

**MOHAMED SATHAK AJ COLLEGE OF
ENGINEERING**

DEPARTMENT OF CIVIL ENGINEERING

QUESTION BANK

VII SEMESTER

CE 8701 ESTIMATION, COSTING AND VALUATION ENGINEERING

Regulation – 2017

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DEPARTMENT OF CIVIL ENGINEERING

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**SUBJECT : CE 8701 ESTIMATION, COSTING AND VALUATION
ENGINEERING**

SEM / YEAR : VII / IV

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

	(ii) Lime concrete for foundation (4) 1 st Class Brick work in foundation (5)
2.	Calculate a detailed estimate for the following works in Fig-1 (i) Earth filling for flooring (3) (ii) Concrete for flooring (3) 1 st Class Brick work in Super Structure (7)

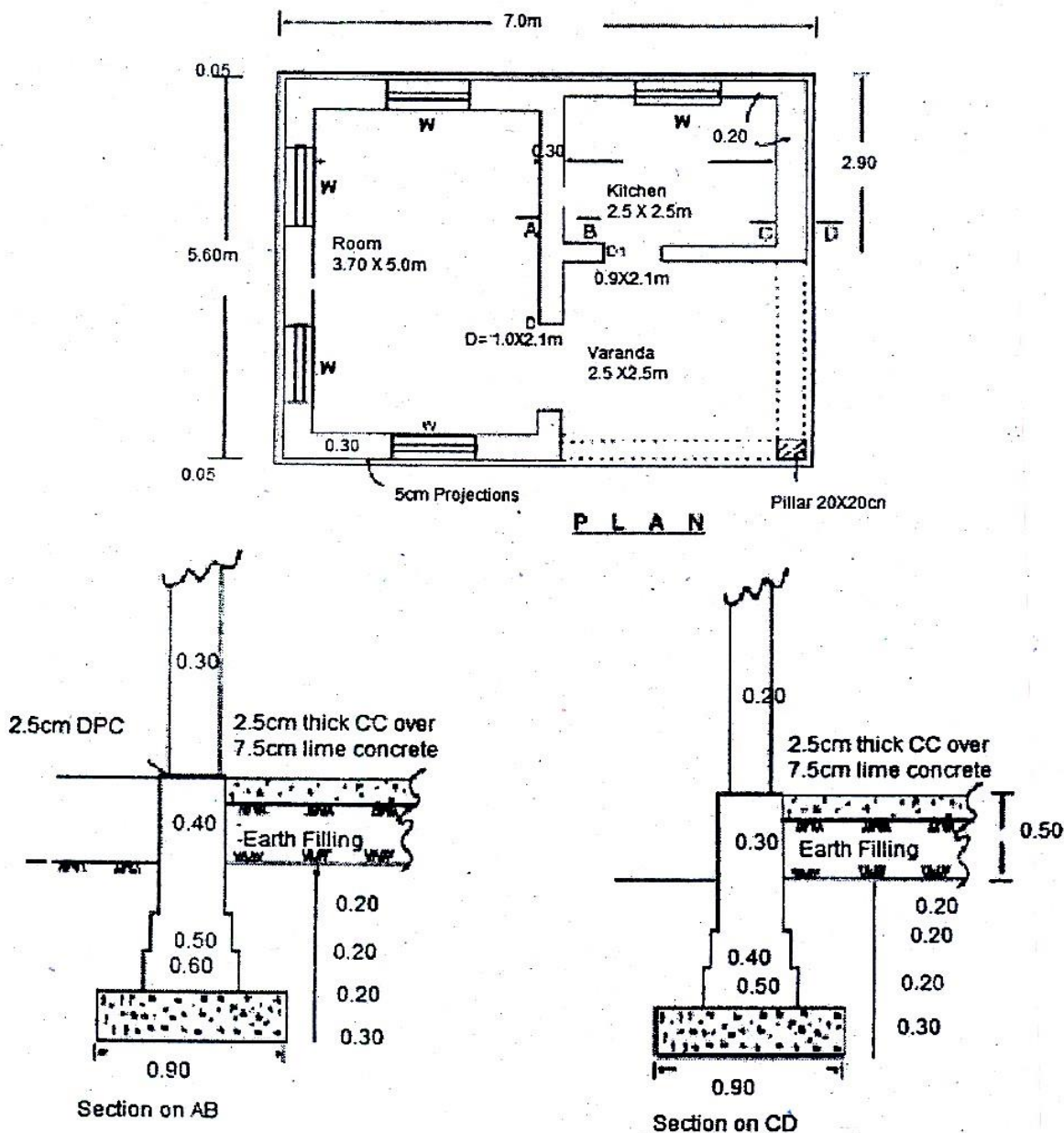
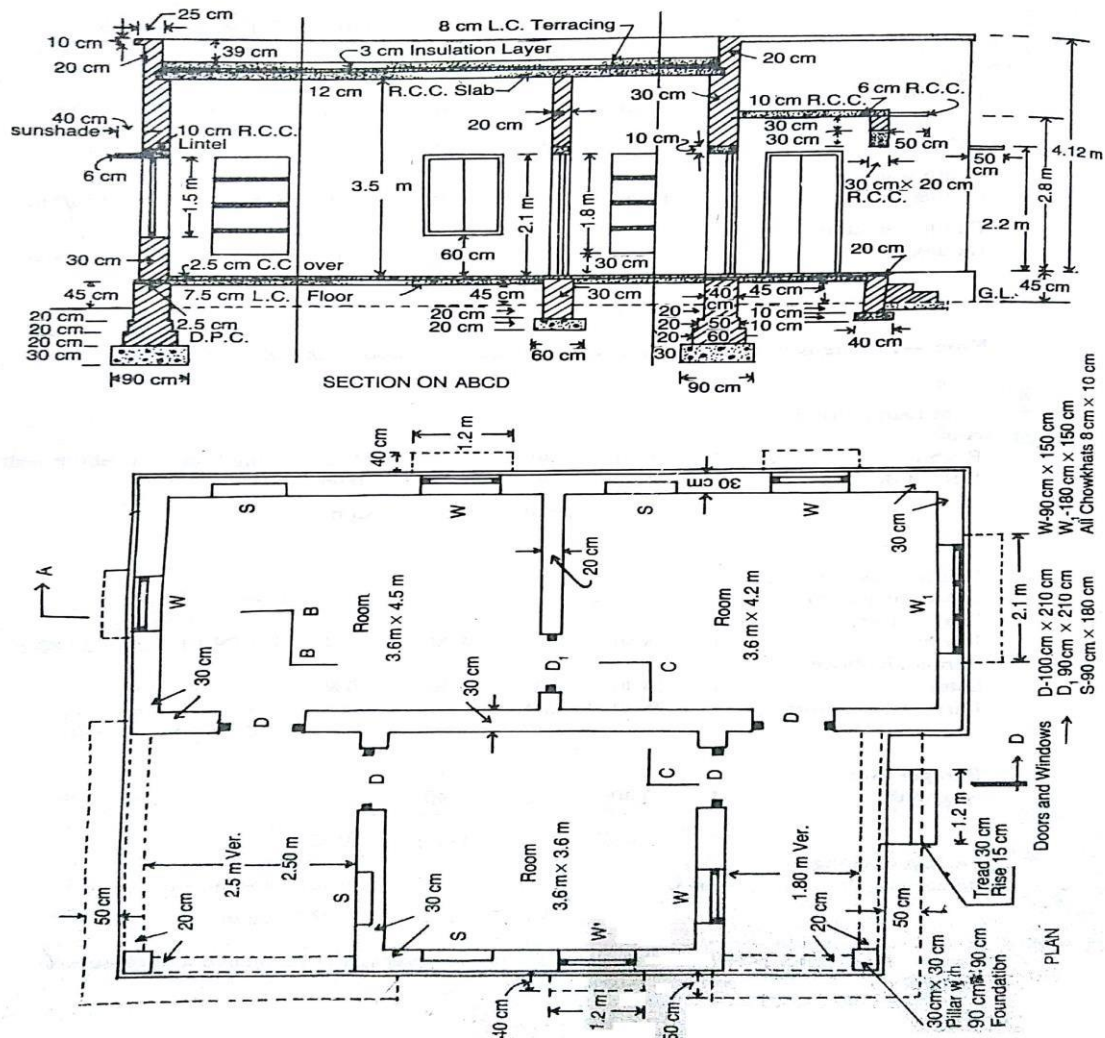


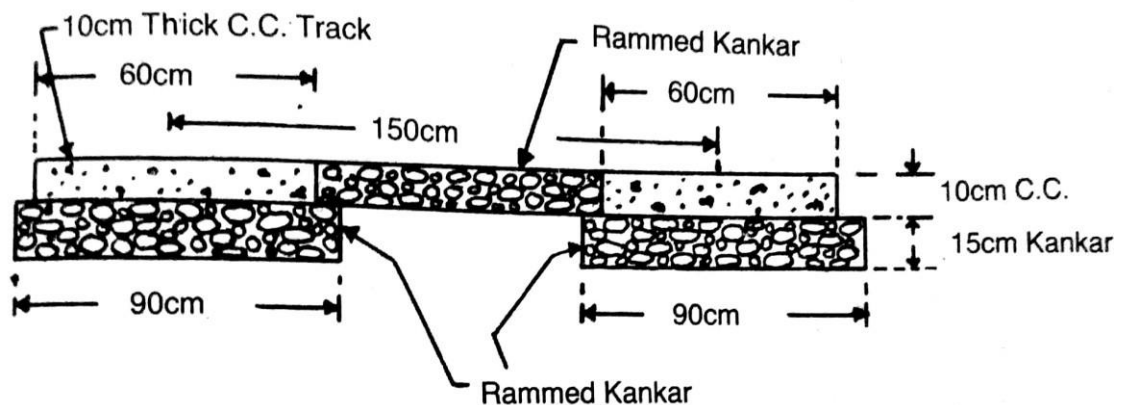
Fig.1

3.	Find the Detailed Estimate for the following items of works are given in Fig-2 (i) Earth work excavation in foundation(5) Lime concrete in foundation (4) (iii)Damp Proof Course of 2.5 cm (4)
4.	Explain the Detailed Estimate for the following items of works are given inFig-2 (i) 1 st Class Brick work in Foundation (6) 1 st Class Brick work in Super Structure (7)

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|----|---|
| 5. | <p>The Plan and sectional elevation of the building are given in Fig-2. Find theEstimate the quantities for the following items of works.</p> <p>(i) Lime concrete and cement concrete for flooring (4)</p> <p>(ii) RCC work for ceiling, lintel and sunshades (6)</p> <p>Ceiling plastering(3)</p> |
|----|---|



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| 6. | Find a detailed estimate for the 'cement concrete road' given in fig.3 |
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7. Find a detailed estimate for the 'bituminous road' shown in Fig.4

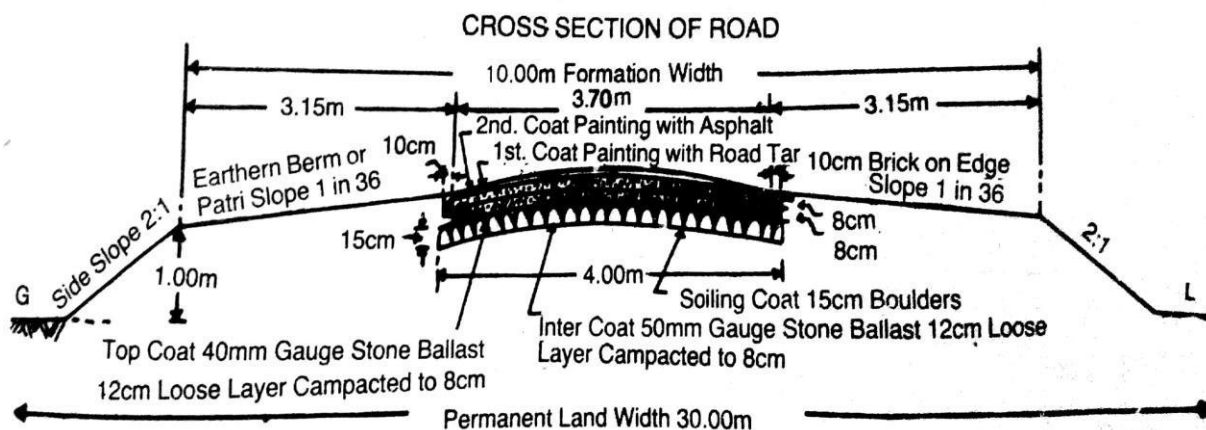


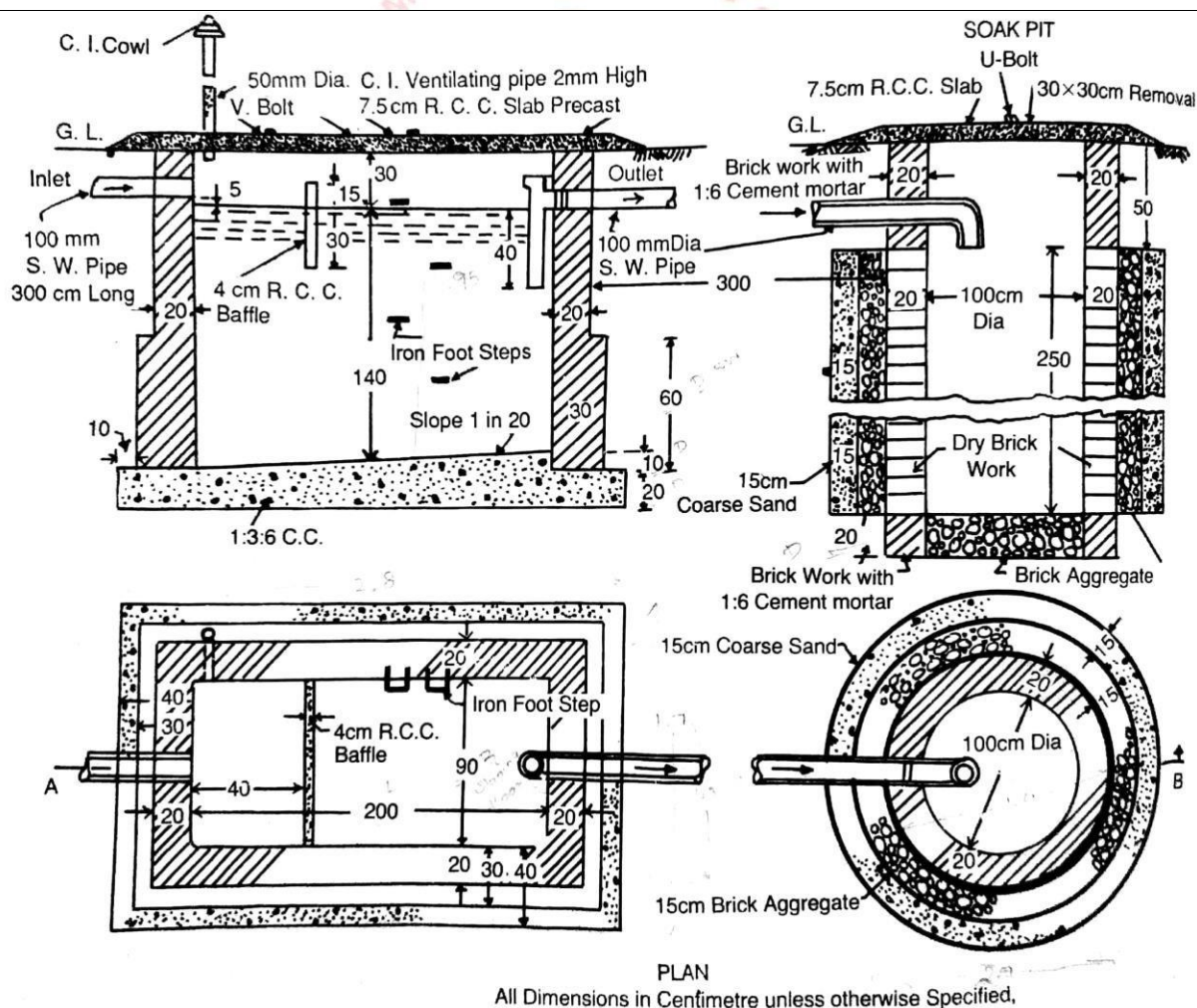
Fig
.4

8. Prepare the estimate for the 'Septic Tank' in Fig.5

(i) Earthwork in Excavation (3)

(ii) Ist Class Brickwork in Septic tank & IInd Class Brick work in Soakpit (5)

Precast RCC work, Water proofing Compounds & Brick Aggregate(5)



Fi.
5

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|----|---|
| 9. | Prepare an estimate for the 'box culvert' shown in fig. 6 |
|----|---|

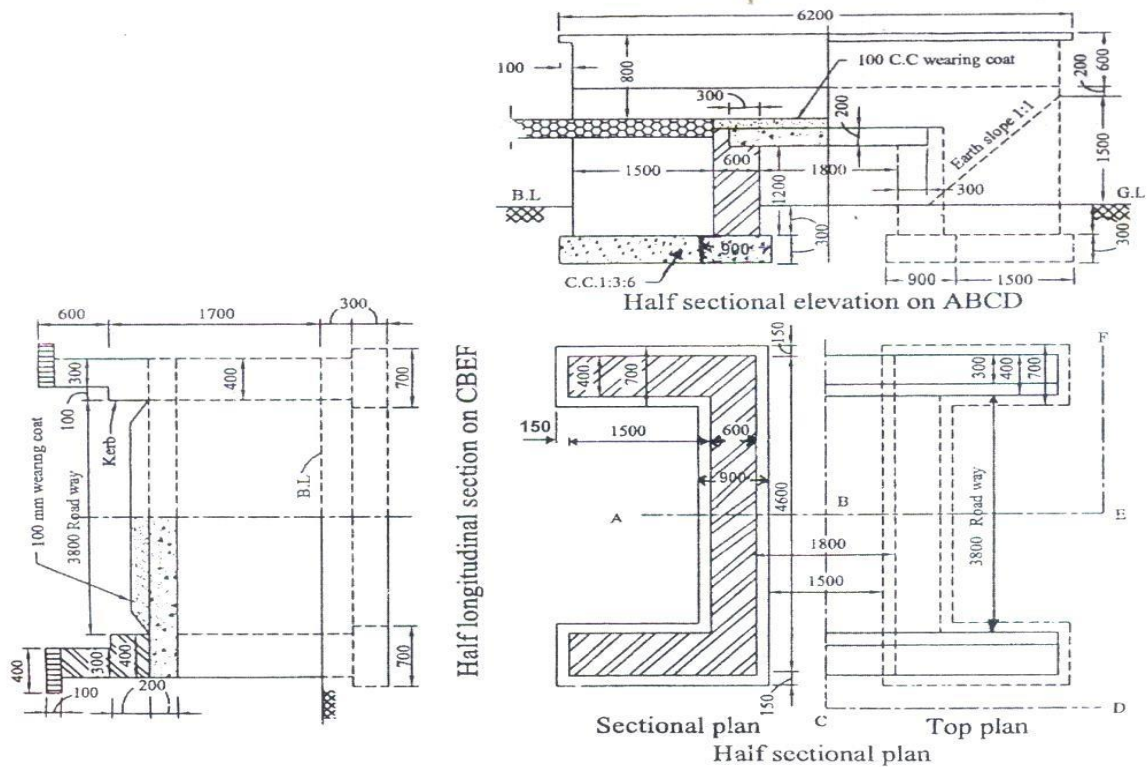


Fig
.6

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| 10. | Prepare a detailed estimate of a R.C.C retaining wall of 25m in length whose cross section is given below in fig.7. Steel bars in reinforcement shall have to be taken separately. |
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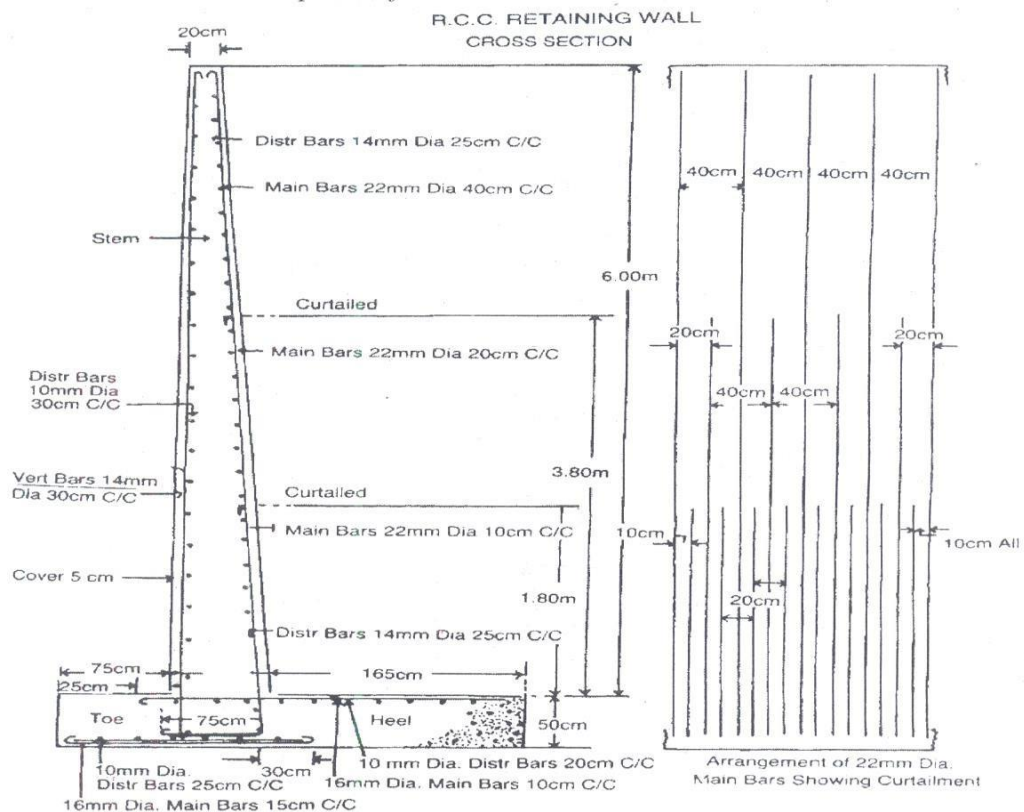


Fig.
7

11.

Estimate the cost of earthwork for a portion of a road from the following data. Road width at the formation surface is 8m.Side slopes 2:1 in banking and 1.5:1in cutting. Length of chain is 30m.

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 1in 200								

Take the rates of earthwork as Rs.275/percu.m in banking and Rs.350/percu.m in cutting.

12.

Determine the quantities of following works in the Septic tank & Soak pitshown in fig.8.

(i) Earthwork excavation for both (3)

(ii) Brickwork in CM 1:5 in septic tank (6)

(iii) PCC 1:4:8 & RCC 1:2:4 (4)

BT-5

Evaluate

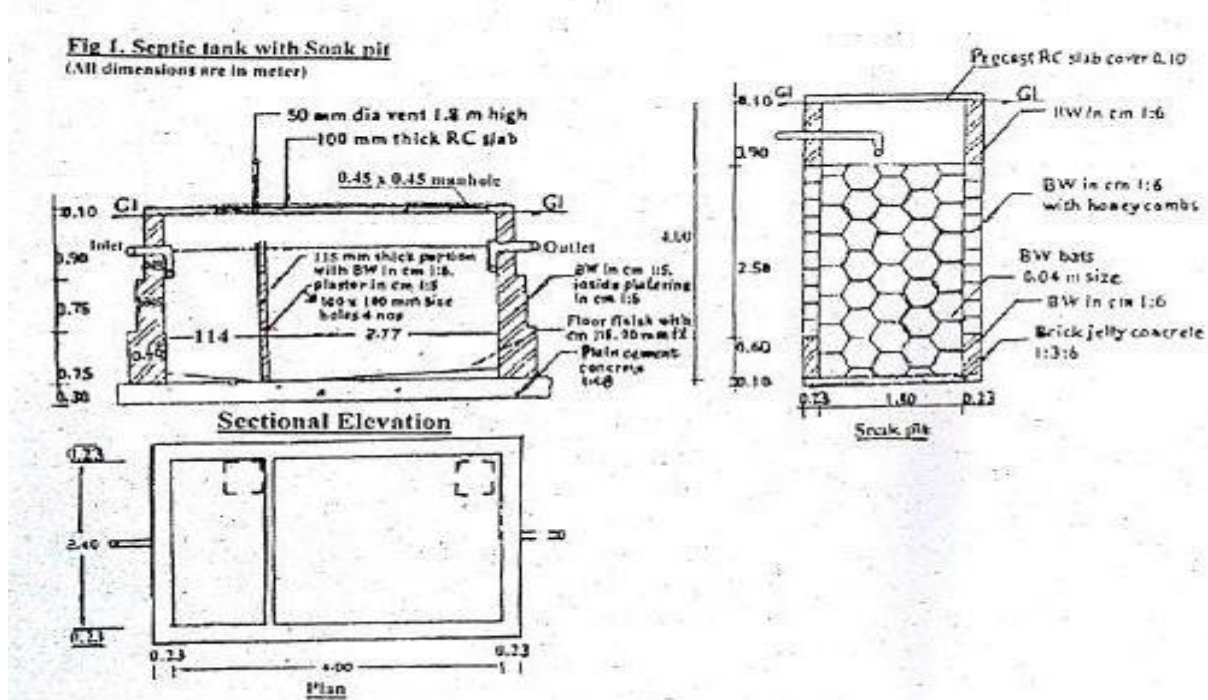


Fig 8

13.

Explain in detail the methods of estimation of roads.

14.

(i) Describe the different types of estimate. (6)

Explain the methods used to find approximate cost of the building (7)

PART C

1.

The Plan and sectional elevation of the building are given in Fig.9Find 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)

Concrete for roof slab(thickness of slab = 100 mm) (3)

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)

1.	What is analysis of rates?
2.	What is overhead cost?
3.	The actual expenditure incurred in the construction of school building which have a total length of main walls 140m 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?
5.	Explain the term market rates.
6.	How will you analyze a rate of particular item?
7.	Discuss Measurement Book.
8.	Write a short note on standard schedule of rates.
9.	What is work-charged establishment?
10.	Define the term Lump-sum.
11.	Define out-turn work.
12.	State the importance of rate analysis.
13.	What are the factors on which the rate of particular item?
14.	List out the purpose and requirements of rate analysis.
15.	Calculate the materials required for brick tile flooring in 1:6 cement mortar and 1:2 cement mortar for pointing.
16.	List the fitting requirements for paneled doors.
17.	What are the general tolerances adopted in measurements?
18.	Define surface dressing.
19.	List the conditions which require no deduction or addition in the calculation of wall thickness.
20.	Classify the timber for construction.
21.	List the types of road.
22.	How is the direct and overhead cost calculated?
23.	Give the percentage breakup of building works in term of whole cost.
24.	List the thumb rules to calculate reinforcement quantity for concrete elements.
25.	List the thumb rules to calculate the number of bricks for walls and brick columns.
1.	Explain in detail about schedule of rates.
2.	Explain in detail the factors affecting schedule of rates
3.	Explain in detail about the standard data for man hours and machineries in civil works.
4.	Describe in detail about rate analysis for canal work.
5.	Write in detail about preparing rate analysis for road works.
6.	Prepare the analysis of rate for Lime Concrete in foundation with 40mm brick ballast per cu.m. Assume the required data.
7.	Prepare the analysis of rate of R.C.C. work 1:1.5:3 for 5 columns of size 250mm x 350 mm. Assume the required data.
8.	Prepare a rate analysis for brick masonry work for the masonry tank in fig.1 Assume the required data for I class brickwork with cement mortar 1:6

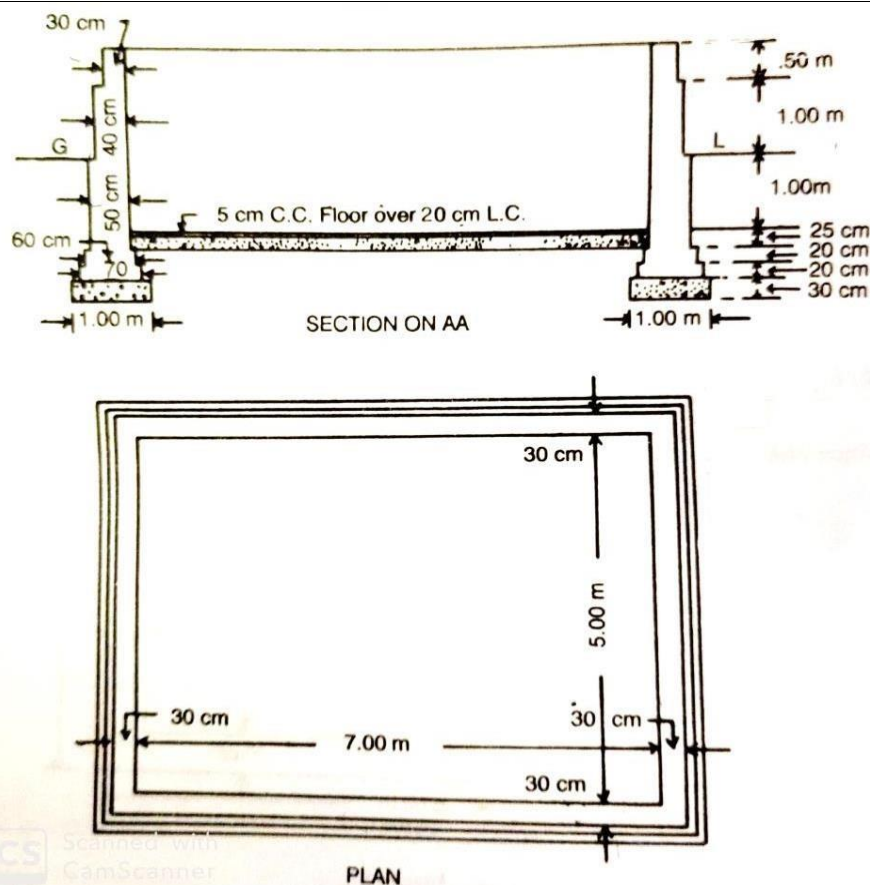


Fig.1

9. Calculate costing of internal and external plastering for the fig below. Assume cement mortar of 12 mm thickness 1:6 for internal and 1:4 for external.

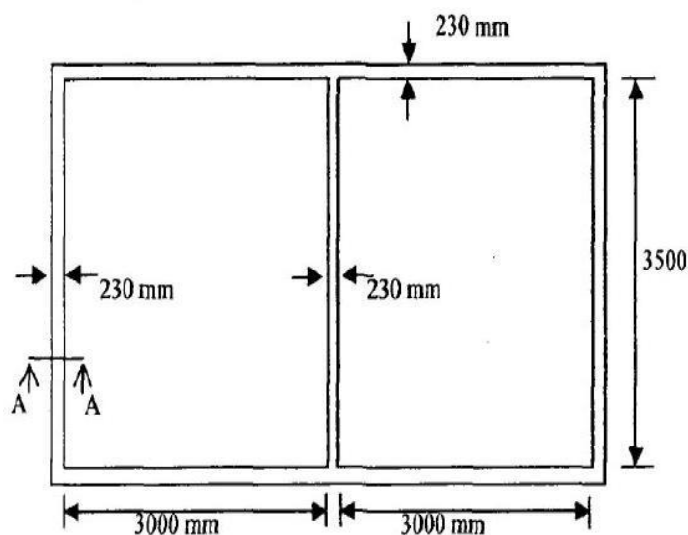


Fig.2

10. Prepare a rate analysis for brick masonry work for fig.2. Assume I class brickwork with cement mortar 1:6.
11. Explain in detail on the preparation of analysis of rate for cement concrete floor.
12. Prepare analysis of rate for 7.5mm thick lime concrete and 2.5mm thick cement concrete flooring for fig.3.

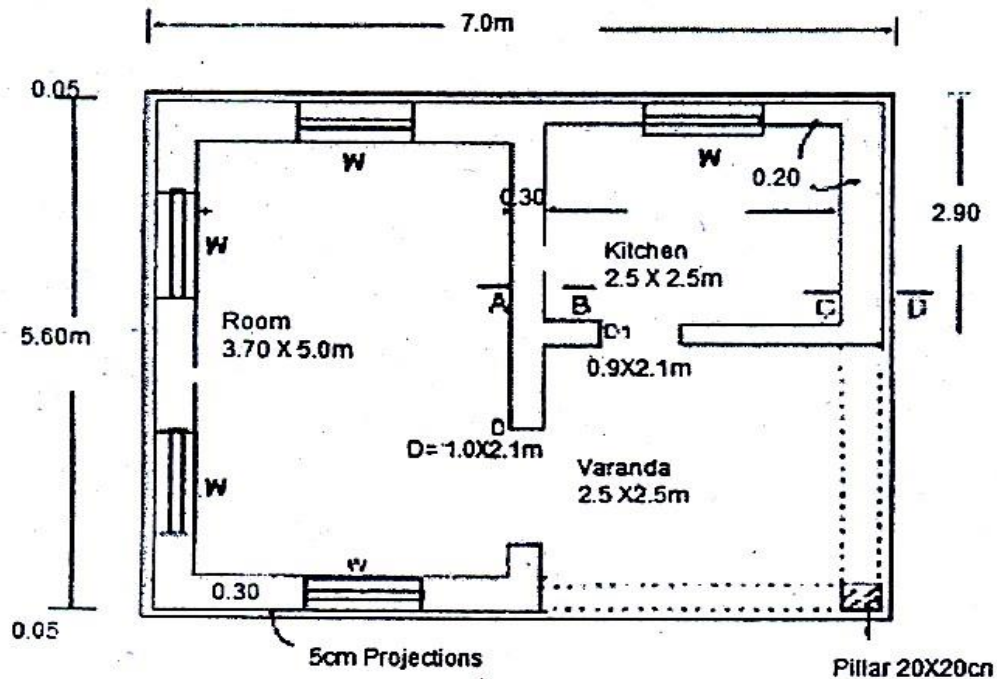


Fig.3

- | | |
|---------------|--|
| 13. | Prepare analysis of rate for centering and shuttering for a RCC beam of 60 cm x 30 cm for a span of 8 m. Assume 4.5 m as the height of room. |
| 14. | Describe in detail about the practical data and information for build works. |
| PART C | |
| 1. | Describe in detail about the Rate Analysis of Civil Works – its Elements and Requirements. |
| 2. | Explain how to calculate the quantity requirements to prepare rate analysis for brickwork. |
| 3. | Explain the various requirements to prepare analysis of rates for sanitary and water supply works. |
| 4. | Write a detailed note on the schedule of rates given by PWD. |

UNIT III – SPECIFICATIONS, REPORTS AND TENDERS

Specifications – Detailed and general specifications – Constructions – Sources – Types of specifications – Principles for report preparation – report on estimate of residential building – Culvert – Roads – TTT Act 2000 – Tender notices – types – tender procedures – Drafting model tenders , E-tendering-Digital signature certificates- Encrypting -Decrypting – Reverse auctions.

PART A

1.	Define general specification.
2.	Identify the content of tender.
3.	Differentiate between detailed specification and general specification
4.	Explain TTT Act.
5.	Illustrate the term arbitration.
6.	What is a tender notice?
7.	Justify the objective of specification
8.	Formulate the reason for rejection of all tender.
9.	Write out the specification for second class Brickwork?
10.	Evaluate the general specification for Cement Concrete Floor?
11.	What are the specifications for White lime mortar?
12.	Define Detailed specification.

13.	What are the principle of report preparation?
14.	List the factors involved in locating a site?
15.	What are the set of drawings required for preparing a report?
16.	Select any two principles for the preparation of residential building?
17.	Definition of report.
18.	What are the types of reports?
19.	State the necessity of report
20.	List the major Parameters considered for a report in a design of RCC Beam
21.	Identify the different methods for calculating the discharge in a bridge or culvert
22.	What is sand flushing?
23.	List the components of the value and verification of unused materials report.
24.	What are the sub-heads of tools and plants account?
25.	Identify revenue and remittance head.
1.	Write the important particulars in tender documents and describe about it?
2.	Show the general specification for first class buildings
3.	Demonstrate the processes "Opening and scrutiny of tender"
4.	Write down the detailed specification of the following (i) Cement concrete in foundation (ii) Plastering in cement mortar 1:6
5.	(i) Define the Procedure for preparation of reports?(6) (ii) State how will you prepare a report on estimate of Box culvert?(7)
6.	Write down the general specifications of a residential building.
7.	Prepare a report on estimate for the following items in Single storey Residential building (i) Sub structure (7) (ii) Super Structure(6)
8.	Illustrate the following in brief i) General or brief specification (5) ii) Detailed specification (4) iii) Standard specification (4)
9.	Select the content in specifications for a septic tank and explain it.
10.	Illustrate a detailed specification of super structure.
11.	Mention and describe the general specifications of a bituminous road.
12.	Estimate the detailed specification of earth work.
13.	Explain the report on estimation for construction of bituminous roads
14.	Write a report on estimate for construction of cement concrete roads
PART-B	
1.	Explain in detail about the preparation of tender notice and document
2.	Describe the detailed specification of various items of works for the following (i) RCC (4) (ii) Color washing (4) (iii) Brick I Class (4) (iv) Plastering cement Mortar or lime mortar (3)
3.	(i) Explain E-tendering-Digital signature certificates (7) (ii) Explain the principle of specification writing.(8)
4.	Write a report to accompany an estimate for a residential to executive engineer

1.	What is Contracts?
2.	List the Function of Contracts.
3.	Classify the types of Contracts – Formation?
4.	What is Formation of contract?
5.	Illustrate the requirements of a contract.
6.	Differentiate the types of termination of contract
7.	Identify the content for Drafting of contract.
8.	What do you infer from extension of time in contract system ?
9.	List the different form of Contract conditions
10.	What is Debitable agency?
11.	Classify and explain the types of penalties that are imposed on a contract and why are they imposed?
12.	Illustrate, what are the information should a contract document contain.
13.	Compare the types of contract.
14.	Explain TTT Act.
15.	Examine the qualification of contractor.
16.	Elaborate the important legal implications of a contract.
17.	Illustrate the term arbitration.
18.	What is Contract conditions?
19.	What does a construction cost covers and what does not?
20.	Justify the different methods of carrying out work ?
21.	List the important content in contract documents
22.	Write short note labor and material payment bond
23.	Examine the Contract problems.
24.	Evaluate the Architect-Prepared Contract
25.	Define IBRD & MORTH
PART-B	
1.	List and explain the different forms of contracts with respect to suitability advantage and disadvantages.
2.	Show the general details in Muster roll. and rules for preparation of Muster roll.
3.	Demonstrate the problem in Contract System
4.	Write down in detailed about the following (i) Contract conditions (ii) Formation of contract
5.	Examine the various types of contract system
6.	Write down the general system for Design contract and Construction contract
7.	Explain in detail about different methods of carrying out work?
8.	Illustrate the following in brief (i) Piecework agreement (5) (ii) Work order (4) (iii) Labour Report (4)
9.	Illustrate a detailed about Labour Contract and Material Contract
10.	Mention and describe the Condition for Contract system

11.	Explain the following (i) Penalty(4) (ii) Compensation for delay in completion(4)(iii) Damages(5)
12.	Explain the following (i) Lumpsum Contract (5) (ii) Lumpsum Contract and schedule contract (5)(iii) Item rate Contract (4)
13.	Analyze the contents of contract document and explain the each quantity.
14.	Write the important particulars in Drafting of contract documents based on IBRD / MORTH Standard bidding documents?
1.	Explain in detail about the preparation of Contract document with all content.
2.	Describe the various types of contract system.
3.	Describe about arbitration and legal Requirements
4.	Draft a model contract document for Construction Contract Agreement?
1.	List the different methods of depreciation?
2.	Define valuation?
3.	What is obsolescence?
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.
5.	Define the Gross income:
6.	What is scrap value?
7.	Summarize why we calculate standard rent of building?
8.	Explain Gross income
9.	Describe Net income
10.	A property fetches a net income of Rs.900.00 deducting all outgoings. Work out the capitalized value of the property if the rate of interest is 6% per annum.
11.	Demonstrate the meaning of salvage value?
12.	Illustrate about Annuity
13.	Illustrate about book value
14.	Differentiate between market value and book value.
15.	Point out factors influencing compaction?
16.	A pumping set with a motor has been installed in a building at a cost Rs.2500.00. Assuming the life of the pump as 15 years, work out the amount of annual installment of sinking fund to be deposited to accumulate the whole 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 4% interest assuming the future life of the building as 20 years and scrap value of the building as 10% of the cost of purchase.
18.	Sinking fund method of depreciation is more reliable” - Justify
19.	Write the necessity of valuation.
20.	Write short note on Escalation?
21.	What are the different methods of valuation?

22.	Define differed Annuity.		
23.	What is capital cost?		
24.	Describe about Capitalized Value?		
25.	List the various Outgoing consider for a building estimates.		

PART - B

1.	Define the following : (i) Type of lease (5) (ii) Mortgage (4) (iii)(iii) Escalation (4)		
2.	State the following terms : (i) Scrap value (3) (ii) Salvage value (3) (iii) Book Value (3) (iv)(4) Market value (4)		
3.	In a plot of land costing Rs 20,00,000 a building has been newly constructed at 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. (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 value (6) (ii) (ii) Discuss about a freehold property (7)		
5.	Discuss the following terms : (i) Methods of Depreciation (5) (ii) Carpet Area (4) (iii)(iii) Plinth Area (4)		
6.	Explain the terms clearly: (i) Annuity Head rent (4) (ii) Deferred income (3) (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 = 80years Return expected = 5% on land 6% on building 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 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 Rs.1800/- per sq.m		

	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 value of the property Value of the land = Rs4,00,000.00 Cost of the building to put up such a building present =Rs10,00,000 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: (i) Capitalized value and year's purchase (5) (ii) Freehold property and leasehold property (4) (iii)(iii) Depreciation and obsolescence.(4)		
12.	Examine in detail about various methods of calculations Depreciation		
13.	Explain in detail about various methods of Valuation		
14.	Write Short note on the following terms: (i) (i)Sinking fund (4) (ii) (ii)Outgoings (3) (iii)(iii)Capitalized value (3) (iv)(iv)Price and Cost (3)		
PART C			
1.	Describe briefly about (i) Rental method of valuation (4) (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)		
3.	Out list the procedure to work out the value of a property by rental method of valuation.		
4.	(i) Discuss about free hold property(7) (ii) Outcome of valuation.(6)		