Total No. of printed pages = 4

CE 181701

29/12/22

Roll No. of candidate | | | | | | | | | | |

2022

B.Tech. 7th Semester End-Term Examination

Civil Engineering

QUANTITY SURVEYING

New Regulation (w.e.f 2017-18) &

New Syllabus (w.e.f. 2018-19)

Full Marks – 70 Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question no. 1 and any *four* from the rest.

1. Answer the following questions : (10 × 1 = 10)

(i) If additional estimates are required to be introduced with the original work, which of the following type of estimate is used?

(a) Contingencies (b) Item rate estimate

(c) Supplementary estimate (d) Revised estimate

(ii) The total length of the walls of a room of 4 m × 3 m with wall thickness of 20 cm by centre line method is

(a) 12 m (b) 14.8 m

(c) 14 m (d) 15.6 m

(iii) Miniature structure provided in a house drainage system to open house drainage pipes which connects the main drain is

(a) Manhole (b) Trap

(c) Anti siphonage pipe (d) Inspection chamber

[Turn over

(iv) The carpet area of a residential building is

(a) 80% – 95% of Plinth area (b) 55% – 65% of Plinth area

(c) 65% – 80% of Plinth area (d) 35% – 50% of plinth area

(v) The no. of standard modular bricks in a 5.2 m × 3.0 m brick wall of 100 mm thickness is

(a) 780 (b) 1015

(c) 7800 (d) 10,000

(vi) The principal objective of Depreciation is

(a) Show last year's profit

(b) Show records to income Tax Department

(c) To get a tax rebate

(d) To calculate net profit

(vii) The capitalized value of a property fetching a net annual rent of us. 1000 with highest rate of interest prevailing being 5% would be

(a) Rs. 800 (b) Rs. 1000

(c) Rs. 10,000 (d) Rs. 20,000

(viii) The value at the end of the utility period without being dismantled is termed as

(a) Market value (b) Scrap value

(c) Salvage value (d) Book value

(ix) A document containing detailed description of all the items of work together (without mentioning the quantities) with the current rates is called

(a) Tender (b) Abstract estimate

(c) Specification (d) Schedule of rates

(x) The area of a sloping surface of a protective embankment of mean height d, side slopes S : 1 and length L is

(a) d × d × s (b) $\sqrt{(d^2 \times (ds)^2)}$

(c) L.D. $\sqrt{(1+s^2)}$ (d) 2.D. $\sqrt{(1+s2)}$

2. (a) Prepare a preliminary estimate of a two storied office building having a carpet area of 1300 sqm. for each floor. Area of corridors, verandah etc. are 25% and area of walls are 8.5% of the built-up area. Plinth area rate = Rs. 1800/sqm, Cost of water supply and sanitary = 10% of the building cost, cost of electrical installation = 8% of the building cost, contingency = 10% of the overall cost. (5)

(b) Prepare rate analysis for 25 mm thick cement concrete flooring (1 : 2 : 4). (5)

(c) Describe the data needed for preparation of detailed estimate. (5)

3. (a) Define specification. Discuss different types of specification briefly. (7 + 1)

(b) Calculate the amount of raw materials used in 1st class brickwork with 1 : 5 cement mortar and prepare rate analysis for superstructure. (7)

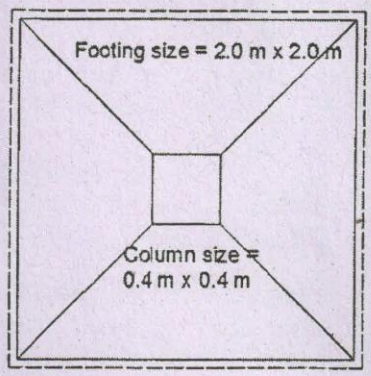
4. (a) Prepare a quantity estimate of the following items for the isolated footing shown below. Floor height is 3.3 m from P.L. to 1st floor level. (10)

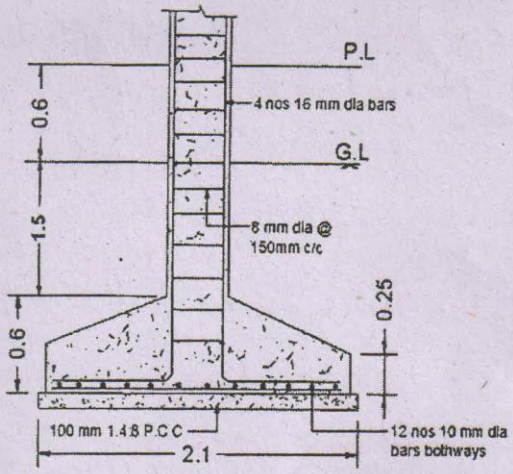
(i) Earthwork in excavation

(ii) P.C.C.

(iii) R.C.C. upto 1st floor level

(iv) Reinforcement



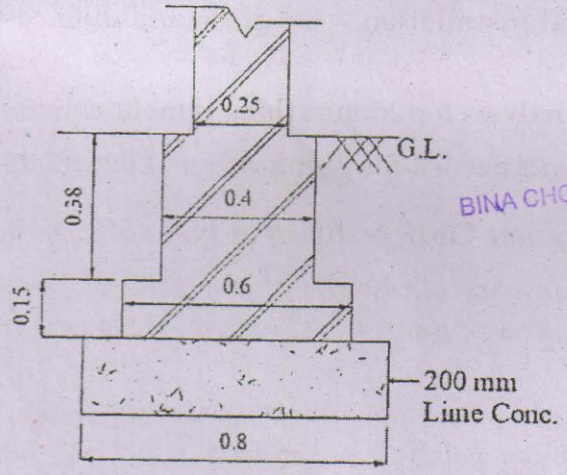


(b) Prepare rate analysis for 25 mm thick cement concrete flooring (1 : 2 : 4). (5)

5. (a) Estimate the amount of earthwork for a portion of road of 500 m length from the data given below. Consider formation width 10 m. Side slope in cutting as 1.5 : 1 and 2 : 1 in banking. R.L of formation level at 1st station is 50.5 m. Upward gradient of formation level is 1 in 400 upto 250 m and downward gradient is 1 in 300 upto 500 m. Assume any missing data. (10)

Chainage (m) :	0	50	100	150	200	250	300	350	400	450	500
R.L. of G.L. (m) :	50.4	50.6	50.5	50.7	50.8	50.9	51.2	51.3	51.4	51.2	51.1

(b) Estimate the following quantities for a boundary wall shown below. Wall height is 2.4 m from ground level. (i) Earthwork in excavation (ii) Lime concrete (iii) Brickwork in foundation (iv) B/W in superstructure (v) 18 mm external plastering in 1 : 6 cement mortar. (5)



6. (a) A car was purchased at Rs. 6,50,000. Assuming salvage value to be Rs. 1,50,000 after 5 years, calculate depreciation and book value for each year adopting sinking fund method considering 6% interest. (7)

(b) The coordinates of a plot of land ABCDEFGHIJA are given below :

Coordinates :	A	B	C	D	E	F	G	H	I	J	K
X-Axis :	50	50	30	10	0	0	130	130	110	100	100
Y-Axis :	0	20	20	40	40	130	130	100	40	40	0

The coordinates of a pond within that area is given by the coordinates PQRS.

Coordinates :	P	Q	R	S
X-Axis :	10	40	40	10
Y-Axis :	90	90	70	70

If the land to a depth of 40 m in the locality is found to have been valued at Rs. 2,500 / sq m, estimate the value of the plot of land stating all assumptions. The face AK is on a roadway. (8)

7. (a) A person has purchased a plot of land costing Rs. 10,50,000 and has constructed a building there at a cost of Rs. 13,40,000 including all expenses. Determine the standard rent of the property per month if a net return of 7% is expected on the cost of construction and 5% is expected on the cost of land. Given, (i) Rate of interest for sinking fund is 6% (Future life of building = 50 years) (ii) Annual repairs at 1.5% of the cost of construction (iii) Taxes and other outgoings = 23% of the gross rent (iv) Scrap value at the end of utility period of building = 10%. (5)

(b) Briefly distinguish between value, cost and price with examples. (5)

(c) Illustrate how bill of quantities (BOQ) is prepared for a construction project. (5)