Hall Ticket No | | | | | | | | | | | Question Paper Code: ACE017

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

MODEL QUESTION PAPER

B.Tech VII Semester End Examinations, November - 2019

Regulations: R16

ESTIMATING AND COSTING

(CIVIL ENGINEERING)

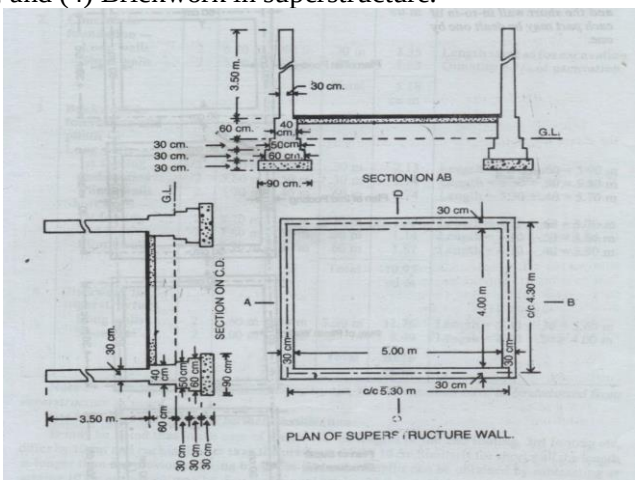
Time: 3 hours **Max. Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT– I

1. a) State the purpose of approximate estimate and give the different methods adopted. **[7M]**
   b) Prepare the approximate estimate of a proposed construction of a building with the following. **[7M]**
   a)Plinth area = 116m^2
   b)Cost per unit area = Rs 1800/- per m^2.
   c)Electrification @ = 7% of building cost.
   d)Formation of roads and lawns at 5% building cost.
   e)P.S charges at 3% building cost.

2. a) List out the difference between centre line method & long wall-short wall method. **[7M]**
   b) The plan represents the plan of superstructure wall of a single room building of 5 m x 4 m, and Sections represents the cross-sections of the walls with foundation shown in fig. Estimate the quantities of- **[7M]**
   (1) Earthwork in excavation in foundation, (2) Concrete in foundation, (3) Brickwork in foundation, and (4) Brickwork in superstructure.



UNIT– II

3. a) How do you calculate: (a) Earth work with vertical fall of the ground surface for fully in banking, fully in cutting and partly in banking cutting?. **[7M]**

   b) Calculate the quantity of earthwork by three method for 200m length for a position of road in an uniform ground the heights of bank at the two end being 1.00m&1.60m . The formation width is 10m and side slope 2:1(H:V) .Assume that there is no transverse slope. **[7M]**

4. a) Explain "Trapezoidal rule" and "Prismoidal rule" with usual notations. **[7M]**

   b) Estimate the cost of earthwork for a position of road for 400m length from following data . Formation width of the road is 10m . Side slope are 2:1 in banking, 1.5:1 in cutting. **[7M]**

Station	Distance in m	R.L. of ground	R.L. of formation
25	1000	51.00	52.00
26	1040	50.90	Downward gradient 1 in 200
27	1080	50.50	
28	1120	50.80	
29	1160	50.60	
30	1200	50.70	
31	1240	51.20	
32	1280	51.40	
33	1320	51.30	
34	1360	51.00	
35	1400	50.60	

UNIT– III

5. a) Calculate the rate analysis for Cement concrete 1:2:4 per cum. **[7M]**

   b) Calculate the rate analysis for I-class brick work in Arches with 1:3 cement Coarse and mortar per cum. **[7M]**

6. a) Calculate Rate analysis per 1Cum for course rubble stone masonry in superstructure in 1:6 cement sand mortar. **[7M]**

   b) Calculate the rate analysis for R.C.C work in column 1:1.5:3 per cum. **[7M]**

UNIT– IV

7. a) Explain the following engineering contracts along with their advantages and disadvantages. (a) Item rate contract (b) Percentage rate contract. **[7M]**

   b) Explain contract documents in detail. **[7M]**

8. a) List and explain the various types of contracts in detail. **[7M]**

   b) Derive the expressions for 45 degree & 30 degree cranked or bent up bars. **[7M]**

UNIT– V

9.	a)	A three –storied building is standing on a plot of land measuring 800sqm. The plinth area of each storey is 400sqm . The building is of R.C.C framed structure and future life may be taken as 70 years. The building fetches a gross rent of Rs 1500 per month. Work out the Capitalized value of the property on the basis of 6% net yield. For sinking fund 3% compound interest may be assumed. Cost of land may be taken Rs40 per Sqm. Assume the following data. i)Repairs at 1/12 of gross income ii)Municipal tax 5% of gross rent iii)Property tax 5% of gross rent iv) Management charges @ 6% of the gross rent.v)Insurance premium @1/2% of gross rent.vi)other miscellaneous charges @ 2% of the gross rent.	**[7M]**
	b)	Explain the following a)Mortgage lease b)Freehold property	**[7M]**
10.	a)	Explain the following method of valuation of a building along with an example. (a) Valuation based on cost (b) Direct method of valuation	**[7M]**
	b)	Define valuation and explain the purpose of valuation. (b)Explain capitalized value with a simple example.	**[7M]**

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COURSE OBJECTIVES:

The course should enable the students to:

I	Summarize the basic principal and standard methods for working out quantities in estimating.
II	Demonstrate the detailed estimate of buildings and workout rate analysis of the various items of work.
III	Understand the material requirements as per specified norms and standards..
IV	Assess the valuation of buildings and provide practical knowledge of standard specifications of items of building construction.

COURSE OUTCOMES (COs):

CO 1	Understand the preparation of an Abstract Estimate and detailed estimate of building.
CO 2	Determine earth work quantity for roads and canals, design bar bending schedule for reinforcement works.
CO 3	Understand preparation of Notice inviting tender document for bidding, tendering process and examining rates of civil works.
CO 4	Identify specifications and tendering process for contracts and create various tender documents for bidding purpose..
CO 5	Evaluate the valuation of building for different specifications and create new technologies to develop concrete estimating methods.

COURSE LEARNING OUTCOMES (CLOs):

ACE017.01	Interpreting the preparation of an Abstract Estimate for a Residential Building.
ACE017.02	Organizing the units for various quantities of items of work.
ACE017.03	Associating the preparation of detailed estimation of building.
ACE017.04	Demonstrate the calculation of earth work quantity for roads and canals.
ACE017.05	Evaluate the rates for various items of work.
ACE017.06	Understand how to prepare a Notice inviting tender document for bidding.
ACE017.07	Analyze the building as per new estimated cost.
ACE017.08	Have knowledge on specifications and tendering process for contracts.
ACE017.09	Examining the rate analysis of various items of civil works.
ACE017.10	Design and Prepare Bar bending schedule for reinforcement works.
ACE017.11	Calculate the quantities of steel for different items of work.
ACE017.12	Identify specifications and tendering process for contracts.
ACE017.13	Classify the types, formation, terms and conditions in contracts and arbitration.
ACE017.14	Prepare a bid analysis for a given sub trade.
ACE017.15	Create various Tender documents for bidding purpose.
ACE017.16	Evaluate the valuation of building for different specifications.
ACE017.17	Create new technologies to develop concrete estimating methods for more ethical and enhanced usage.
ACE017.18	Possess the knowledge and skills for employability.
ACE017.19	Will able to value a property, price escalation recommendations and auditing.
ACE017.20	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

MAPPING OF SEMESTER END EXAMINATION - COURSE OUTCOMES

SEE Question No		Course Learning Outcomes		Course Outcomes	Blooms Taxonomy Level
1	a	ACE017.01	Interpreting the preparation of an Abstract Estimate for Residential Building.	CO 1	Understand
	b	ACE017.02	Organizing the units for various quantities of items of work.	CO 1	Understand
2	a	ACE017.03	Associating the preparation of detailed estimation of building.	CO 1	Understand
	b	ACE017.04	Demonstrate the calculation of earth work quantity for roads and canals.	CO 1	Understand
3	a	ACE017.05	Evaluate the rates for various items of work.	CO 2	Understand
	b	ACE017.06	Understand how to prepare a Notice inviting tender document for bidding.	CO 2	Remember
4	a	ACE017.07	Analyze the building as per new estimated cost.	CO 2	Understand
	b	ACE017.08	Have knowledge on specifications and tendering process for contracts.	CO 2	Understand
5	a	ACE017.09	Examining the rate analysis of various items of civil works.	CO 3	Understand
	b	ACE017.10	Design and Prepare Bar bending schedule for reinforcement works.	CO 3	Understand
6	a	ACE017.11	Calculate the quantities of steel for different items of work.	CO 3	Understand
	b	ACE017.12	Identify specifications and tendering process for contracts.	CO 3	Understand
7	a	ACE017.13	Classify the types, formation, terms and conditions in contracts and arbitration.	CO 4	Understand
	b	ACE017.14	Prepare a bid analysis for a given sub trade.	CO 4	Understand
8	a	ACE017.15	Create various Tender documents for bidding purpose.	CO 4	Understand
	b	ACE017.16	Evaluate the valuation of building for different specifications.	CO 4	Understand
9	a	ACE017.17	Create new technologies to develop concrete estimating methods for more ethical and enhanced usage.	CO 5	Understand
	b	ACE017.18	Possess the knowledge and skills for employability.	CO 5	Understand
10	a	ACE017.19	Will able to value a property, price escalation recommendations and auditing.	CO 5	Understand
	b	ACE017.20	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	CO 5	Understand

Signature of Course Coordinator **HOD, CE**