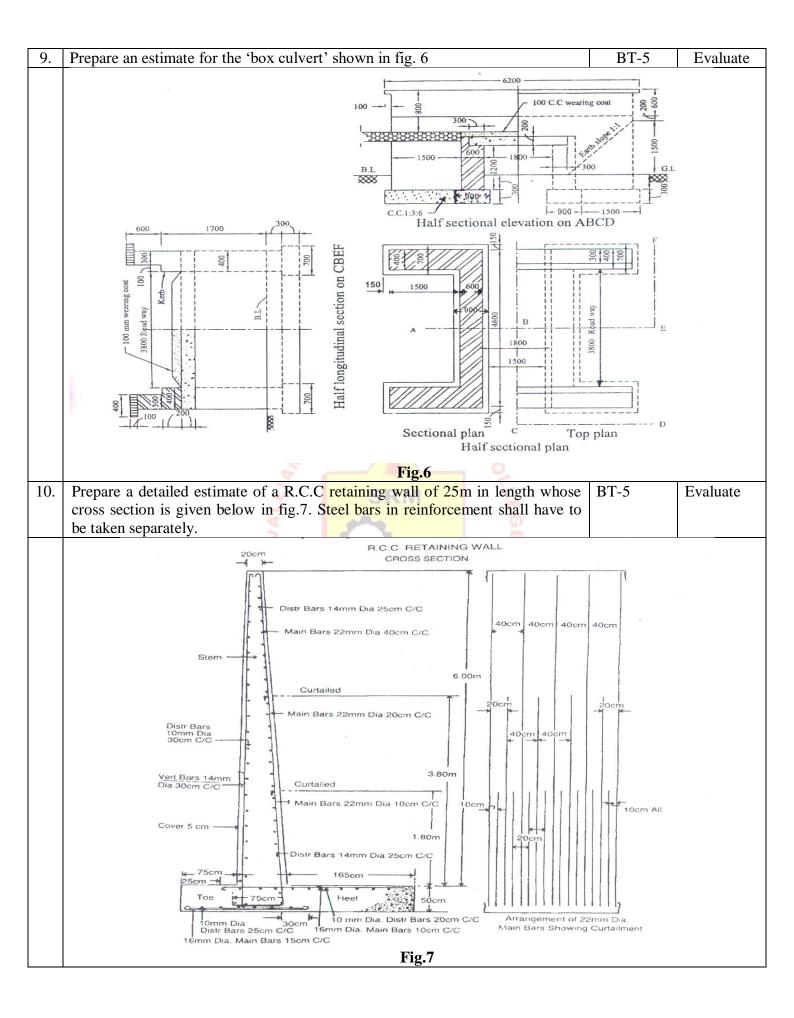
Philosophy – Purpose – Methods of estimation – Types of estimates – Approximate estimates – Detailed estimate – Estimation of quantities for buildings, bituminous and cement concrete roads, septic tank, soak pit, retaining walls – culverts (additional practice in class room using computer softwares)

1	ining walls – culverts (additional practice in class room using computer softwares)	aus, septic i	ank, soak pit,
	PART - A		
1.	Define estimate.	BT-1	Remember
2.	List the types of estimate.	BT-1	Remember
3.	What is a detailed estimate?	BT-1	Remember
4.	What are the different types of Approximate Estimate?	BT-1	Remember
5.	Differentiate between Revised & Supplementary Estimate.	BT-2	Understand
6.	Describe long wall and short wall method.	BT-2	Understand
7.	Identify the recommendations for degree of accuracy on measurements.	BT-3	Apply
8.	Determine the methods to be adopted to calculate volume.	BT-5	Evaluate
9.	Briefly explain about preliminary estimate.	BT-2	Understand
10.	Generalize the duties of quantity surveyor.	BT-5	Evaluate
11.	State the unit of measurements for earth work, D.P.C and brick	BT-6	Create
12.	Identify various types of paneled and glazed doors.	BT-3	Apply
13.	Identify the significance of prime cost	BT-3	Apply
14.	Mention the units of measurement for Steel reinforcement, plastering, flooring	BT-4	Analyze
	and painting.		
15.	What are factors to be considered in design of septic tank?	BT-1	Remember
16.	Define lead & lift	BT-1	Remember
17.	What is the role of baffle wall in septic tank?	BT-1	Remember
18.	Explain the importance of soak pit	BT-2	Understand
19.	Write down the main components of culvert.	BT-5	Evaluate
20.	Elaborate about out turn of works?	BT-6	Create
21.	Write the formula for Prismoidal formula rule.	BT-2	Understand
22.	Find the number of standard modular bricks required for flat brick soling for	BT-6	Create
	one kilometer length of 4 m wide road.		
23.	Calculate the size of septic tank for 25 users	BT-3	Apply
24.	Calculate the quantity of earthwork for the construction of an approach road	BT-5	Evaluate
	length = 1 km, width of formation = 10 m, Height of embankment = 60 cm,		
	side slope = 1:2		
25.	Illustrate the methods to determine the area of excavation in roads.	BT-2	Understand
	PART – B		
1.	Calculate a detailed estimate for the following works in Fig-1	BT-2	Understand
	(i) Earthwork for excavation (4)		Understand









11.	Estimate the Road width a				-					_		BT-4	Under	rstand
	in cutting. Le						p			8				
	Chainage	20	21	22	23	24	25	26	27	28	30			
	Ground level	71.20	71.25	70.90	71.25	70.80	70.45	70.20	70.35	69.10	69.70			
	Formation level 70.00 Upward gradient of 1 in 200													
	Take the rates	of earthw	ork as R	Rs.275/p	ercu.m i	n bankin	g and Rs	.350/per	cu.m in c	cutting.				
12.	Determine th	ne quan	tities o	f follo	wing v	vorks i	n the S	eptic ta	ank & S	Soak pi	t	BT-5	Eval	luate
	shown in fig	.8.												
	(i) Earthworl	k excav	ation f	or bot	h (3)									
	(ii) Brickwon	rk in Cl	M 1:5 i	in sept	ic tank	(6)								
	(iii) PCC 1:4	:8 & R	CC 1:2	2:4 (4)										



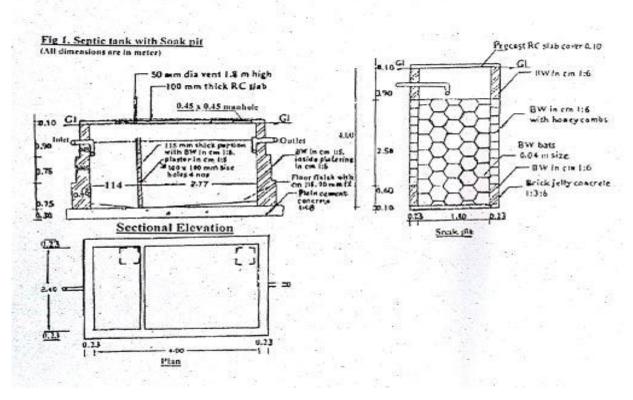
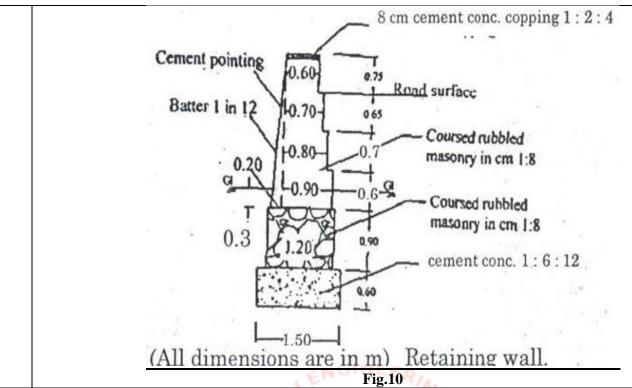


	Fig.8						
13.	Explain in detail the methods of estimation of roads.	BT-2	Remember				
14.	(i) Describe the different types of estimate. (6)	BT-4	Analyze				
	(ii) Explain the methods used to find approximate cost of the building (7)	D1- 4	Anaryze				
	PART C						
1.	The Plan and sectional elevation of the building are given in Fig.9	BT-1	Remember				
	Find the Estimate the quantities for the following items of works.						
	(i) Earthwork in Excavation (4)						
	(ii) Plain Cement Concrete for Foundation (4)						
	(iii) Ist class Brickwork for foundation (4)						
	(iv)Concrete for roof slab(thickness of slab = 100 mm) (3)						
	Fig.9	NATAA .					
2.	Summarize the general rules of Measurement & also explain the deductions	BT-2	Understand				
	and additions to be applied in the case of estimation of plastering.						
3.	Calculate the quantities and estimate the retaining wall shown in fig.10	BT-4	Apply				



4. Explain the following components and illustrate

BT-6

Create

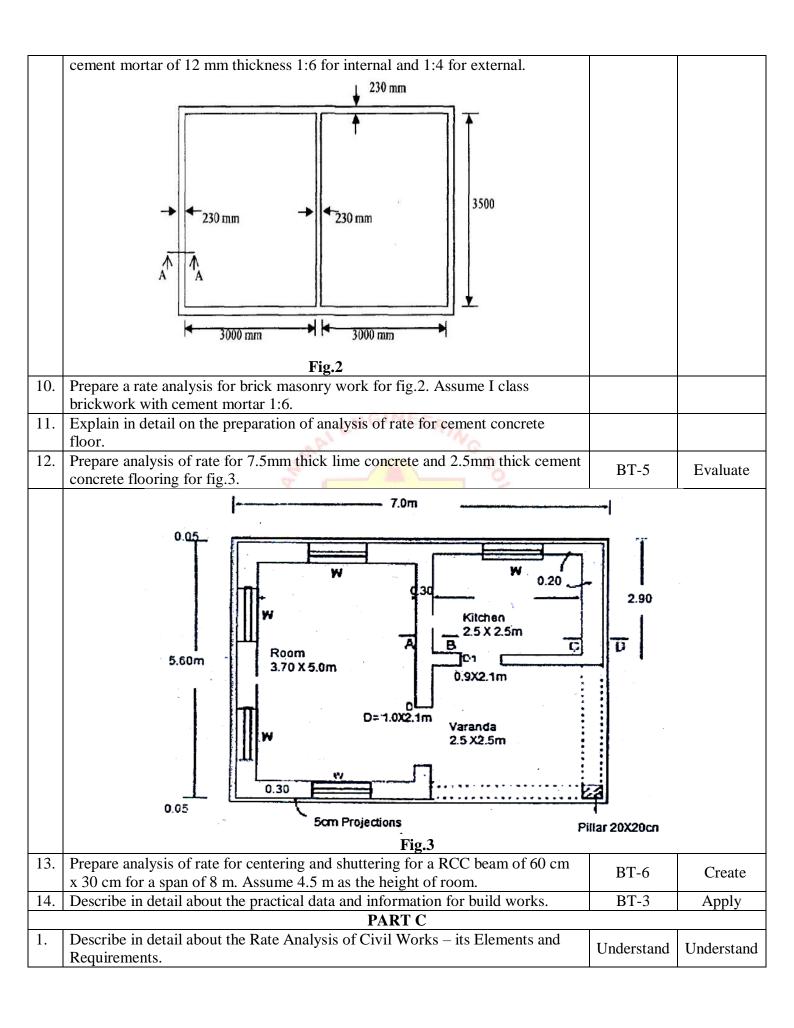
(i) Culvert (8)(ii) Retaining wall (7)

UNIT II – RATE ANALYSIS AND COSTING

Standard Data – Observed Data – Schedule of rates – Market rates – Standard Data for Man Hours and Machineries for common civil works – Rate Analysis for all Building works, canals, and Roads– Cost Estimates (additional practice in class room using Computer softwares) - (Analysis of rates for the item of work asked, the data regarding labour, rates of material and rates of labour to be given in the Examination Question Paper)

	PART A						
1.	What is analysis of rates?	BT-1	Remember				
2.	What is overhead cost?	BT-1	Remember				
3.	The actual expenditure incurred in the construction of school building which have	BT-5	Evaluate				
	a total length of main walls140m is Rs. 14.97 Lakhs. Estimate the approximate						
	cost of a school building which will have 180 m length of main walls.						
4.	What do you infer from schedule of rates?	BT-1	Remember				
5.	Explain the term market rates.	BT-2	Understand				
6.	How will you analyze a rate of particular item?	BT-2	Understand				
7.	Discuss Measurement Book.	BT-3	Apply				
8.	Write a short note on standard schedule of rates.	BT-5	Evaluate				
9.	What is work-charged establishment?	BT-2	Understand				
10.	Define the term Lump-sum.	BT-5	Evaluate				
11.	Define out-turn work.	BT-6	Create				
12.	State the importance of rate analysis.	BT-3	Apply				
13.	What are the factors on which the rate of particular item?	BT-3	Apply				
14.	List out the purpose and requirements of rate analysis.	BT-4	Analyze				
15.	Calculate the materials required for brick tile flooring in 1:6 cement mortar and	BT-1	Remember				
	1:2 cement mortar for pointing.						
16.	List the fitting requirements for paneled doors.	BT-1	Remember				
17.	What are the general tolerances adopted in measurements?	BT-1	Remember				

10	Define surface dressing.	BT-2	Understand
18.	ĕ		
19.	List the conditions which require no deduction or addition in the calculation of wall thickness.	BT-5	Evaluate
20		DT (Consta
20.	Classify the timber for construction.	BT-6	Create
21.	List the types of road.	BT-2	Understand
22.	How is the direct and overhead cost calculated?	BT-6	Create
23.	Give the percentage breakup of building works in tern of whole cost.	BT-3	Apply
24.	List the thumb rules to calculate reinforcement quantity for concrete elements.	BT-5	Evaluate
25.	List the thumb rules to calculate the number of bricks for walls and brick	BT-2	Understand
	columns.		
	PART B		T
1.	Explain in detail about schedule of rates.	BT-2	Understand
2.	Explain in detail the factors affecting schedule of rates	BT-2	Understand
3.	Explain in detail about the standard data for man hours and machineries in civil	BT-5	Evaluate
	works.		
4.	Describe in detail about rate analysis for canal work.	BT-6	Create
5.	Write in detail about preparing rate analysis for road works.	BT-3	Apply
6.	Prepare the analysis of rate for Lime Concrete in foundation with 40mm brick	BT-3	Apply
	ballast per cu.m. Assume the required data.		<u> </u>
7.	Prepare the analysis of rate of R.C.C. work 1:1.5:3 for 5 columns of size	BT-4	Analyze
	250mm x 350 mm. Assume the required data.		
8.	Prepare a rate analysis for brick masonry work for the masonry tank in fig.1	BT-5	Evaluate
	Assume the required data for I class brickwork with cement mortar 1:6		
	30 cm 7		
	1.50 m		
	\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
	1.00 m		
	1.00m		
	60 cm = 25 cm = 20 cm		
	70 = 20 cm		
	→ 1.00 m SECTION ON AA - 1.00 m		
	30 cm ↑		
	<u> </u>		
	8.00 E		
	0.5		
	1 11		
	30 cm 30 cm		
	7.00 m		
	30 cm		
	CS Scanned with		
	CamScanner PLAN		
0	Fig.1	DT 5	Eveluate
9.	Calculate costing of internal and external plastering for the fig below. Assume	BT-5	Evaluate



2.	Explain how to calculate the quantity requirements to prepare rate analysis for	D 1	D 1
	brickwork.	Remember	Remember
3.	Explain the various requirements to prepare analysis of rates for sanitary and water supply works.	Create	Create
4.	Write a detailed note on the schedule of rates given by PWD.	Analyze	Analyze
7.	UNIT III – SPECIFICATIONS, REPORTS AND TENDEI		Allaryze
Snec	effications – Detailed and general specifications – Constructions – Sources –		ecifications
	ciples for report preparation – report on estimate of residential building – Culvert		
	ender notices – types – tender procedures – Drafting model tenders, E-te		
	ficates- Encrypting -Decrypting – Reverse auctions.	macring Digi	tai signature
COLL	PART A		
1.	Define general specification.	BT-1	Remember
2.	Identify the content of tender.	BT-1	Remember
3.	Differentiate between detailed specification and general specification	BT-3	Apply
4.	Explain TTT Act.	BT-1	Remember
5.	Illustrate the term arbitration.	BT-2	Understand
6.	What is a tender notice?	BT-4	Analyze
7.	Justify the objective of specification	BT-3	Apply
8.	Formulate the reason for rejection of all tender.	BT-2	Understand
9.	Write out the specification for second class Brickwork?	BT-4	Analyze
10.	Evaluate the general specification for Cement Concrete Floor?	BT-2	Understand
11.	What are the specifications for White lime mortar?	BT-3	Apply
12.	Define Detailed specification.	BT-1	Remember
13.	What are the principle of report preparation?	BT-4	Analyze
14.	List the factors involved in locating a site?	BT-5	Evaluate
15.	What are the set of drawings required for preparing a report?	BT-1	Remember
16.	Select any two principles for the preparation of residential building?	BT-6	Create
17.	Definition of report.	BT-2	Understand
18.	What are the types of reports?	BT-1	Remember
19.	State the necessity of report	BT-5	Evaluate
20.	· ·	BT-6	Create
21.	Identify the different methods for calculating the discharge in a bridge or culvert	BT-4	Analyze
22.	What is sand flushing?	BT-1	Remember
23.	List the components of the value and verification of unused materials report.	BT-1	Remember
24.	What are the sub-heads of tools and plants account?	BT-4	Analyze
25.	Identify revenue and remittance head.	BT-6	Create
23.	PART B	D 1-0	Create
1.	Write the important particulars in tender documents and describe about it?	BT-3	Apply
2.	Show the general specification for first class buildings	BT-1	Remember
3.	Demonstrate the processes "Opening and scrutiny of tender"	BT-2	Understand
4.	Write down the detailed specification of the following	BT-2	Chacistana
т.	(i) Cement concrete in foundation	DI Z	Understand
	(ii) Plastering in cement mortar 1:6		Chacistana
5.	(i) Define the Procedure for preparation of reports?(6)	BT-4	
٠.	(ii)State how will you prepare a report on estimate of Box culvert?(7)		Analyze
6.	Write down the general specifications of a residential building.	BT-1	Remember
7.	Prepare a report on estimate for the following items in Single storey Residential	BT-2	
	building	-	Understand

	((i) Sub structure (7)		
	(ii) Super Structure(6)		
8.	Illustrate the following in brief	BT-3	
0.	i) General or brief specification (5)	D 1 3	
	ii) Detailed specification (4)		Apply
	iii) Standard specification (4)		
9.	Select the content in specifications for a septic tank and explain it.	BT-3	Apply
10.	Illustrate a detailed specification of super structure.	BT-2	Understand
11.	Mention and describe the general specifications of a bituminous road.	BT-1	Remember
12.	Estimate the detailed specification of earth work.	BT-5	Evaluate
13.	Explain the report on estimation for construction of bituminous roads	BT-4	Analyze
14.	Write a report on estimate for construction of cement concrete roads	BT-6	Create
	PART C		-
1.	Explain in detail about the preparation of tender notice and document	BT-2	Understand
2.	Describe the detailed specification of various items of works for the following	BT-1	
	(i) RCC (4)		
	(ii) Color washing (4)		Remember
	(iii) Brick I Class (4)		
	(iv) Plastering cement Mortar or lime mortar (3)		
	(i) Explain E-tendering-Digital signature certificates(7)	BT-5	Create
3.	(i) Explain E tendering Digital signature certificates (7)		Cleate
3.	(ii) Explain the principle of specification writing.(8)		
 4. 	(ii) Explain the principle of specification writing.(8) Write a report to accompany an estimate for a residential to executive engineer	BT-4	Analyze
4.	(ii) Explain the principle of specification writing.(8) Write a report to accompany an estimate for a residential to executive engineer UNIT IV - CONTRACTS tract - Types of contracts - Formation of contract - Contract conditions - Congn, construction - Drafting of contract documents based on IBRD / MORTH Standard	tract for lab	our, material,
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22.	Write short note labor and material payment bond	BT-2	Understand
23.	Examine the Contract problems.	BT-5	Evaluate
24.	Evaluate the Architect-Prepared Contract	BT-3	Apply
25.	Define IBRD & MORTH	BT-6	Create
23.	PART B	D 1-0	Create
1.	List and explain the different forms of contracts with respect to suitability	BT-3	
1.	advantage and disadvantages.	D 1-3	Apply
2.	Show the general details in Muster roll. and rules for preparation of Muster roll.	BT-1	Remember
3.	Demonstrate the problem in Contract System	BT-2	Understand
4.	Write down in detailed about the following	BT-2	Chacistana
''	(i) Contract conditions	D1 2	Understand
	(ii) Formation of contract		Chacistana
5.	Examine the various types of contract system	BT-4	Analyze
6.	Write down the general system for Design contract and Construction contract	BT-1	Remember
7.	Explain in detail about different methods of carrying out work?	BT-2	Understand
8.	Illustrate the following in brief	BT-3	Chacistana
0.	(i) Piecework agreement (5)	D 1 3	
	(ii) Work order (4)		Apply
	(iii)Labour Report (4)		
	NGINEE.		
9.	Illustrate a detailed about Labour Contract and Material Contract	BT-2	Understand
10.	Mention and describe the Condition forContract system	BT-1	Remember
11.	Explain the following	BT-3	
	(i) Penalty(4)		Apply
	(ii) Compensation for delay in completion(4)		11 7
10	(iii)Damages(5)	D	
12.	Explain the following	BT-5	
	(i) Lumpsum Contract (5)		Evaluate
	(ii) Lumpsum Contract and schedule contract (5)		
13.	(iii)Item rate Contract (4)	BT-4	Analyza
14.	Analyze the contents of contract document and explain the each quantity. Write the important particulars in Drafting of contract documents based on	BT-4 BT-6	Analyze
14.	IBRD /MORTH Standard bidding documents?	D1- 0	Create
	PART C		
1.	Explain in detail about the preparation of Contract document with all content.	BT-2	Understand
2.	Describe the various types of contract system.	BT-2 BT-1	Remember
3.	Describe the various types of contract system. Describe about arbitration and legal Requirements	BT-5	Create
4.	Draft a model contract document for Construction Contract Agreement?	BT-4	Analyze
4.	UNIT V – VALUATION	שו-4	Anaryze
Dof	nitions – Various types of valuations – Valuation methods - Necessity – Capitalis	ed value T	Denreciation
	illation – Valuation of land – Buildings – Calculation of Standard rent – Mortgage		Depreciation –
Lisca	PART - A	- Lease	
1.	List the different methods of depreciation?	BT-1	Remember
2.	Define valuation?	BT-1	Remember
3.	What is obsolescence?	BT-1	Remember
4.	Find the plinth area required for the residential accommodation for an assistant		
	Engineer in the pay scale of Rs.36100 to 47500 per month.	BT-1	Remember
5.	Define the Gross income:	BT-1	Remember
6.	What is scrap value?	BT-1	Remember
0.	TITULE IS SOLUD TULLO.	D1-1	Remember

7.	Summarize why we calculate standard rent of building?	BT-2	Understand
8.	Explain Gross income	BT-2	Understand
9.	Describe Net income	BT-2	Understand
10.	A property fetches a net income of Rs.900.00 deducting all outgoings. Workout		
10.	the capitalized value of the property if the rate of interest is 6% per annum.	BT-2	Understand
11.	Demonstrate the meaning of salvage value?	BT-3	Apply
12.	Illustrate about Annuity	BT-3	Apply
13.	Illustrate about book valve	BT-3	Apply
14.	Differentiate between market valve and book valve.	BT-4	Analyze
15.	Point out factors influencing compaction?	BT-4	Analyze
16.	A pumping set with a motor has been installed in a building at a cost	DI I	Tillaryze
10.	Rs.2500.00. Assuming the life of the pump as 15 years, workout the amount of		
	annual installment of sinking fund to be deposited to accumulate the whole	BT-4	Analyze
	amount of 4% compound interest.		
17.	An old building has been purchased by a person at a cost of Rs.30,000/-		
	excluding the cost of the land. Evaluate the amount of annual sinking fund at	DT 5	Devolue - 4 -
	4% interest assuming the future life of the building as 20 years and scarp value	BT-5	Evaluate
	of the building as 10% of the cost of purchase.		
18.	Sinking fund method of depreciation is more reliable" - Justify	BT-5	Evaluate
19.	Write the necessity of valuation.	BT-6	Create
20.	Write short note on Escalation?	BT-6	Create
21.	What are the different methods of valuation?	BT-2	Understand
22.	Define differed Annuity.	BT-6	Create
23.	What is capital cost?	BT-5	Evaluate
24.	Describe about Capitalized Value?	BT-3	Apply
25.	List the various Outgoing consider for a building estimates.	BT-4	Analyze
	PART - B		<u> </u>
1.	Define the following:		
	(i) Type of lease (5)	BT-1	Remember
	(ii) Mortgage (4)	_	
	(iii)(iii) Escalation (4)		
2.	State the following terms:		
	(i) Scrap valve (3)	BT-1	Damarahan
	(ii) Salvage valve (3)	D 11	Remember
	(iii)Book Valve (3)		
3.	(iv)(4) Market valve (4) In a plot of land costing Rs 20,00,000 a building has been newly constructed at		
٥.	a local cost of Rs80,00,000 including sanitary and water supply works,		
	electrical installation ,etc . The building consist of four flats of four tenants.		
	The owner expects 8 % return on the cost of construction and 5 % of return on		
	the land. Calculate the standard rent for each flat of the building assuming.	BT-1	Remember
	(i) The life of the building is 60 yrs and the sinking fund will be created on 4%		
	interest basis		
	(ii)Annual repair cost 1% of the cost of construction		
	(iii) Other outgoings including taxes at 30% of the net return on the building?		
4.	(i) Explain differ forms of valve (6)	BT-1	
	(ii) (ii) Discuss about a freehold property (7)	D1-1	Remember
5.	Discuss the following terms:	рто	
5.	(i) Methods of Depreciation (5)	BT-2	Understand
L	()		

	(ii) Carpet Area (4)		
	(iii)(iii) Plinth Area (4)		
6.	Explain the terms clearly:		
	(i) Annuity Head rent (4)		
	(ii) Deferred income (3)	BT-2	Understand
	(iii)Deferred annuities (3)		
	(iv)(iv) Single rate Y.P. (3)		
7.	Calculate the annual rent of a building with the following data.		
	Cost of land = $Rs.20,000$ /-		
	Cost of building = $Rs.80,000$ /-		
	Estimate life = 80 years	BT-2	TT 1 . 1
	Return expected = 5% on land 6% on building	D 1-2	Understand
	Annual repairs are expected to be 0.7% of the cost construction and other		
	out goings will be 25% of the gross rent. There is no proposal to set up		
	a sinking fund		
8.	The capitalized cost of a building is Rs.one lac, including all fittings of first		
	class construction. if the rate of interest is 6%, Calculate net return from the	BT-3	Apply
	property. Assume out goings as 15% on gross income.		
9.	A plot measure 800sq.m.the built up area rate of this 1st class building is		
	Rs.600/-per sq.m this rates includes cost of water supply, sanitary and electric		
	installations. The age of the building is 50 years. The cost of the land is	BT-3	Apply
	Rs.1800/- per sq.m	DI 3	1 ippiy
	Calculate the standard rent for a building located in CMA assuming the		
	required parameters		
10.	A Owner occupied property is required to be valued for the wealth tax purpose		
	of land and building. The following particulars are available. Evaluate the		
	present valve of the property		
	Valve of the land = $Rs4,00,000.00$	DT 4	
	Cost of the building to put up such a building present =Rs10,00,000	BT-4	Analyze
	Age of the building = 40 year		
	Estimate cost of repair =Rs.50,000.00		
	Depreciation to be allowed for the building $= 0.75\%$ per annum		
11.	Differentiate clearly between the following:		+
11.	•		
	(i) Capitalized value and year's purchase (5)(ii) Freehold property and leasehold property (4)	BT-4	Analyze
	` '		
12.	(iii)(iii) Depreciation and obsolescence.(4)	BT-4	Analyze
	Examine in detail about various methods of calculations Depreciation		•
13.	Explain in detail about various methods of Valuation	BT-5	Evaluate
14.	Write Short note on the following terms:		
	(i) (i)Sinking fund (4)	D.T.	
	(ii) (ii)Outgoings (3)	BT-6	Create
	(iii)(iii)Capitalized value (3)		
	(iv)(iv)Price and Cost (3)		
4	PART C		1
1.	Describe briefly about		
	(i) Rental method of valuation (4)	BT-3	Apply
	(ii) Valuation based on profit and cost (4)		
	(iii)Development method of valuation (4)		

	(iv)Depreciation method of valuation (3)		
2.	(i) Explain the purposes of valuation.(7)(ii) Write short notes on compound interest factor and discount factor.(6)	BT-4	Analyze
3.	Out list the procedure to work out the value of a property by rental method of valuation.	BT-2	Understand
4.	(i) Discuss about free hold property(7)(ii) Outcome of valuation.(6)	BT-2	Understand

