Reg No.:_____ Name:_____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth Semester B.Tech Degree Supplementary Examination August 2024 (2019 Scheme)

Course Code: CET402

Course Name: QUANTITY SURVEYING AND VALUATION

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer any two questions, each carries 10 marks. Marks

1 (a) List out the roles and responsibilities of quantity surveyor at various stages of construction. (5)

(b) Differentiate between day work and prime cost with examples. (5)

2 Develop unit rate of the work (DSR item No. 4.1.4). providing and laying in position 1:2:4 (1 Cement : 2 coarse sand (zone-III) derived from natural sources : 4 graded Stone aggregate 40 mm nominal size derived from natural sources) cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : MATERIAL : 0.52 cu.m 40mm nominal size of stone aggregate @ Rs.1300/cu.m., 0.22cu.m 20mm nominal size of stone aggregate @ Rs.1400/cu.m.. 0.11cu.m 10mm nominal size of stone aggregate @ Rs.1350/cu.m.. 0.445cu.m of coarse sand (Zone-III) @Rs.1500/cu.m.. 0.2225 cu.m Portland cement @ Rs.5000/tonne, LABOUR : 0.10 Mason @ Rs.749/day; 1.63 Beldar @ Rs.645/day, 0.70 Bhisti @ Rs.714/day. CARRIAGE PROVISIONS: Stone aggregate 40mm nominal size and above Rs. 178.19 /cu.m.; Stone aggregate below 40mm nominal size Rs. 163.93 /cu.m.: coarse sand @Rs.163.93/cu.m. and for cement @ Rs.145.72/tonne. HIRE CHARGES of concrete mixer 0.07@Rs.800/day. Vibrator 0.07@Rs.350/day. SUNDRIES . LS. 13.52@Rs.2.12. (10)

3 (a) Explain the detailed specification for reinforced cement concrete with reference to CPWD specifications. (5)

(b) What is meant by overhead charges? Give the percentage adopted for the contractor's profit and overhead in CPWD DSR 2021 rate analysis. (3)

(c) Write the unit of measurement of (i) DPC using waterproofing compound, and (ii) Iron work for window. (2)

PART B

Answer any two full questions, each carries 25 marks.

4 Prepare a detailed measurement of the residential building shown for the following item of work (use CENTRE LINE METHOD): (25)

i) Earthwork in excavation in foundation:

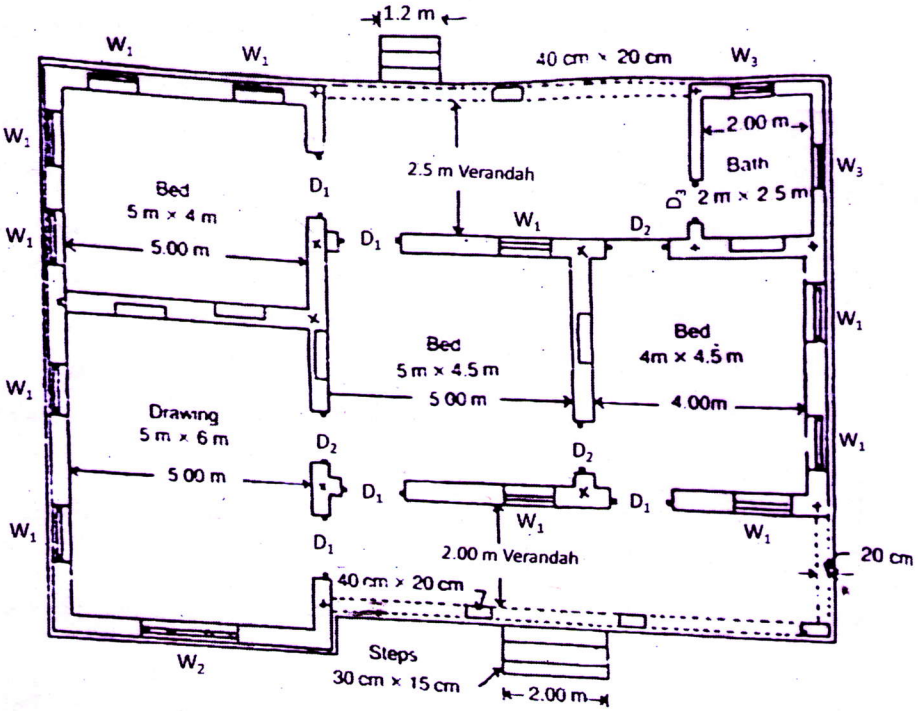
ii) Lime concrete in foundation:

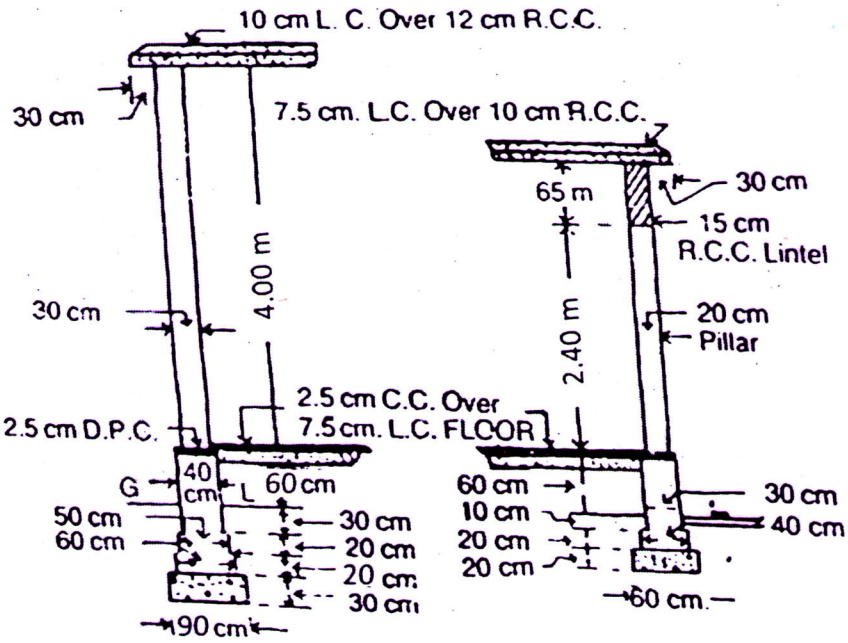
iii) Brickwork in CM 1:6 in foundation and plinth;

iv) DPC 2.5 cm c.c at plinth level

(D_1 – 120 cm x 210 cm, D_2 – 100 cm x 200 cm, D_3- 75 cm x 180 cm, W_1 – 100 cm x 150 cm, W_2 – 200 cm x 150 cm, W_3 – 75 cm x 120 cm, All shelves – 100 cm x 150 cm. Lintels over doors, windows etc. 15 cm R.B)

Footing details 30 cm wall – 1st footing 60 cm wide and 20 cm deep, 2nd footing – 50 cm wide and 20 cm deep, plinth wall – 40 cm wide and 90 cm deep; Footing details 20 cm wall- 1st footing – 40 cm wide and 20 cm deep, plinth wall 30 cam wide and 70 cm deep.





CROSS SECTION OF 30 CM WALLS CROSS SECTION OF 20 CM WALLS

5 Draw longitudinal section of the road and estimate the quantity of earthwork for a portion of road for 400 m length from the following data. Formation width of road is 10 m. Side slopes are 2:1 in banking and $1\frac{1}{2}$:1 in cutting. (25)

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

6 Prepare a bar bending schedule of a rectangular RCC beam of size 300 x 450 mm and 5 m length. The bar is reinforced with 2 Nos. – 10 mm dia bars at top. 2 Nos. – 16 mm dia straight bars and 2 Nos. – 16 mm dia bent up bars at bottom. 8 mm dia two legged stirrups are provided at 130 mm c/c throughout the length of the beam. Consider side covers as 25 mm. (25)

PART C

Answer any two full question , each carries 15 marks.

7 a) Write short note on sinking fund, years of purchase, outgoings, gross income and annuity. (5)

b) What annual sinking fund at 4.5 % must be invested to produce Rs. 1/- at the end of 20 years? (4)

c) Explain the purposes of valuation. (6)

8 a) The cost of construction of a new building according to present market rate is Rs. 80,000/- having life of 70 years. But if the building is 15 years old determine the depreciation amount which should be deducted from the cost of the new building at 6% compound interest. (10)

b) Differentiate between depreciation and obsolescence. (5)

9 a) A building is situated by the side of a main road of a city on a land of 500 sq.m. The built-up portion in 20 m x 15 m. The building is first class type and provided with water supply, sanitary and electric fittings, and the age of the building is 30 years. Workout the valuation of the property if the plinth area rate is Rs. 200/m^2 and cost of land is Rs. 60/m^2. Assume life of building as 100 years. Adopt depreciation method of valuation and $rd = 1$. (10)

b) Define value and discuss about any four different types of values. (5)

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