

Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: CE409

Course Name: QUANTITY SURVEYING AND VALUATION

Max. Marks: 100

Duration: 3 Hours

Instruction : Assume any missing data suitably

PART A

Answer any two full questions, each carries 10 marks.

Marks

- 1 a) Explain the use of CPWD schedule of rates and how it is applied for the construction work in the different states of India. (7)
- b) Write the unit of measurement of (i) DPC using waterproofing compound (ii) Iron work for window (iii) Water proof Painting above roof slab (3)
- 2 a) Calculate the amount required for carriage of 2500kg of steel reinforcement to be brought from a source of 6km away from the site. The vehicle access is only upto 75m away from the construction site. (5)
- CPWD data are as follows for mechanical transport of 1 tonne of steel at 1km@Rs.69.93; 2km@Rs.79.29; 5km@Rs.106.07; beyond 5km upto 10km per km @Rs.7.72 ; and for transport of 1 tonne of steel by manual labour Rs.144.20/- for first 50meters and Rs.21.16/- for every additional 50metre or part thereof.
- b) Reproduce detailed specification of Earthwork excavation for foundation in ordinary soil. (5)
- 3 a) Develop rate analysis for DSR item No.5.3, Reinforced cement concrete work with 1:1.5:3 (3 graded stone aggregate 20 mm nominal size) in beams, suspended floors, roofs having slope up to 15° landings, above plinth level up to floor five level, excluding the cost of centering, shuttering, finishing and reinforcement. (8)
- Material :** 20mm Aggregate $0.57\text{m}^3 @ ₹1300/\text{m}^3$, 10mm $0.28\text{m}^3 @ ₹1300/\text{m}^3$, coarse sand (Zone III) $0.425\text{m}^3 @ ₹1200/\text{m}^3$, Portland cement 400kg@₹5700/tonne.
- Labour :** Mason $0.24 @ ₹467/\text{day}$, Beldar $2.75 @ ₹368/\text{day}$, Bhisti $0.90 @ ₹407/\text{day}$, Coolie $1.88 @ ₹368/\text{day}$
- Carriage provisions :** Stone aggregate below 40mm $0.85\text{m}^3 @ ₹103.77/\text{m}^3$, Coarse sand $.425\text{m}^3 @ ₹ 103.77/\text{m}^3$, Portland cement $0.40\text{tonne} @ ₹.92.24/\text{tonne}$
- Hire Charges** for concrete mixer $0.08 @ ₹800/\text{day}$, Vibrator needle type $₹0.08 @ 350/\text{day}$
- Sundries (LS)** $14.30 @ ₹1.73$.
- Adopt water charges, contractor profit and overheads as per the CPWD DSR2016 provisions.
- b) List any four item generally considered under overhead charges. (2)

PART B

Answer any two full questions, each carries 25 marks.

- 4 Prepare the detailed estimate of the following items of the building plan shown in Figure-1. (25)

Use Centre line method

- i) Earth work excavation for foundation in ordinary soil.
- ii) Brick work in CM 1:4 for super structures
- iii) RCC 1:2:4 for roof and lintel
- iv) Flooring with cement concrete 1:4:8, 40mm nominal size brokenstone,75mm thick.
- v) Wood work for door frames

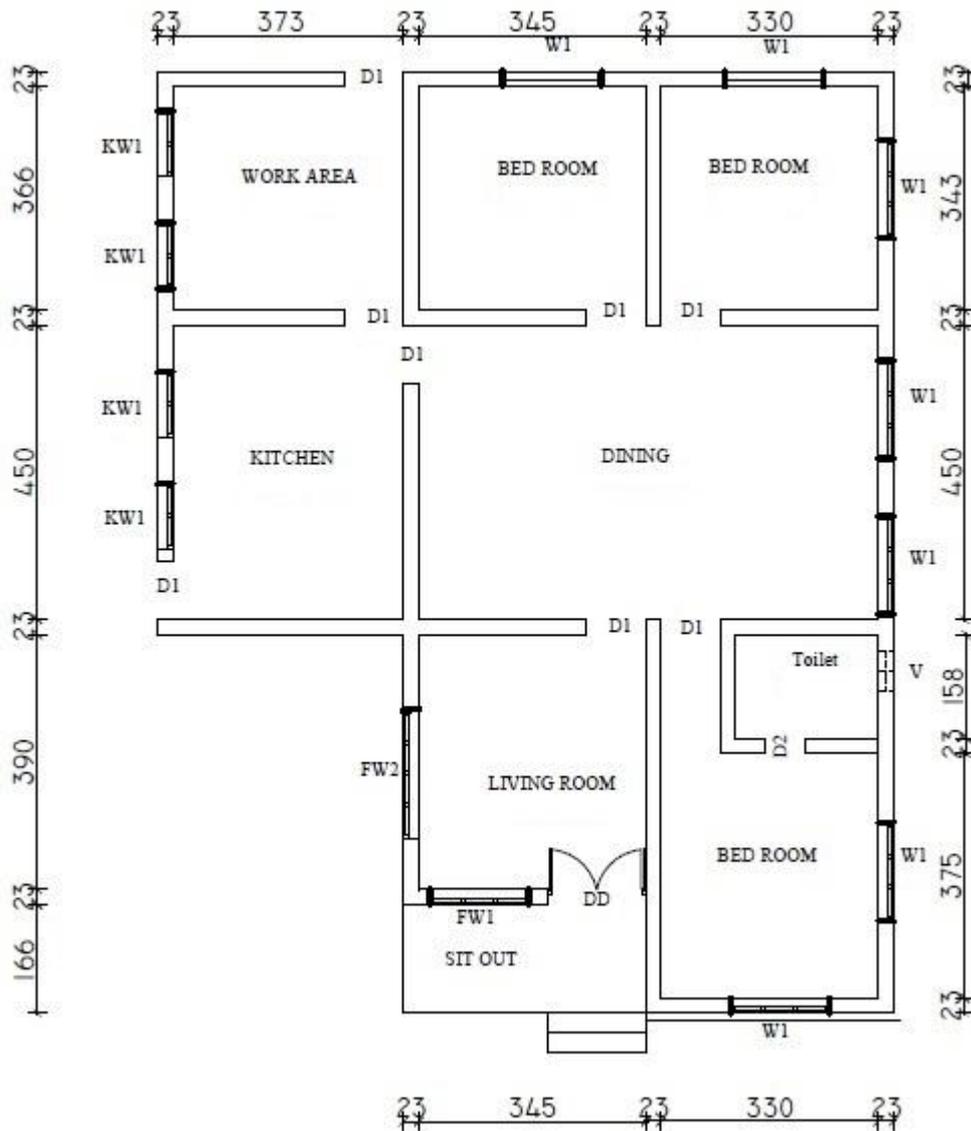


Figure-1

Assume any missing data suitably.

PCC 90cm wide and 10cm thick, Foundation 80cm wide x 75cm deep & Basement 45cm x 45cm.

Wall height 3m, All round lintel of size 23cm x 15cm provided, roof slab thickness 12cm, roof projection 10cm from outer wall.

Door & Windows (DD 110x210cm; D1 90x210cm; D2 75x210cm; W1 150x150cm; KW1 100x120cm; V 60 x 60 cm; FW1 120 x 200cm; FW2 160x200cm)

All dimensions are in Centimeter

- 5 a) Prepare a bar bending schedule for the column shown in the figure-2 and find out the total quantity of steel reinforcement required. Column Size 40cmx40cm, Base footing 2.1m x2.1m. (20)

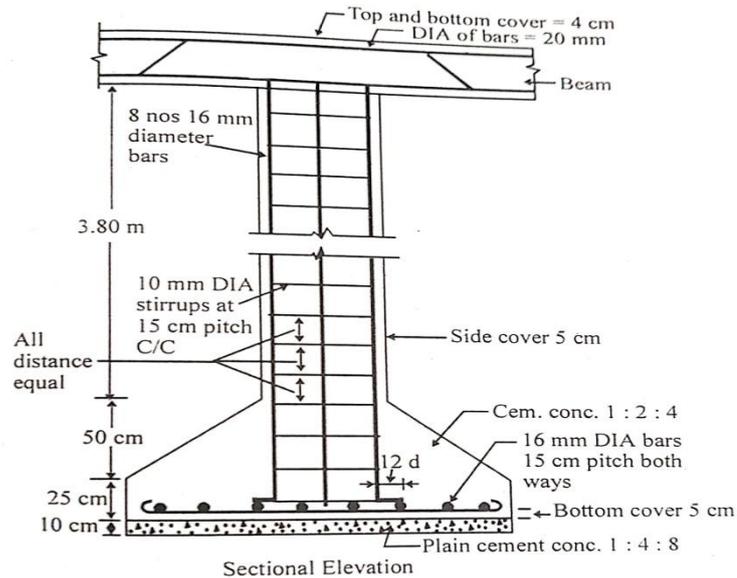


Figure-2

- b) In a simply supported beam of depth 450mm is provided with a 3, 20mm diameter bar at bottom, in this one bar is provided as bendup bar near both the supports. 10mm stirrups are provided with top and bottom cover 25mm. Calculate the additional length provided for bend up in both end. If the (i) bendup angle is 45° and (ii) bendup angle is 30°. (5)
- 6 a) Calculate the quantity of earth work for a portion of road of length 700m. (15)
 Formation width of road is 8m, side slope in banking 2: 1 and 1:1 in cutting, road has a down gradient of 1 in 150, formation level 260 at distance 0.

Distance (m)	0	100	200	300	400	500	600	700
Reduced Level	261.10	261.20	260.90	262.20	260.80	260.70	260.30	260.40

- b) Prepare the detailed estimate of following items of a septic tank given below (Figure 3) (10)
- 1). Earth work in excavation
 - 2). R.C.C work 1:1 ½:3
 - 3). Plastering in C.M 1:3

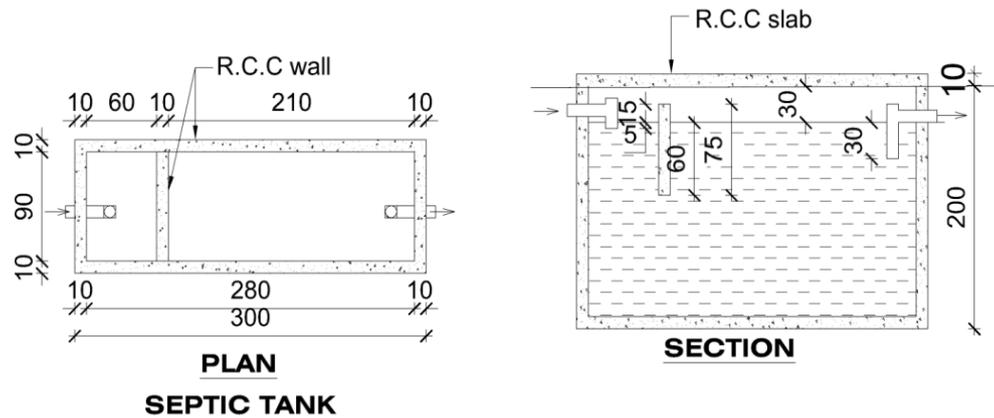


Figure-3

PART C

Answer any two full questions, each carries 15 marks.

- 7 a) List different type of Value. Give brief description of any three type. (5)
- b) The cost of a newly constructed building was ₹.25,000,00/-. The life of the building is 75years. Determine the depreciated cost in the 30th year of life by straight line method and constant percentage method. The scrap value of the building is 10% of its construction cost. (10)
- 8 a) In a plot of land costing Rs. 45 Lakhs, a building has been newly constructed at total cost of Rs.70 Lakhs. The building consists of 8 flats for 8 tenants. The owner expects 8% return on the cost of construction and 6% return on the cost of land. Calculate the standard rent for the each flat of the building assuming life of building is 70 years, sinking fund 4% interest, 1% annual repair cost and 30% of the outgoings of the net return. (12)
- b) Write the difference between depreciation and obsolescence (3)
- 9 a) Explain valuation and its importance. (3)
- b) Workout the valuation of a commercial building with the following data: Cost of land for life-time period of building is ₹.5,20,000/-. Gross income per year is ₹.8,50,000/-Expenses required per year: (a) staff salary, electric charges, municipal taxes including licenses fees, stationery and printing etc. is 20% of the gross income. (b) For repair and maintenance of lift, furniture etc. @ 5% of their capital cost of ₹.10,50,000/- (c) sinking fund for the items considered in capital cost, whose life is 25years @4% after allowing 10% scrap value. (d) Insurance premium is ₹.25,000/- per year. Take year's purchase @8% and annual repair of the building @2% on gross income. (12)
