Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: CE409

Course Name: QUANTITY SURVEYING AND VALUATION

Max. Marks: 100 Duration: 3 Hours

(Any missing data may suitably assumed)

PART A

Answer any two full questions, each carries 10 marks. Marks

1 a) Briefly explain the detailed specification of Earthwork excavation for foundation in ordinary soil (6)

b) Write the unit of measurement of (i) Carpentry fittings (ii) Pointing of Brick wall (4)

2 Work out the unit rate for P.C.C work in 1:6 Cement sand mortar For 10 m^3 (Broken stone 12.5 m^3 @800/ m^3, river sand 4.2 m^3 @1200/ m^3. Cement 1000kg @ Rs 8000/ ton, 12.5 mason @ Rs. 750/Each, 10.5 man @ Rs. 650 /Each and 11 woman @ Rs. 550/ Each). (10)

3 (a) Calculate the amount required for carriage of 1500no's brick to be brought from a source of 12km away from the site. The vehicle access to the construction site is 60m away. (6)

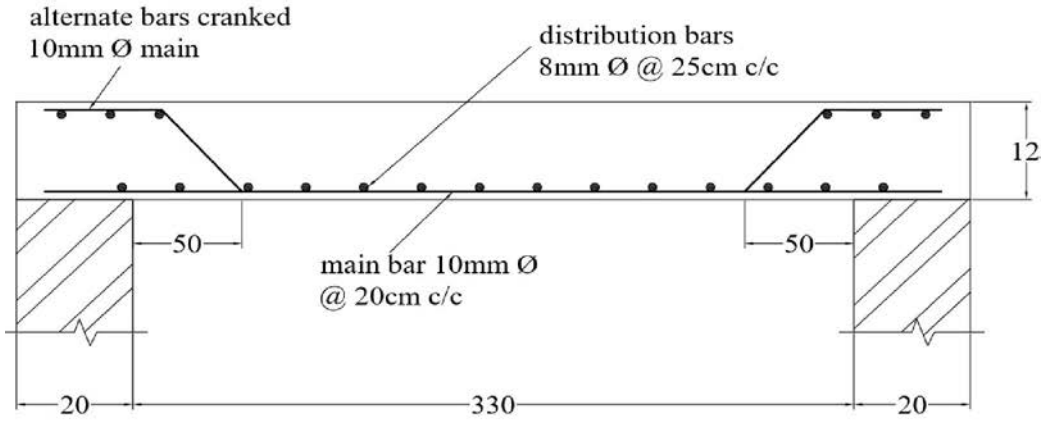
CPWD data are as follows for mechanical transport of 1000nos of bricks at 1km@Rs.209.80; 2km@Rs.237.86; 5km@Rs.318.22; beyond 5km upto 10km per km @Rs.23.15; beyond 10km upto 20km per km @ Rs.19.0 ; and for transport of 1000nos of brick by manual labour Rs.216.40/- for first 50meters and Rs.47.12/- for every additional 50metre or part thereof. (All rate given are inclusive of profit & overhead)

(b) What is mean by overhead charges? Give the percentage adopted for the contractor's profit and overhead in CPWD DSR 2016 rate analysis. (4)

PART B

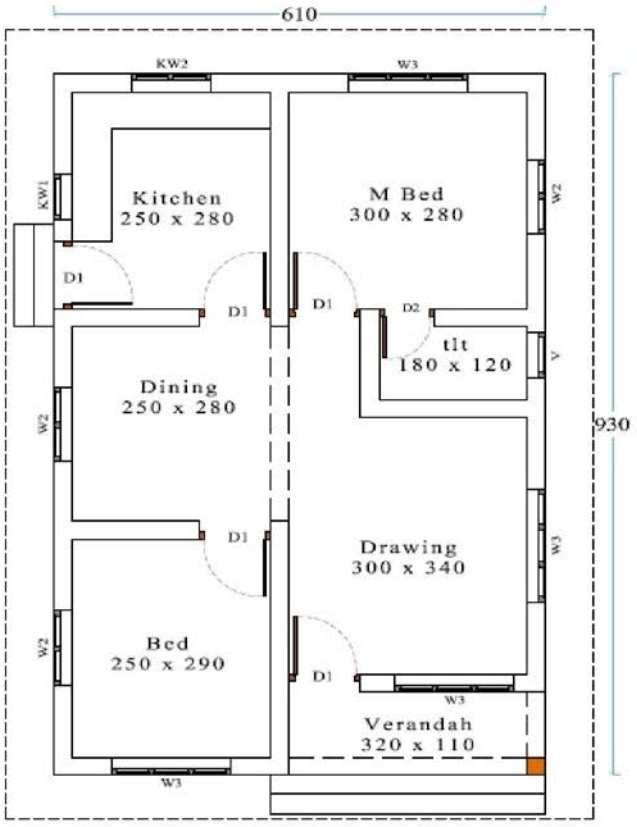
Answer any two full questions, each carries 25 marks.

4 a) Calculate the quantity of RCC and Prepare a bar bending schedule of the slab of size 330cm x 550cm (internal dimensions) shown in the figure. (All dimensions are in Centimetres) (20)



b) Calculate the quantity of Earth work, PCC and Brick work of a soak pit of internal diameter 1.5m and depth of 2.0m. Wall thickness 20cm and PCC thickness 15cm. (5)

5 Prepare detailed estimate for the following items of work for the construction of residential building (25)



Prepare detailed estimate for the following items of work for the construction of residential building

(a) RRM for foundation (75cm x 75cm) and basement50cm x 50cm , Wall thickness 20cm

(b) Quantity of earth filling inside the plinth

(c) RCC works for slab (12cm thick), lintel (15cm thick), and sun shade (60cm projection).

(d) Painting for walls, doors(D1-100x210; D2 80x210) and windows (W2-100x150; W3-150x150;KW1-50x100;KW2-100x100); V(90x60).

All dimensions are in centimetres. Any missing data may be suitably assumed.

6 a) Prepare a detailed estimate of brick work for a hexagonal building of internal side length 3.00m. wall thickness 40cm. All five sides are provided with window of size 110cm x 150cm and one side with a door of size 120cm x 210cm. Height of the wall 3.50. A all round lintel of 15cm thick was provided. (5)

b) Estimate the quantity of earthwork for a portion of a district road for 400m length with following data. Formation width 10m side slopes in banking 2:1 , side slope in cutting 1.5:1, downward gradient is 1in200, formation level at chainage 0 in 150.000 (20)

Chainage	0	40	80	120	160	200	240	280	320	360	400
RL	149.0	148.90	148.50	148.80	148.60	148.70	149.20	149.40	149.30	149.0	148.60

PART C

Answer any two full questions, each carries 15 marks.

7 a) Discuss about different methods for finding valuation (5)

b) A building is situated by the side of a main road of Mumbai city on a land of 500 sq m .The built up portion is 20m x 15 m. (10)
The building is first class type and provided with water supply, sanitary and electrical fittings, and the age of the building is 30 years. Workout the valuation of the property.

8 a) Discuss about the different types of values and the term obsolescence (7)

b) An old building has been purchased by a person at a cost of Rs. 30,000 excluding the cost of the land. Calculate the amount of annual sinking fund at 4% interest assuming the future life of the building as 20 years and the scrap value of the building as 10% of the cost of purchase. (8)

9 a) Discuss the importance of valuation in civil engineering. (7)

b) A three storied building is standing on a plot of land measuring 800 sq m. The plinth area of each storey is 400 sq m .The is on RCC framed structure and the future life may 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 the land may be taken as Rs 40 per sq m . The other data may assumed suitably (8)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: CE409

Course Name: QUANTITY SURVEYING AND VALUATION

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 10 marks. Marks

1 a) List different type of estimates (4)

b) Work out the quantity of given materials required for 1:1.5:3 concrete and analyse the unit rate using the details given below: (6)

Description	**Quantity**	**unit**	**Rate Rs.**	**unit**
20mm (nominal size) broken stone	**?**	m^3	1300.00	m^3
Sand	**?**	m^3	1200.00	m^3
Cement	**?**	Tonne	5700	Tonne
Mason	0.200	Nos	500.00	Each
Man	1.000	Nos	450.00	Each
Women	3.500	Nos	450.00	Each
Man for lifting materials	0.200	Nos	450.00	Each

2 a) List the essential documents to be accompanied with the detailed estimate (6)

b) What is mean by overhead charges? Give the percentage adopted for the contractor's profit and overhead in CPWD DSR 2016 rate analysis. (4)

3 Write the detailed specification for brickwork in cement mortar 1:5. (10)

PART B

Answer any two full questions, each carries 25 marks.

4 Prepare detailed estimate for the following items of work for the construction of residential building **(25)**

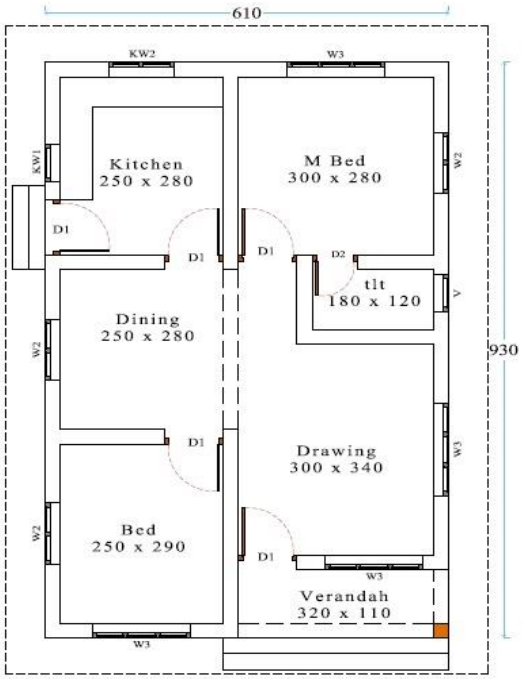
(a) RRM for foundation (75cm x 75cm) and basement50cm x 50cm , Wall thickness 20cm

(b) Quantity of earth filling inside the plinth

(c) RCC works for slab (12cm thick), lintel (15cm thick), and sun shade (60cm projection).

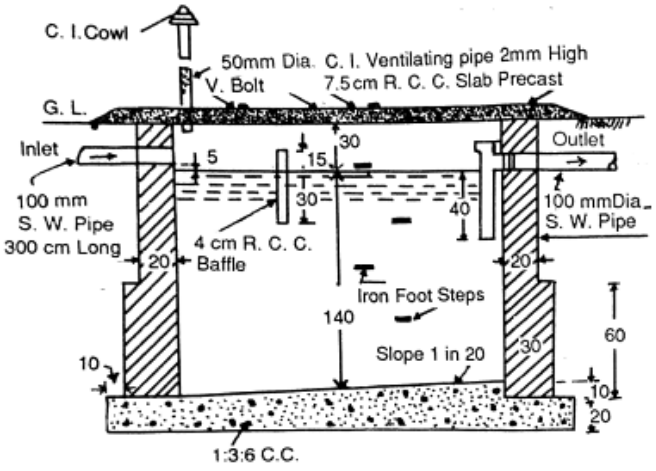
(d) Painting for walls, doors(D1-100x210; D2 80x210) and windows (W2-100x150; W3-150x150;KW1-50x100;KW2-100x100); V(90x60).

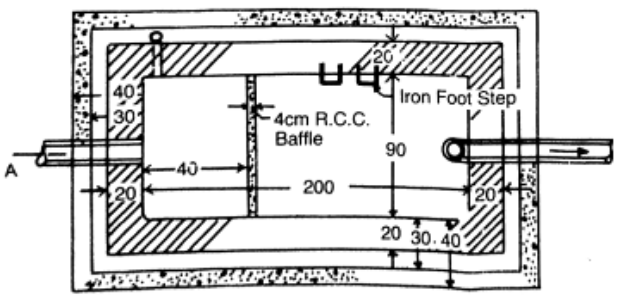
All dimensions are in centimetres. Any missing data may be suitably assumed.



5 Prepare a bar bending schedule and quantities of RCC and reinforcement of a simply supported beam of length 6.5 m , depth 50 cm, and width 30 cm reinforced with 3 Nos of 20 mm dia at bottom as straight bar, 2 Nos of 20 mm dia cranked at 45^{o} , 2 Nos 16 Φ at top of beam and 8 mm Φ 2 legged stirrups @ 15 cm c/c (25)

6 Prepare a detailed estimate of a Septic tank from the given drawings. (25)





PART C

Answer any two full questions, each carries 15 marks.

7 a) Explain valuation and its purpose? (5)

b) What are the methods for calculating depreciation? (10)

8 a) Discuss about different methods for finding valuation of a building (8)

b) The cost of construction of a new building according to present market rate is Rs. 80,000/- having a 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. (7)

9 a) A building is constructed at a cost of Rs.2,50,000 on a land purchased at Rs. 50,000. The owner of the property expects a return of 9% on the cost of construction and 8% on the cost of land. The building is estimated to have a future life of 60years at the end of which it requires Rs.3,25,000 for constructing a new building in its place. Determine the standard rent of the property given: (9)

i. Rate of interest for sinking fund at 6%

ii. Annual repairs at 1.5% of cost of the construction

iii. All other outgoings 28% of the net income of the property

Scrap value at the end of the useful life of the building as 10%.

b) Define salvage value, Scrap value, capitalised value and obsolescence (6)

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Reg No.:_____ Name:_____

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 0.57m^3@₹1300/m^3, 10mm 0.28m^3@ ₹1300/m^3, coarse sand (Zone III) 0.425m^3@₹1200/m^3, Portland cement 400kg@₹5700/tonne.

Labour : Mason 0.24@₹467/day, Beldar 2.75@₹368/day, Bhisti 0.90@₹407/day, Coolie 1.88@₹368/day

Carriage provisions : Stone aggregate below 40mm 0.85m^3@₹103.77/m^3 ,Coarse sand .425m^3 @ ₹ 103.77/m^3, Portland cement 0.40tonne@₹.92.24/tonne

Hire Charges for concrete mixer 0.08@₹800/day, Vibrator needle type ₹0.08@350/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

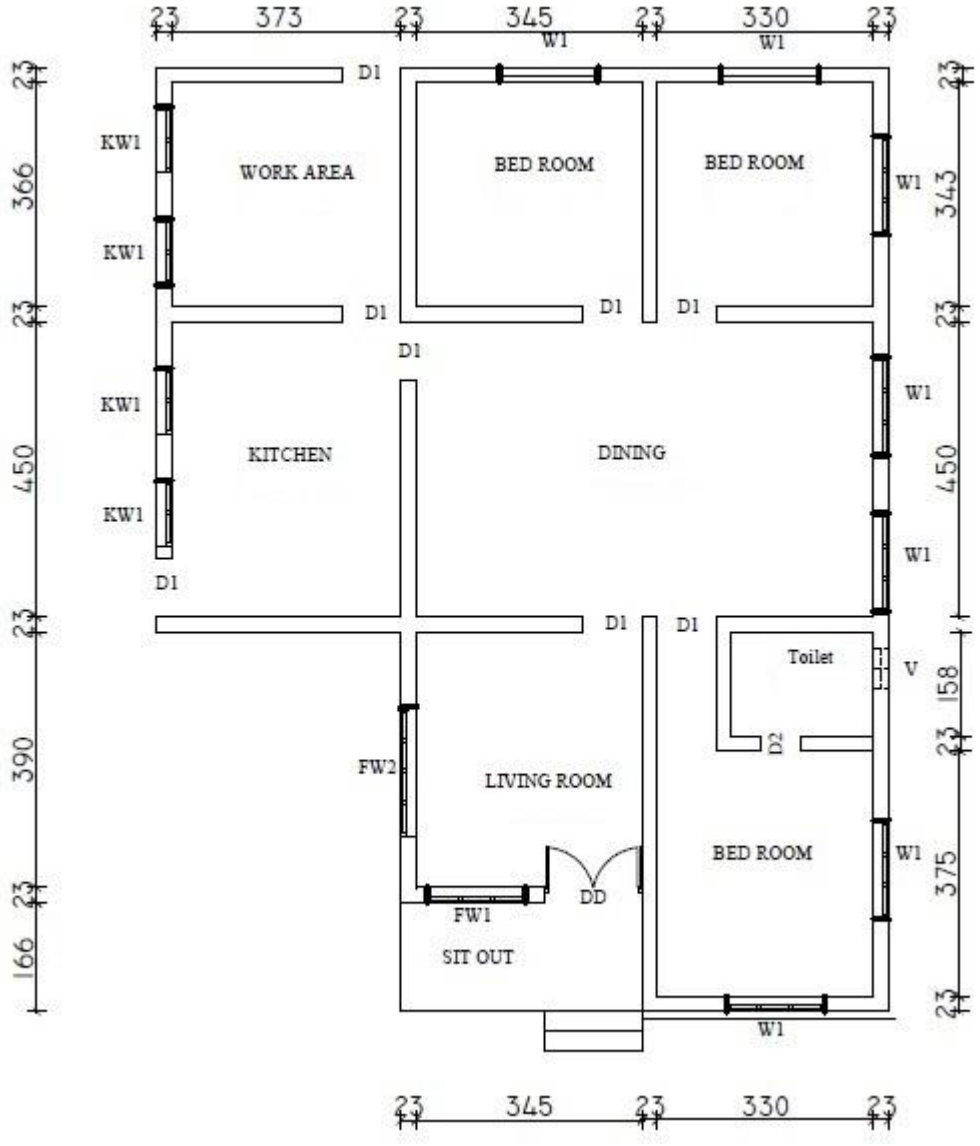

Figure-1

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 coulumn shown in the figure-2 and find out the total quanitity of steel reinforcement required. Column Size 40cmx40cm, Base footing 2.1m x2.1m. (20)

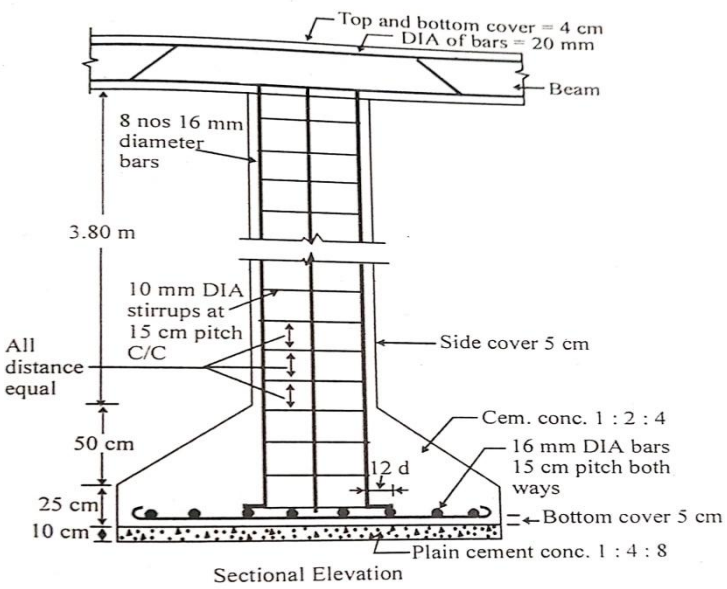

Figure-2

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^o and (ii) bendup angle is 30^o. (5)

6 a) Calculate the quantity of earth work for a portion of road of length 700m. 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. (15)

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

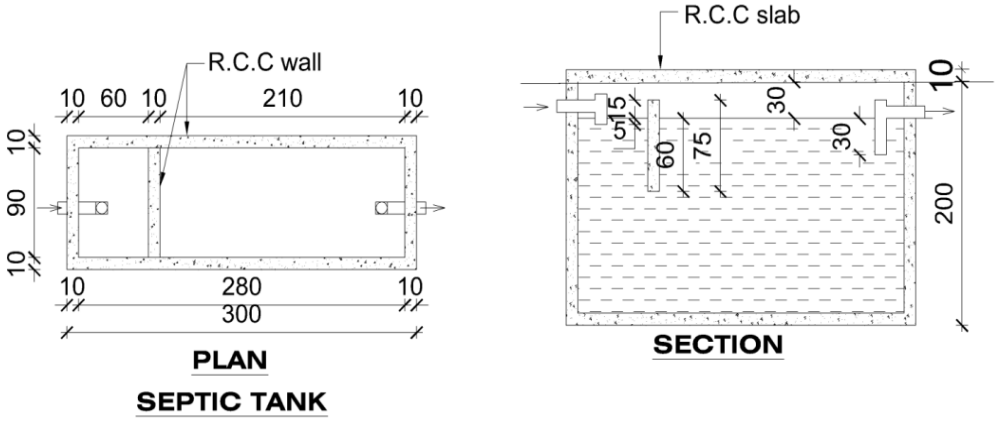

Figure-3

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 30^{th} 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)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh semester B.Tech examinations (S), September 2020

Course Code: CE409

Course Name: QUANTITY SURVEYING AND VALUATION

Max. Marks: 100 Duration: 3 Hours

(Any missing data may be suitably assumed)

PART A

Answer any two full questions, each carries 10 marks. Marks

1 a) Explain the provisions of carriage of material calculation stipulated in CPWD schedule of rate. (6)

b) Write the unit of measurement of (i) DPC using waterproofing compound (ii) Iron work for window (iii) Water proof painting above roof slab iv) Wood work for frames of doors. (4)

2 a) Calculate the amount required for carriage of 2500kg of steel reinforcement to be brought from a source of 7km away from the site. The vehicle will reach at 75m away from the construction site. (6)

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.(All rate given are inclusive of profit & overhead).

b) What are the factors considered for calculating the "cost of conveyance" for material? (4)

3 a) Work out the unit rate for the following work. (10)

Cement Concrete work, mix 1:5:10 , using 40 mm broken stone.

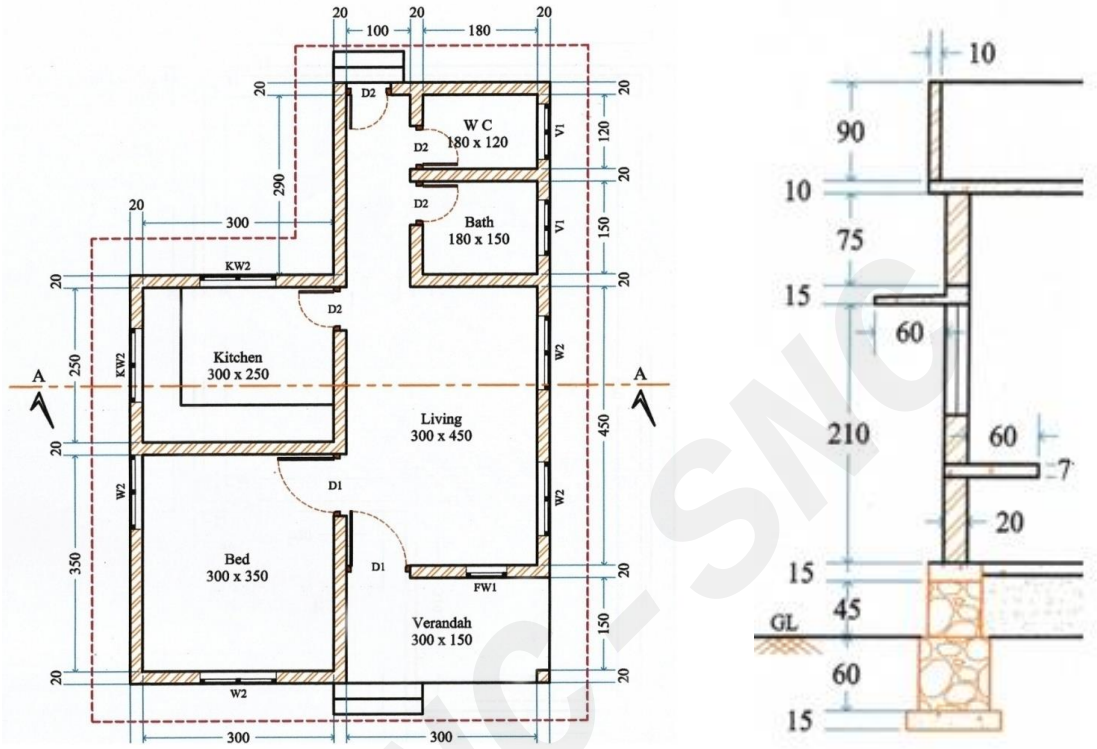
Sl.No	Material	Quantity	Rate
1	Broken Stone	0.95 Cu.m	Rs 650/ Cu.m
2	Sand	0.48 Cu.m	Rs 800 / Cu.m
3	Cement	137 kg	Rs 7500/Ton
4	Mason	0.10 No.	Rs 750/No.
5	Men/Women	1.00 No.	Rs 650/No.

Quantity one Cubic meter (1 Cu.m)

PART B

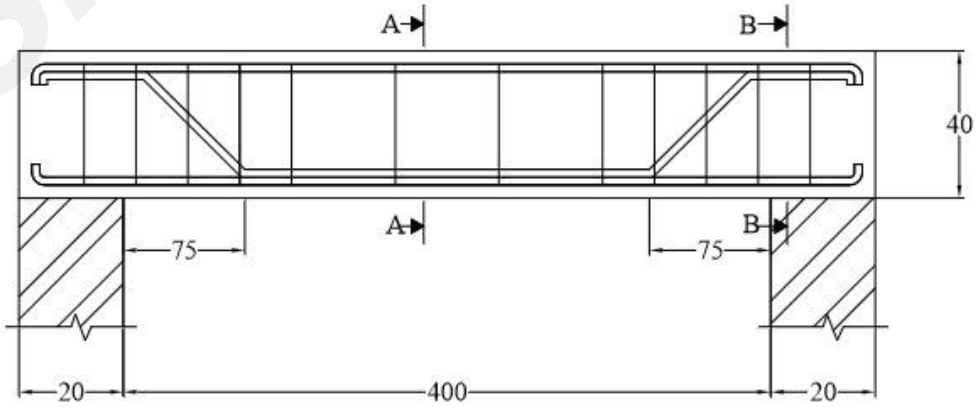
Answer any two full questions, each carries 25 marks.

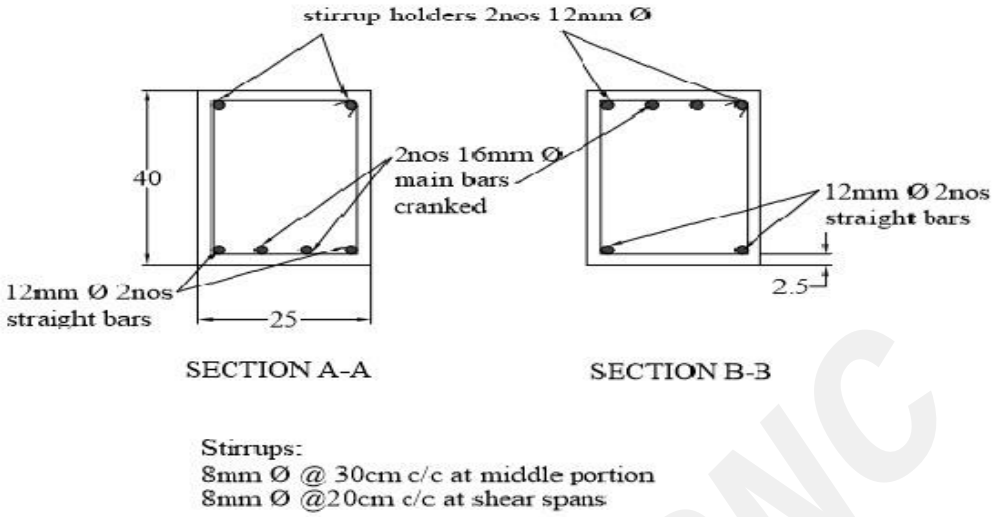
4 (25)



Prepare a detailed estimate of the following items (a) Earth work excavation, Width of base Concrete 75cm (b) Foundation (60cm x 60cm) and basement (45cm x 45xm) with RR masonry (c) Brick work for super structures, CM1:6 (d) RCC work for roof and sunshade (e) Wood work for door frame and shutters of door and windows (Door D1 -100x210 ; D2 -80x210 ;W2 -120x140 ;V1- 90x60; KW2- 120x90; FW1- 60x180) All dimensions are in centimeters. (Any missing data may be suitably assumed)

5 a) (20)

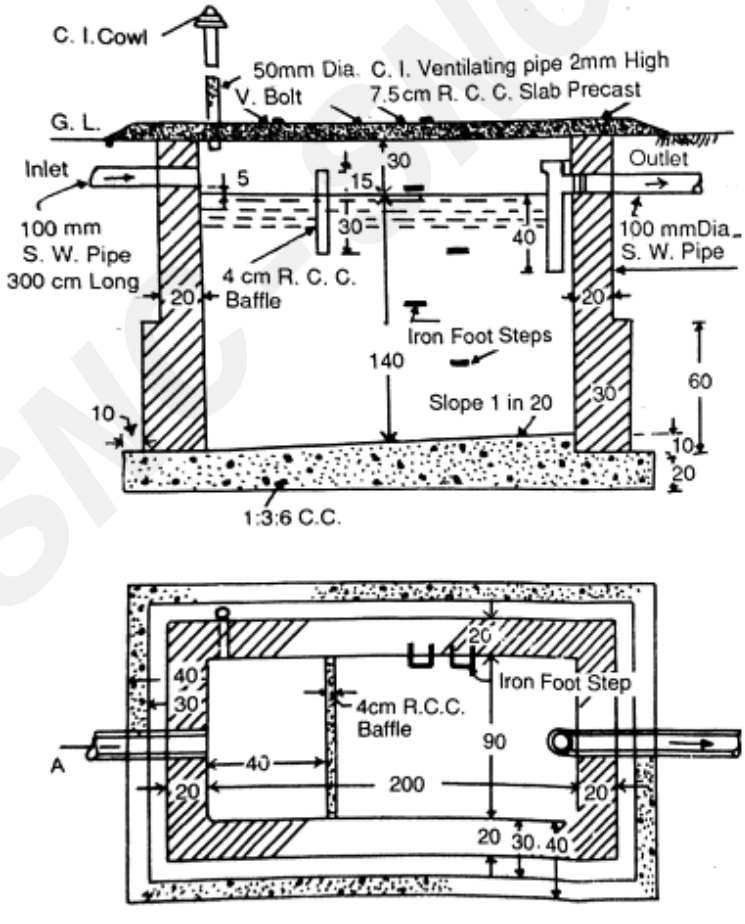




Prepare a bar bending schedule of the simply supported beam of size 25cm x 40cm shown in the figure. (All dimensions are in Centimetres)

b) Calculate the quantity of main reinforcement bars of 16mm diameter @ 15cm c/c spacing provided in the stem of a retaining wall of length 30m, height of stem 4.5m (base slab of thickness 0.50m included). Main bar are extended to the base with a leg length of 0.75m. Alternate bars are curtailed at height of 2.0m. End cover 5cm. (5)

6 (25)



Prepare a detailed estimate of a Septic tank from the given drawings

PART C

Answer any two full questions, each carries 15 marks.

7 a) Discuss about freehold and lease hold property. (7)

b) In a plot of land costing Rs. 50,000 a building has been newly constructed at a total cost of Rs.120,000 including sanitary and water supply works , electrical installation, etc. The building consists of four flats for four tenants. The owner expects 7% return on the cost of construction and 5% return on the cost of the land. Calculate the standard rent for each flat of the building assuming; (8)

1. The life of the building as 60 years and the sinking fund will be created on 4% interest basis.
2. Annual repairs cost at 1% cost of the construction
3. Other outgoings including taxes at 30% of the net return on the building.

8 a) Explain about annuity and depreciation. (8)

b) Explain in detail the method of fixation of standard rent of a building. (7)

9 a) Write short note on sinking fund method and years of purchase. (7)

b) What are outgoings? What are the various types of outgoings? (8)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020

Course Code: CE409

Course Name: QUANTITY SURVEYING & VALUATION

Max. Marks: 100 Duration: 3 Hours

General Instructions: 1.Supplement answers with illustrations, wherever necessary
2. Assume any missing data suitably

PART A

Answer any two full questions, each carries 10 marks. Marks

1 a) When and where the following estimate are used (i) Annual Repair estimate (ii) Supplementary estimate. (5)

b) Outline the use of CPWD schedule of rates and how it is applied for the construction work in the different states of India. (5)

2 a) List out the any five items of work involved in a residential building with general specification of the work and give the unit of measurement of each item of work. (5)

b) Recall the General rules of Indian Standard(IS1200(Part-1)-1992) for the Method of measurement of Buildings and Civil Engineering works (5)

3 Develop unit rate of the work (DSR 2018 item No. 4.1.2), providing and laying in position 1:1½:3 (1 Cement: 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size) cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level : **MATERIAL** : 0.57cu.m 20mm nominal size of stone aggregate @ Rs.1370/cu.m., 0.28cu.m 10mm nominal size of stone aggregate @ Rs.1350/cu.m., 0.425 cu.m of coarse sand (Zone-III) @Rs.1350/cu.m., 0.2833cu.m Portland cement @ Rs.4940/tonne, **LABOUR** : 0.10 Mason @ Rs.709/day; 1.63 Beldar @ Rs.558/day, 0.70 Bhisti @ Rs.617/day. **CARRIAGE PROVISIONS**: Stone aggregate below 40mm Rs. 103.77/cu.m.; coarse sand @Rs.103.77/cu.m. and for cement @ Rs.92.24/tonne. **HIRE CHARGES** of concrete mixer 0.07@Rs.800/day, Vibrator 0.07@Rs.370/day, **SUNDRIES** , LS, 14.30@Rs.2 (10)

PART B

Answer any two full questions, each carries 25 marks.

4 Prepare a detailed measurement and calculate the material quantity of a 100m (25)

length of a jail wall whose cross-section is given in **Fig-1**, the basement (60cm x 40cm) and wall is of I Class brick work in cement sand mortar 1:6 finished with 12mm thick plastering both side above GL with CM 1:6, Foundation(90x30) is CC 1:4:8. (All dimensions in the figure are in centimetres)

DATA:

1) CC1:4:8 ($1m^3$)-20mmAggregate@0.92cu.m, Sand@0.46cu.m., Cement@0.115cu.m

2) Brickwork in CM 1:6($1m^3$), - Brick @500no's, Sand@0.27cu.m, Cement@0.045cu.m

3) Plaster using CM1:6($100m^2$), – Sand@1.80cu.m, Cement@0.30cu.m.

5 Prepare a detailed measurement of the any FOUR item of work listed for building plan shown in **Fig-2** using CENTRE LINE METHOD. (25)

(a) Earth work excavation in foundation (b) First class brick work in CM1:6 for superstructures (c) Cement concrete (1:2:4) excluding reinforcement and shuttering for Roof and lintel (d) Wood work for Door & Window frames (e) painting of window grating

W2 (150cmx150cm) & D(120cmx210cm), Room size shown in the figure are inside dimensions. (Assume any missing data –State the assumptions clearly)

6 a) A simply supported beam of size 450 x 230 having a span of 6m is supported on a 30cm wall at both ends. The stirrups of 10mm diameter are provided at a spacing of 150mm c/c. The beam have main bar of 3 no's 20mm diameter at bottom including one bend up bar and stirrup holders are of 2 no's 16mm diameter at top. Main & Stirrup holder reinforcement is provided with a cover of 25mm. Calculate the total quantity of the reinforcement required for the stirrup for this beam. Also prepare an estimate of tor steel reinforcement for stirrup including cutting, bending , placing in position and binding, adopt the rate as Rs.95/kg. (Assume any missing data –State the assumptions clearly) (10)

b) 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 160 at distance 0.

Distance (m)	0	100	200	300	400	500	600	700
Reduced Level	158.9	159.10	159.20	162.20	160.80	160.70	160.30	160.40

PART C

Answer any two full questions, each carries 15 marks.

7 a) List the factors affecting valuation. (5)

b) Explain the significance of sinking fund, How it is calculated. (5)

c) A person purchased a property for Rs.50,00,000/-. Assuming its salvage value after 40 years will be Rs. 5,00,000/-, determine amount of depreciation each year considering it to be uniform. (5)

8 a) A building situated in a class city is let out at Rs.10000/month. The total outgoing excluding sinking fund is estimated to be 20% of the gross income, calculate the capitalised value of the property if the present rate of interest is 6% and the life of the building is 50years.Percentage for sinking fund 3%. No outgoings are allowed other than the data given here. (10)

b) What is mean by Obsolescence; Write any two examples of obsolescence. (5)

9 a) What is mean by the Free hold and lease hold property? Name an example of lease hold property managed by Government of Kerala. (5)

b) Illustrate the belting method of valuation. (5)

c) Define the term Cost, Value & Price with suitable example. (5)

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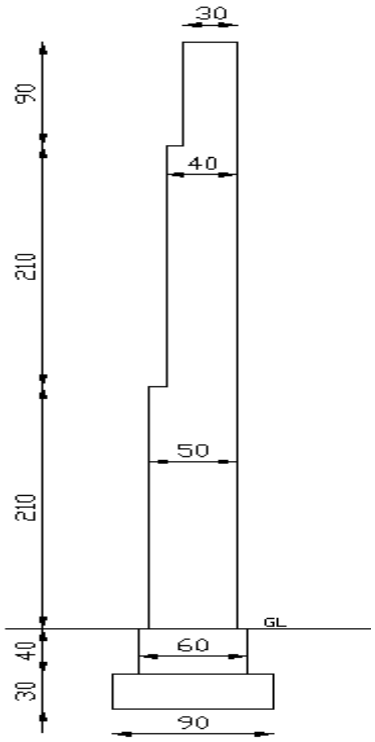

Figure-1

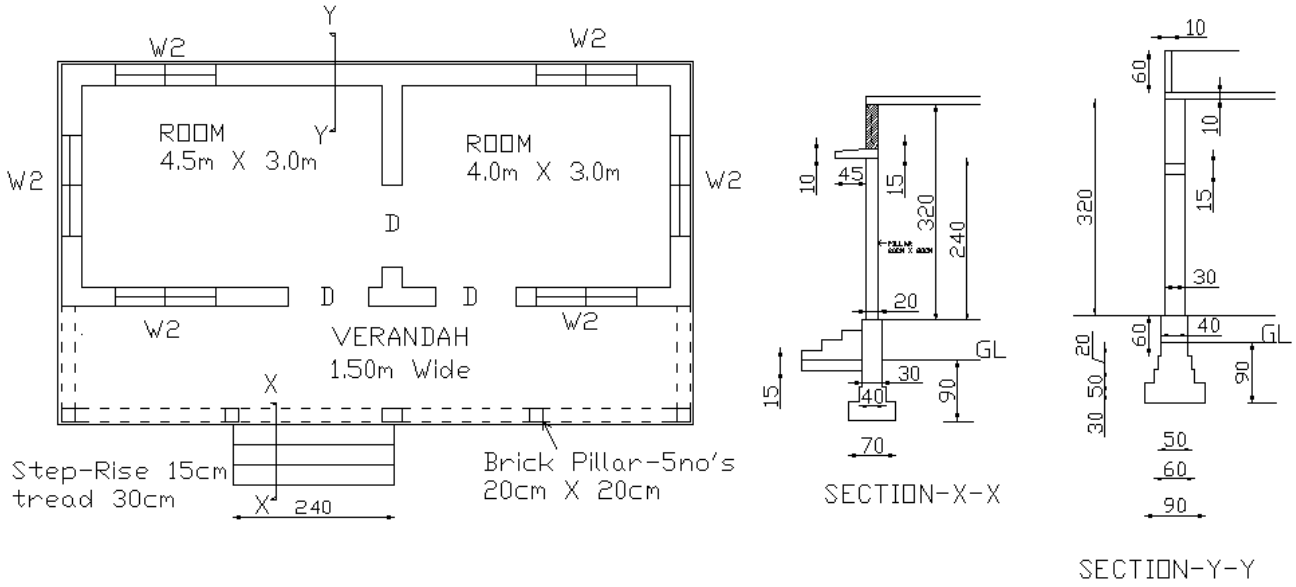
Y
W2
W2
ROOM
4.5m X 3.0m
Y
ROOM
4.0m X 3.0m
W2
W2
D
D
D
W2
W2
VERANDAH
1.50m Wide
X
Step-Rise 15cm
tread 30cm
X
240
Brick Pillar-5no's
20cm X 20cm
10
45
15
320
240
20
GL
30
40
90
15
70
SECTION-X-X
10
60
10
320
15
30
40
GL
20
60
90
30
50
50
60
90
SECTION-Y-Y

Figure-2