Code No: **R1642011** **R16** **Set No. 1**

**IV B.Tech II Semester Regular Examinations, September - 2020**

**ESTIMATION SPECIFICATIONS & CONTRACTS**

**(Civil Engineering)**

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

***Question paper consists of Part-A and Part-B***

***Answer any THREE questions from Part-A***

***Part-B is compulsory***

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## PART–A *(3x14=42 Marks)*

1. a) Differentiate between the various specifications of detailed and approximate method of estimation. [7]
   b) Prepare a preliminary estimate of a building project with a total plinth area as 1750sq.m with the following details:
   Plinth area rate – Rs. 1065per sq.m; water supply and sanitary – 6% of the building cost, installation – 12% of the building cost; services – 6%; Contingency charges – 4%; Supervision charges – 8%. [7]

2. a) Calculate the rate per unit for carriage of materials like lime, ballast and kankar by truck for a head of 23km. Take the loading capacity of truck as 3.75cu.m of material. [7]
   b) State the need of rate analysis and explain the features it should contain for correct estimation. [7]

3. a) The following width of road embankment is 7.5m. The side slopes are 2.5:1. The depth along the centre line road at 50m intervals are obtained as 1.59, 1.20, 1.76, 1.24, 1.37, 1.10, 1.42, 1.05m. Calculate the Quantity of earthwork by Prismoidal method and Trapezoidal method. [7]
   b) Find the earthwork in embankment between 5/2km to 5/5km of the proposed road whose c/s has the top width as 5.5m and the side slopes as 2.5:1 and height as 6.30m. [7]

4. a) Define the term Contract and explain the various conditions to be incorporated in any contract. [7]
   b) How and what are the various parameters to be included for Valuation and Rent fixation of any government building. [7]

5. a) Define the terms Lead and Lift and also state how they have to be estimated. [7]
   b) Mention the units of measurement for Flooring, Wood work and Roofing. [7]

6. a) Explain in details of methods adopted for the estimation of earthwork estimations. Enumerate all the equations with the notations. [7]
   b) Discuss some of the possible contractual problems. [7]

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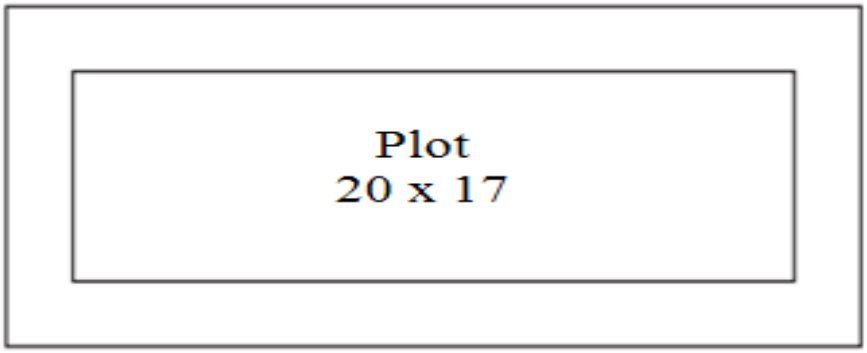
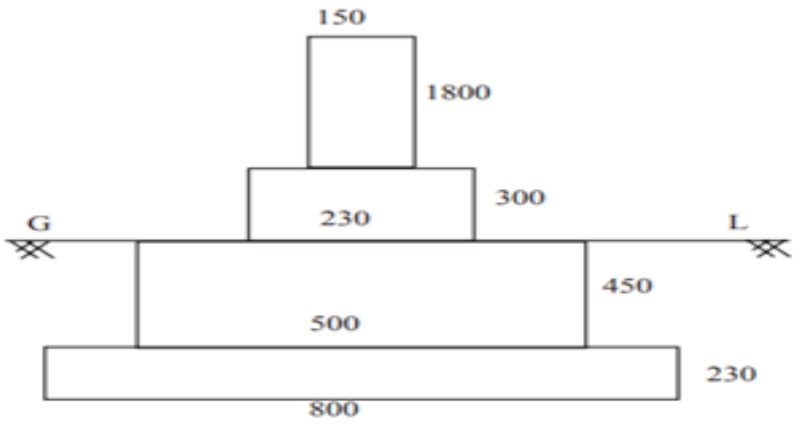
## PART–B *(1x28 = 28 Marks)*

7. Prepare the detailed estimate for the following items of work for the building shown in figure.
   i) Brickwork in CM (1:6) in foundation footing;
   ii) R.C.C. (1:1.5:3) in columns upto ground level only;
   iii) 12mm thick plastering the wall surfaces with CM (1:6) for all super structure walls by central line method;
   iv) R.C.C. (1:2:4) in plinth Beams;
   v) R.C.C. (1:2:4) in slab.




**Cross Section of the compound wall**

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**IV B.Tech II Semester Regular Examinations, September - 2020**

# ESTIMATION SPECIFICATIONS & CONTRACTS

**(Civil Engineering)**

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

***Question paper consists of Part-A and Part-B***
***Answer any THREE questions from Part-A***
***Part-B is compulsory***

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## PART–A *(3x14=42 Marks)*

1. a) What are the general specifications of a second class building? Explain in detail. [7]
   b) Enumerate the requirements and the data required for estimation of specifications. [7]

2. Prepare the general unit rates for the following items with HBG metal – Rs.780; sand – Rs.290; Cement – Rs.3000; Mason Ist Class – Rs.250; Man Mazdoor – Rs.150; Women Mazdoor – Rs.100; Centering charges – Rs.450. Assume any other data suitably.
   a) Cement Concrete in Foundation (1:5:10)
   b) P. C. C (1:2:4)
   c) V. R. C. C (1:2:4) for bed blocks, column footings including form work centering charges. [14]

3. a) Estimate the Quantity of earthwork for a portion of road from the following data. The formation level at Chainage '0' is 9 and having falling gradient of 1 in 100. The top width is 17.5m and side slopes 1½ horizontal to 1 vertical. Assuming the transverse direction is in level, calculate the quantity of earthwork Take 1 chain = 20m by using Trapezoidal and Prismoidal formula.

| Chainage | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| RL | 7.50 | 8.27 | 7.93 | 7.25 | 7.0 | 6.85 | 6.90 | 6.55 | 6.25 | 6.0 |

   [7]
   b) For an embankment 90m long of uniform gradient when the height of bank is 3.45m at one end and 2.25m at the other end. The width of embankment at top is 8.3m and its side slopes 2 vertical to 1 Horizontal. Calculate the quantity of earthwork by i) Mid Sectional area method ii) Mean sectional area method. [7]

4. a) What do you understand by Contract specification? Explain the term with any suitable example. [9]
   b) A building situated on a land of 600sq.m, has a built up portion of 17m x 13m. The building is first class type and provided with water supply, sanitary and electric fittings and the age of the building is 30 years. Work out the Valuation of the property. [5]

5. a) Discuss the various deductions that need to be incorporated for any structures. [7]
   b) Explain in detail the factors affecting the rate analysis. [7]

6. a) Explain in detail about any two methods of detailed estimations. [7]
   b) Explain in detail about depreciation method of Valuation with suitable example. [7]

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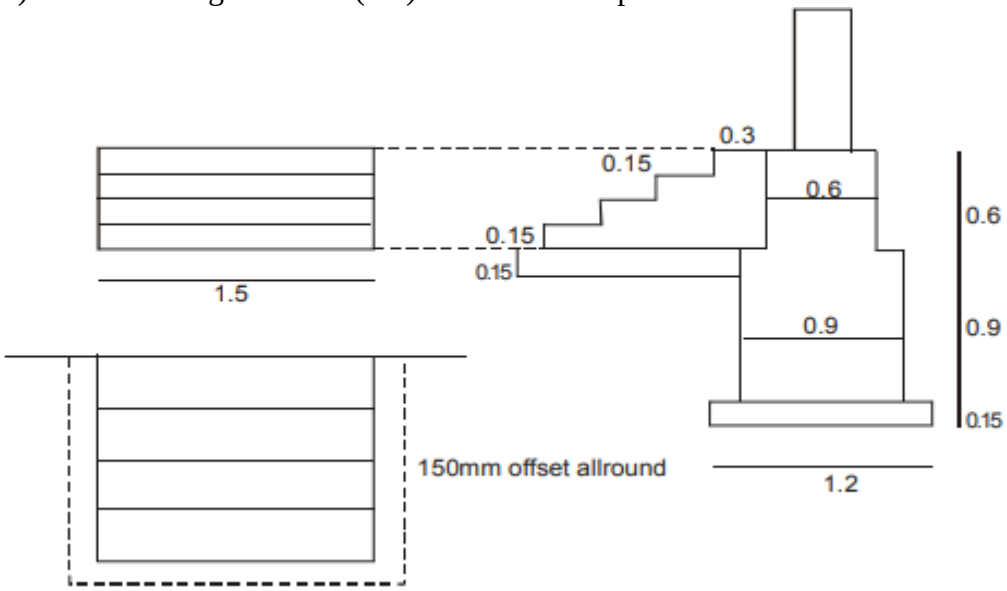
## PART–B *(1x28 = 28 Marks)*

7. The section of steps at the front of a residential building is shown in figure. Calculate
   i) Volume of BM in CM (1:5) for all three steps, the length of steps is 2.1m
   ii) Plastering with CM (1:4) for all three steps



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**IV B.Tech II Semester Regular Examinations, September - 2020**

**ESTIMATING SPECIFICATIONS & CONTRACTS**

**(Civil Engineering)**

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

***Question paper consists of Part-A and Part-B***

***Answer any THREE questions from Part-A***

***Part-B is compulsory***

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## PART–A *(3x14=42 Marks)*

1. a) What do you understand by the term Lumpsum and workcharged establishment? [7]
   b) Explain in detail about Abstract Estimate with all the details required for its estimation. [7]

2. a) Discuss in brief about the purpose, importance and essentials of Rate analysis. [7]
   b) Calculate the Cement contents for the following a) C.C.(1:510) using 40mm H.B.G. Metal for $25m^3$ work b) Brick work in CM (1:6) using country Bricks for $15m^3$ of work if 0.38 $m^3$ of CM (1:6) is required for $1m^3$ of Brick work. [7]

3. a) Find the volume of earth work in embankment of length 12m. Top width is 5.5m and depth is 2.5m the side slopes are 1½:1 using mid sectional Area and Mean sectional method. [7]
   b) The reduced level of the ground along the centre line of a proposed road is given below for chainage from 0 to 6. The formation level at '0' chainage is 9.00 and the road is in downward gradient of 1in 100 formation width of road is 10m and side slopes are 2:1 for both banking and cutting. Length of chain is 25m. Calculate the quantity of earthwork required by i) Trapezoidal rule ii) Prismoidal rule.

| Chainage | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| RL | 8.0 | 7.4 | 7.55 | 7.23 | 6.95 | 6.35 | 6.75 |

[7]

4. a) With an example explain in detail about Rental method and Development method of valuation? [7]
   b) With suitable example, explain in detail about the salient features of a contract document. [7]

5. a) Distinguish clearly between Revised and supplementary estimate [7]
   b) Give the detailed classification of types of contracts. [7]

6. a) Define Valuation, its purpose and requirements for preparing the Valuation report. [7]
   b) An arch of 3.56m span subtends an angle 80º and 65º at the centre. The thickness of the arch is 30cm and the breadth of the wall is 45cm. Calculate the quantity of arch masonry work. [7]

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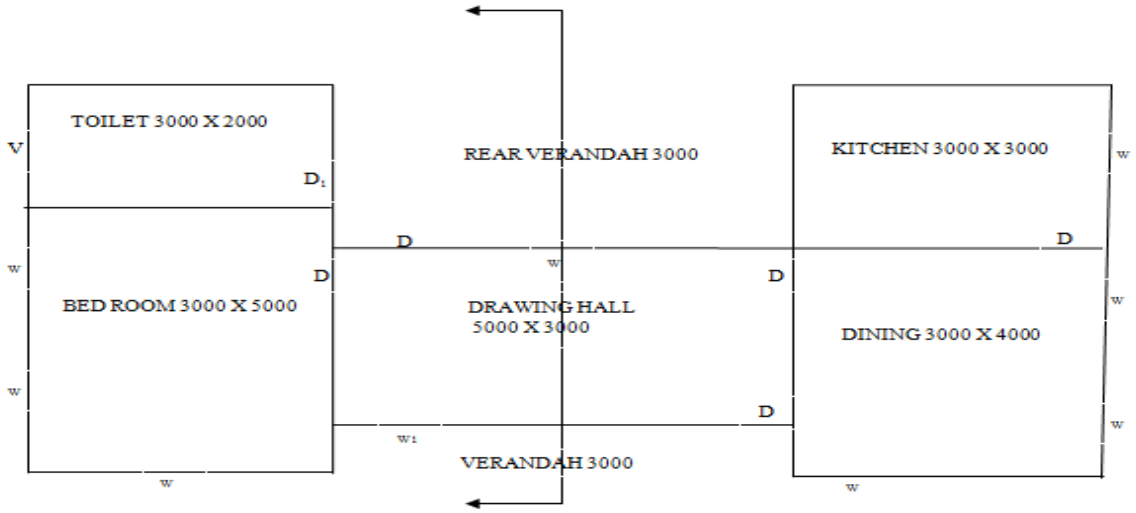
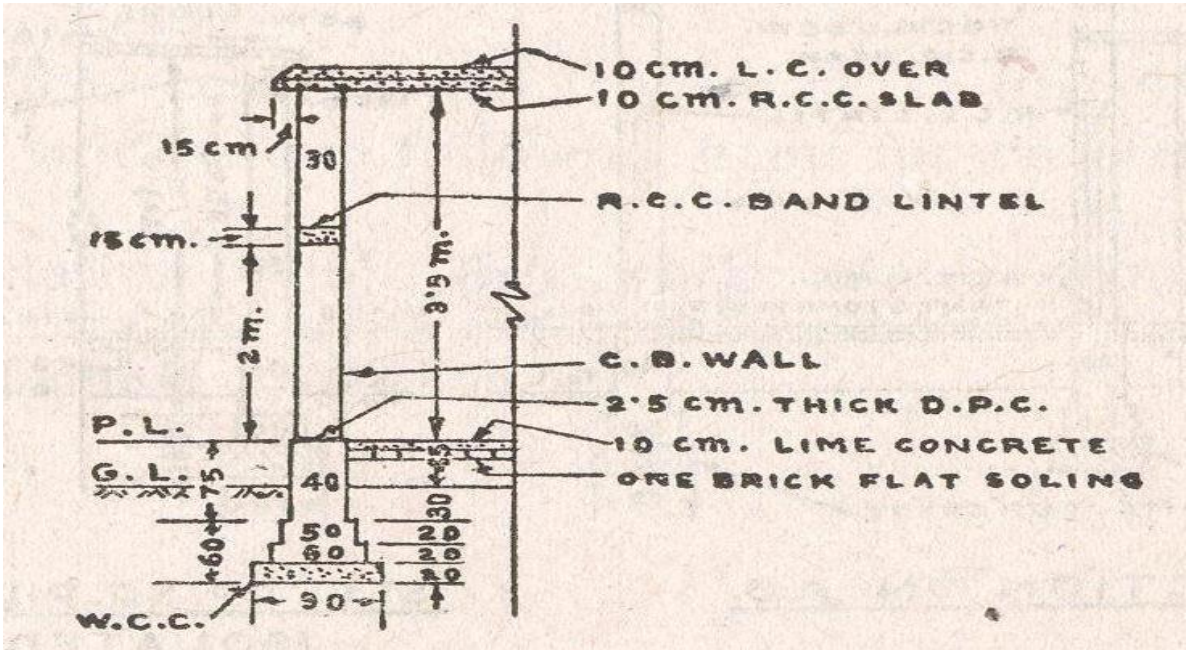
## PART–B *(1x28 = 28 Marks)*

7. Estimate the quantities of work of the following items for the figure shown below and prepare the abstract of the items of work.
Earthwork in excavation for foundation @ Rs. 550 per cu.m
Cement Concrete (1:3:6) using 25mm to 40mm stone aggregates for foundation @ Rs.450 per cu.m
First class brick masonry in foundation and Plinth (1:6) @ Rs.630 per cu.m
Brickwork in super structure @ Rs.540 per cu.m.



Code No: **R1642011** **R16** **Set No. 4**

**IV B.Tech II Semester Regular Examinations, September - 2020**

**ESTIMATING SPECIFICATIONS & CONTRACTS**

**(Civil Engineering)**

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

***Question paper consists of Part-A and Part-B***

***Answer any THREE questions from Part-A***

***Part-B is compulsory***

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## PART–A *(3x14=42 Marks)*

1. a) Why and how do you categorize the various units of measurements? Explain in brief. [7]
   b) Discuss in brief various factors to be considered while preparing detailed estimate. [7]

2. a) Discuss in detail about schedule of rates and setting out and making profiles. [7]
   b) Prepare a data sheet and calculate the cost of the items given below:
   a) Brick masonry in C.M. (1:6) with country bricks-unit Icum.
   1000Nos. country bricks. 0.45$m^3$ C.M.(1:6)
   4Nos. Masons – Rs. 150 per day; 1Nos. Man Mazdoor – Rs. 120 per day
   2Nos. Woman Mazdoor – Rs. 100 per day and L.S. Sundries. [7]

3. a) The Formation level at chainage zero is 28 and having the rising gradient of 1 in 100 the top width is 12m and the side slopes are 2 horizontal to 1 vertical Assuming transverse slope is level. Calculate the volume of earthwork with the following data:

| Chainage | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 |
|---|---|---|---|---|---|---|---|---|
| RL | 25.1 | 25.8 | 26.5 | 27.2 | 27.6 | 26.2 | 28.3 | 28.5 |

   [7]
   b) Write a detailed note on the bar requirement schedules. [7]

4. a) A building costing Rs.5,50,000/- has recently been constructed in a big city. The plot measuring 400 sq. m was purchased @ Rs.250/- per square meter. Work out the rent of the property. Assume 7.5% as net return on the cost of the construction and 4.5 % on the land value. All expected outgoing are Rs.18,000/- per year. [7]
   b) What information is necessary to be incorporated in any contract document? Explain by means of suitable example. [7]

5. a) Derive the equations to determine the Quantity for semi-circular arches, Flat arches, and segmental arch with span and rise. [9]
   b) Discuss in detail about the need and definition of estimation and costing. [5]

6. a) Define the terms: lead and lift. Also state the corresponding equations with all notations using a suitable example. [7]
   b) Provide the detailed classification of methods for estimation of earthworks for canals. [7]

Code No: **R1642011** **R16** **Set No. 4**

## PART–B *(1x28 = 28 Marks)*

7. Estimate the quantities of work of the following items for the Plan shown in Figure below. An abstract of cost is also to be prepared at the rates given against each. Earthwork in excavation for foundation @ Rs.350.0 per cu.m
Lime concrete in foundation and floor @ Rs.220 per cu.m
Ist Class Brickwork in cement mortar 1:6 in foundation and plinth @ Rs.350 per cu.m
Brickwork in superstructure @ Rs.400 per cum.
12mm cement plaster 1:2 with coarse sand @ Rs.8.50 per sq.m
12mm cement plaster 1:4 with local sand @ Rs. 7.50 per sq.m
5cm cement concrete 1:1.5:3 floor @ Rs.65 per sq.m.