

**SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY****BE - SEMESTER-VII • MID SEMESTER-I EXAMINATION – WINTER 2017****SUBJECT: DESIGN OF REINFORCED CONCRETE STRUCTURES(2170607) (CL)**

DATE: 08-08-2017

TIME:02:00pm to 03:30 pm

TOTAL MARKS:40

- Instructions:**
1. All the questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Assume suitable data if required.
  4. Use of IS – 875 (Part-III), IS 456-2000, SP-16, IS-1893-2002 (Part-I) is permitted.

- Q-1 (a) Calculate the base shear for a five storey hospital building having special moment resisting frame (SMRF) located in Mumbai on medium soil with following data using Seismic Coefficient Method. [10]

No. of bay in x and y-direction = 5

Width of each bay = 4m

Thickness of slab =150 mm

Storey height = 3 m

Size of beam = 230 mm x 450 mm

Size of column = 300 mm x 600 mm

Live load = 4 kN/m<sup>2</sup>

Assume any additional data if required

- Q.2 (a) A seven storeyed building with design life of 100 years, located in Bangalore (Category – III) on plane ground has 6 bays of 5m in length and 5 bays of 4 m in width. Height of each storey is 3.2 m. Plot wind pressure diagram and compute nodal forces at each storey level, as per provisions of IS:875 (Part-III). [15]

**OR**

- Q.2 (a) For a Cantilever Retaining Wall of height 4.2 m, fix the basic dimensions of structural elements and carry out stability analysis. [15]

Unit weight of soil to be retained = 18kN/m<sup>3</sup>

SBC of foundation soil = 175kN/m<sup>2</sup>

Angle of repose = 32°

Friction between foundation soil & base concrete = 0.47

- Q.3 (a) Fix the basic dimensions **ONLY** of cantilever retaining wall with the following data: [06]

Angle of Repose = 30°

Unit Weight of Soil = 17 kN/m<sup>3</sup>

Height of wall above ground level = 7.5m

SBC = 175 kN/m<sup>2</sup>

Coefficient of friction between base and soil = 155

Use M20 and Fe415

- (b) From above Que. No. 3(a), find out the minimum and maximum pressure at toe and heel. [05]

(c) Explain: Strong Column-Weak Beam concept [04]

**OR**

Q.3 (a) Explain types of Retaining wall [06]

(b) Explain Four Virtues of Earthquake Resistance Structures [05]

(c) Enumerate the guiding principles for Positioning of Columns [04]

**SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY****BE - SEMESTER-VII • MID SEMESTER-I EXAMINATION – WINTER 2017****SUBJECT: IRRIGATION ENGINEERING (2170609) (CL)**

DATE: 09-08-2017

TIME: 2:00 PM – 3:30 PM

TOTAL MARKS:40

- Instructions:**
1. All the questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Assume suitable data if required.

- Q.1 (a) Explain the term duty and delta. Derive the relation between the two. [05]
- (b) Give the necessity of canal lining. Name advantages and disadvantages of lining of canals? [05]
- Q.2 (a) Define irrigation. What are the benefits and ill effects of irrigation? [06]
- (b) Give detailed classification of canals based on the size and the alignment. [05]
- (c) Define: (a) Intensity of irrigation, (b) Capacity factor, (c) Gross Commanded Area, (d) Culturable Commanded Area [04]

**OR**

- Q.2 (a) Compare Kennedy's and Lacey's theories for the design of irrigation channel. [06]
- (b) List various irrigation efficiencies and explain any two. [05]
- (c) Write Design steps of Lacey's theory. Give drawback of Lacey's theory. [04]
- Q.3 (a) Explain salient features of the drip irrigation system. Give advantages and limitations of drip irrigation system. [06]
- (b) Design an irrigation channel in alluvial soil using Lacey's theory, for the following data: [05]
- a) Full supply discharge = 10 cumec
  - b) Lacey's silt factor = 0.9
  - c) Side slopes of channel = 0.5 (H) : 1 (V)
- (c) An irrigation canal has a gross command area of 50000 ha, 10% of it being unculturable. Calculate the design discharge of the canal for the following data: Take time factor = 0.8 capacity factor = 0.75 and canal losses = 20%, [04]

**P.T.O.**

Sr. No.	Crop	Intensity of irrigation	Duty at outlet	Crop season
1	Paddy	40%	850	Kharif
2	Bajra	20%	1800	Kharif
3	Wheat	50%	1200	Ravi
4	Vegetables	40%	750	Hot Weather
5	Sugarcane	20%	700	Perennial

**OR**

- Q.3 (a) Define: (a) Field Capacity, (b) Permanent Wilting Point, (c) Base Period, (d) Kor period, (e) Crop Period (f) Sprinkler irrigation. [06]
- (b) Design a trapezoidal concrete lined channel to carry a discharge of 200 cumecs for the longitudinal slope 1/5000 and side slopes 1.25:1. Assume the limiting velocity of flow = 2 m/s and Manning's coefficient  $N = 0.014$ . [05]
- (c) Find the delta of a crop if the duty is 1800 ha/cumec and the base period is 130 days. b. What would be the duty if the delta is increased by 20% and the base period reduced by 10 days? [04]

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**SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY****BE - SEMESTER-VII • MID SEMESTER-I EXAMINATION – WINTER 2017****SUBJECT: PROFESSIONAL PRACTICE & VALUATION (2170610) (CL)**

DATE: 10-08-2017

TIME: 2:00 pm to 3:30 pm

TOTAL MARKS:40

- Instructions:**
1. All the questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Assume suitable data if required.

- Q.1 (a) Write formulas for the following: [05]  
 (1) Area of Segment of Circle (2) Curved surface area of cylinder (3) Volume of frustum of cone (4) Volume of sphere (5) Total surface area of cylinder
- (b) Discuss principles of writing good specification. [05]
- Q.2 (a) Find the rate of 1st class brickwork (nominal size 20×10×10cm) in cementmortar 1:6 per cu. m. by Rate analysis. Assume suitable rates of materialand labour. [06]
- (b) Write the specification of Cement concrete in foundation(1:4:8) [05]
- (c) 1. Define Rate Analysis. [04]  
 2. Density of steel=  
 3. For 20m<sup>3</sup> of brick work, how many numbers of bricks are required?  
 4. Write the full form of S.O.R.

**OR**

- Q.2 (a) Find the rate of R.C.C. work (1:2:4) per cu. m. by Rate analysis. Assume suitable rates of materialand labour. [06]
- (b) Define specification. What are the purposes of writing specifications? Also state importance of it. [05]
- (c) Discuss various factors affecting rate analysis. [04]
- Q.3 (a) For the single room (4m\*3m) as shown in figure 1, estimate the quantity of excavation, concrete in foundation (F.C.), II<sup>nd</sup> class brick class and I<sup>st</sup> class brick class with deductions using any method. [06]
- (b) Write the specification of I<sup>st</sup>class Brickwork in Cement Mortar 1:6. [05]
- (c) Explain the types of estimates. [04]

**OR**

- Q.3 (a) Write a short note on centre line method and long wall short wall method. [06]
- (b) Find out the material quantity required for 100m<sup>2</sup>, (1:3), 20mm thick plaster. [05]
- (c) Brief the methods of building estimations. [04]

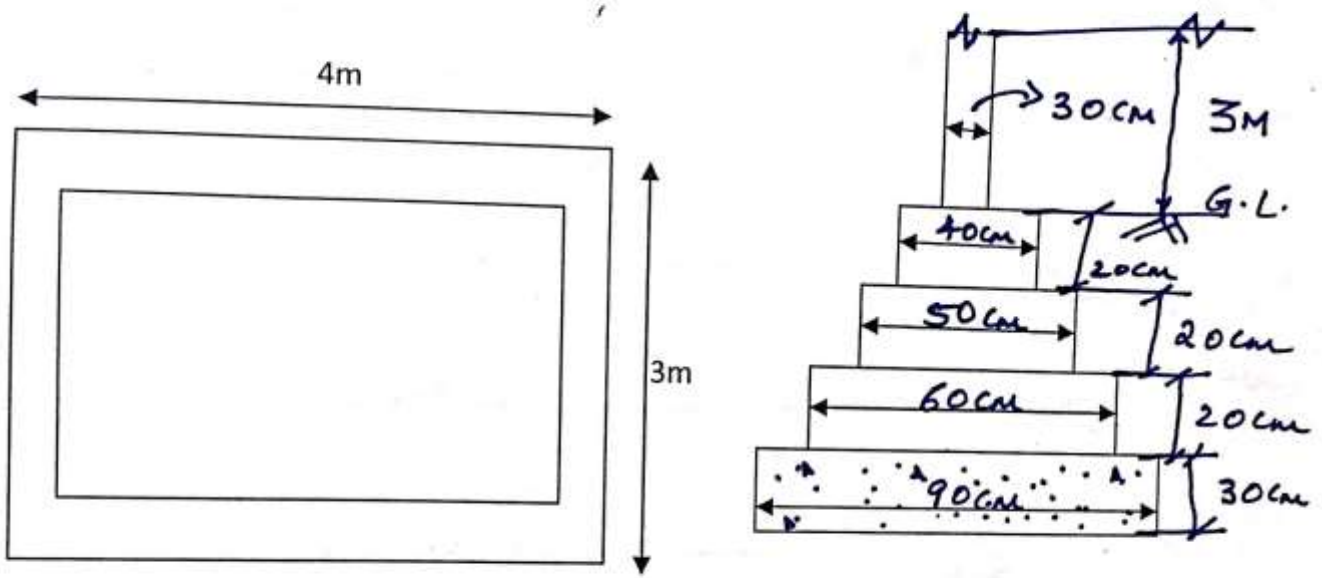


FIGURE - 1

**SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY****BE - SEMESTER-V • MID SEMESTER-I EXAMINATION – WINTER 2017****SUBJECT: TRAFFIC ENGINEERING (2170613) (CL)**

DATE: 11-08-2017

TIME: 02:00pm to 03:30 pm

TOTAL MARKS: 40

- Instructions:**
1. All the questions are compulsory.
  2. Figures to the right indicate full marks.
  3. Assume suitable data if required.

- Q.1 (a) Define the following terms [05]
1. Tandem axle
  2. AADT
  3. Candela
  4. Desire line
  5. Luminous flux
  - 6.
- (b) Explain PIEV theory. [05]
- Q.2 (a) Define Traffic Engineering. What is scope of traffic engineering? [06]
- (b) Describe various vehicular characteristics considered in traffic engineering. [05]
- (c) Explain moving observer method. [04]
- OR
- Q.2 (a) Enlist traffic surveys. Explain any one in detail and give purposes of traffic surveys [06]
- (b) What is PCU? Give factors affecting PCU [05]
- (c) Explain enoscope method for spot speed studies. [04]
- Q.3 (a) A passenger car weighing 2 ton is required to accelerate at a rate of  $2.5\text{m/s}^2$  in the first gear from a speed of 12 kmph. The gradient is +1 percent and the road have a black topped surface. The frontal projection area of the car is  $2.15\text{m}^2$ . Calculate engine horse power needed. [06]
- (b) Explain design factor for street lightening What is the need for street lightening [05]
- (c) Ten spot speed surveys are as under [04]
- 64,67,43,72,76,59,69,30,37,48
- Find time mean speed and space mean speed.
- OR
- Q.3 (a) What are the objectives of parking studies? What are different methods of parking studies? [06]
- (b) Explain types of light sources? Explain fundamental factors of night vision [05]
- (c) Explain time mean speed and space mean speed. [04]

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