Final Year B.Tech. (Civil Engineering) (CBCS)
(Semester-VII) Examination, January - 2023
PCE-CV705 : TOWN PLANNING (Paper-II)
Sub. Code: 83741

Day and Date : Monday, 16 - 01 - 2023   Total Marks : 70
Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) Q.No.4 and Q.No.8 are compulsory.
2) Solve any two questions from Q.No.1, 2, 3 and Q.No.5, 6, 7 from each section.
3) Figures to the right indicate full marks.
4) Assume suitable data if necessary and state them clearly.
5) Answer shall be supported by adequate sketches.

SECTION-I

Q1) a) What are the principles of town planning? [5]

b) Explain the contribution of different town planners in India. [5]

Q2) a) What are the methods adopted for the collection of data in surveys? [5]

b) Differentiate between the Social survey & functional survey. [5]

Q3) a) Discuss the housing problems in India. [5]

b) How can formation of slum be prevented? [5]

Q4) Attempt all questions. [15]

a) Explain the contribution of different town planners in modern era.

b) Differentiate between the Natural & planned growth patterns of town.

c) Describe housing agencies involved in housing.

SECTION-II

Q5) a) What are the importance of recreation centers? [5]

b) What are the broad principles of design of public buildings? [5]

Q6) a) Describe objects & necessity of Master Plan. [5]

b) Explain in brief Building bye laws. [5]

Q7) a) Explain the salient features of Urban ceiling Act. [5]

b) State the importance provision of land Acquisition Act. [5]

Q8) Attempt all questions. [15]

a) State recreation measures. Explain any one.

b) Explain the salient features of smart cities.

c) Discuss MRTP Act.

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Seat
No.

B. Tech. (Civil) (Part - IV) (Semester - VII) (CBCS)
Examination, January - 2023
TRANSPORTATION ENGINEERING - I
Sub. Code : 83735

Day and Date : Saturday, 14 - 01 - 2023   **Total Marks: 70**
Time : 10.30 a.m. to 01.00 p.m.

Instructions: 1)   All questions are compulsory.
                  2)   Write any two from question no. 2, 3, 5 & 6.

SECTION - I

Q1) a)   Write a brief note on N.H.A.I.   [6]

     b)   Explain Third road development plan in detail.   [6]

Q2) a)   Explain the necessity of Superelevation on the horizontal curves.   [5]

     b)   Calculate the super elevation required on a road curve of radius 280 m
           for Permissible speed of 75 kmph. The coefficient of friction is 0.12.
           Define 'Gradient'. State the factors affecting the gradient. Explain the
           types of gradient recommended by IRC.   [6]

     c)   Explain widening of pavements at horizontal curves.   [5]

Q3) a)   Explain various desirable properties of stone aggregate used in Road
           construction   [6]

     b)   Explain with neat sketch joints in rigid pavements.   [6]

     c)   Equivalent wheel load factors.   [6]

SECTION - II

Q4) a) Explain the terms BBM, SDBM, DLC & PQC in detail. [6]

b) Explain assessment and need for pavement maintenance. [6]

Q5) a) Enlist various traffic studies. Explain any ONE in detail. [6]

b) Explain 'Roundabout / Rotary' with a neat sketch. [5]

c) Write a note on highway Drainage. [5]

Q6) a) Explain Different traffic control devices. [6]

b) Explain strengthening of existing pavements in details. [6]

c) Write a note on Use of geo-textiles and geo-grids in road construction.
[6]

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Seat
No.

B.Tech. (Civil Engineering) (CBCS) (Semester - VII)
Examination, January - 2023
PCC-CV 701 : DESIGN OF CONCRETE STRUCTURES - I
Sub. Code: 83732

Day and Date : Friday, 6 - 01- 2023   **Total Marks : 70**
Time : 10.30 a.m. to 1.00 p.m.

Instructions :
1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Assume suitable data if necessary and state them clearly.
4) Use of non-programmable calculator and IS 456-2000 are allowed.

SECTION - I

Q1) a) Find Pt_{max}, MU_{max} and Ku_{max} for M20 and fe415.   [12]

b) Explain characteristics strength and partial safety factor.

Q2) Determine the moment of resistance of the rectangular beam of size 250 mm × 450 mm effective, it is reinforced with 2 bars of 16 mm in compression side and 4 bars of 25 mm in tension side take M 20 and Fe 250. Take cover 35 mm both sides.   [11]

OR

Find Moment of resistance of T beam with following data

Width of flange = 800 mm, Thickness of slab = 120 mm

Width of rib = 200 mm, effective depth = 400 mm

Tensile steel = 3500 mm² Take M 20 and Fe 415 steel.

Q3) A simply supported beam with 250 mm × 500 mm reinforced with 4 bars of 20 mm diameter. If beam subjected to 95 kN shear force at support. Design shear reinforcement consisting of stirrups take M20 and Fe415 show reinforcement details.   [12]

P.T.O.

SECTION - II

Q4) Designed simply supported one way slab provided over effective span 3.30m. It carries live load of 4 kN/m² and floor finish of 1 kN/m². Take M 20 and Fe 451 steel. Assume moderate environment. **[12]**

OR

Designed dog legged staircase for a building in which the vertical distance between the floor is 3.6 m. The stair hall measures 3.5 m × 5 m. The live load may be taken as 3 kN/m². Use M 20 and Fe 415. Show reinforcement details.

Q5) Designed axially loaded column 500 mm × 500 mm for the service load of 2000 kN. Use M 20 and Fe 415 steel. **[11]**

Q6) Designed rectangular footing for constant depth for RC column size 400 mm × 600 mm, bearing capacity of soil 120 kN/m², column having vertical laod 800 kN. Take M 20 and Fe 415 steel. **[12]**

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B. Tech. (Civil Engineering) (Semester - VII) (CBCS)
Examination, January - 2023
EARTHQUAKE ENGINEERING
Sub. Code : 83733

Day and Date : Monday, 09 - 01 - 2023   Total Marks: 70

Time : 10.30 a.m. to 01.00 p.m.

Instructions: 1)   All questions are compulsory.

              2)   Assume suitable data if necessary and state them clearly.

              3)   Answer shall be supported by adequate sketches.

SECTION - I

Q1) Attempt any two questions.   **[7]**

     a)   Classify different types of earthquake.

     b)   What do you understand by multiple elastic forces in series and in parallel?

     c)   Explain the method of construction of design spectrum at a site?

Q2) a)   Differentiate (i) Seismograph Vs Seismogram (ii)S wave & Love wave.**[7]**

     b)   Write a short note on elastic rebound theory.   **[7]**

Q3) a)   Derive the equation of motion and its solution for forced damped vibration system.   **[7]**

     b)   Explain the phenomenon of resonance.   **[7]**

Q4) Calculate base shear for BSNL office in PUNE with following data by (a) No. of storey = 4 (b) No. of bay in x direction = 3(c) No. of bay in y direction = 3 (d) storey height = 3 m (e) Width of each bay = 5 m (f)Total DL on roof = 12 kN/m²(g) Total DL on floor = 10 kN/m² (h) LL =4 kN/m² (i) Thickness of slab = 120mm Neglect weight of infill walls. Assume suitable data if required. Write all your assumptions & clauses of IS 1893(2016). **[14]**

P.T.O.

SECTION - II

Q5) Attempt any two questions. [12]

    a)   Explain general requirement of RCC member detailing?

    b)   Earthquake resisting features of unreinforced brick masonry structure.

    c)   Explain Friction Damper System and Mechanism?

Q6) a)   Explain ductile detailing of beam as per IS 13920 - 2016. [11]

    b)   Simplicity and symmetry is the key to making a building earthquake resistant.

Q7) What is jacketing? Explain the jacketing of beams and column with illustrative sketches. [11]

Q8) a)   Explain Tuned Mass liquid Damper us working principle? [11]

    b)   Explain active control system and passive control system?

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Final Year B. Tech. (Civil Engineering) (Part - IV) (Semester - VII) (CBCS) Examination, January - 2023

PCE - CV703 : QUANTITY SURVEY AND VALUATION

Sub. Code : 83734

Day and Date : Wednesday, 11 - 01 - 2023   **Total Marks : 70**
Time : 10.30 a.m. to 1.30 p.m.

Instructions :
1) Question No. 3 is compulsory. Attempt any 2 questions from remaining in Section I and any 3 questions from Section II.
2) Figures to the right indicate full marks.
3) Make suitable assumptions wherever necessary and mention it clearly.
4) Use of non-programmable calculator is allowed.

SECTION - I

Q1) a) Write the different types of estimate and state various items to be included in it. **[5]**

  b) What is DSR. Name at least four main heads of items covered in DSR. **[5]**

Q2) a) What are the specifications? Explain in brief its need to write detailed specifications. **[5]**

  b) What is meant by Task work? Explain its importance in rate analysis with suitable examples. **[5]**

Q3) a) The plan just above GL and typical section as shown in the figure represents to construct a stage of size 8 m × 4 m for a school. Work out the quantities of following items using long wall and short wall method. **[10]**

  i)   Earth work in excavation

  ii)   PCC 1 : 4 : 8 in foundations

iii) Brick work in foundation 450 mm thick
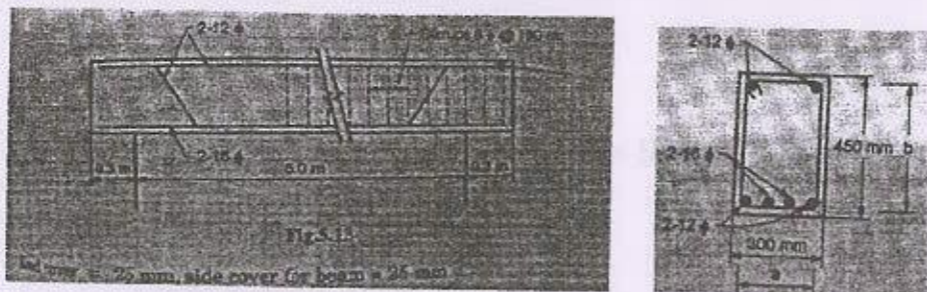
iv) Brick work in plinth 300 mm thick

PLAN
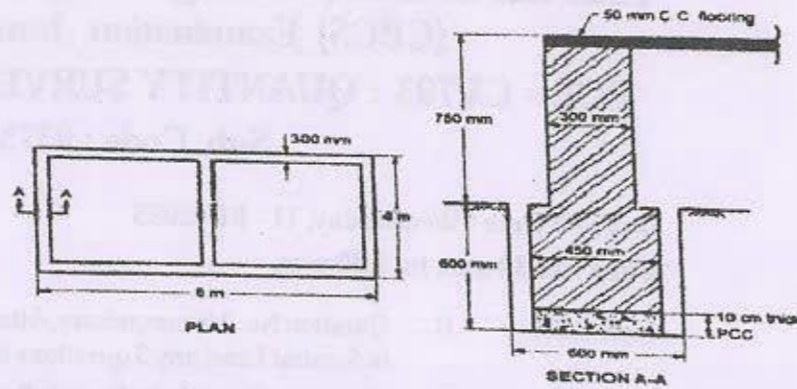
SECTION A-A

b) Explain in short 'Long wall - Short wall method' for taking out quantities. [5]

Q4) Write a note on (Any two): [10]

a) Administrative approval and technical sanction.

b) Measurement sheet and abstract sheet.

c) Rate analysis.

SECTION - II

Q5) Work out the quantity of steel for the beam as shown below: [11]

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Q6) a) What is mean by valuation? Write purpose of it. [6]

b) Explain the following terms : [5]

i) Book Value

ii) Distress Value

iii) Sentimental Value

Q7) a) An RCC framed G + 2 building is constructed on a plot having details:[9]

i) Plot of land 500 Sq., Present rate is 3000/- per sq. m.

ii) Net yield = 9%

iii) B.U.A. is 350 sq.m/floor @ construction rate of 6500/sq.m.

iv) Life of building is 50 years

v) Repair and maintenance @ 1/12th of gross rent

vi) Municipal tax @ 15%

vii) Management and miscellaneous charges @8% of gross rent

viii) Insurance premium @ 1%

ix) Gross rent Rs. 5 lac. per annum.

x) Compound interest on sinking fund @ 9%.

xi) Property taxes @ 5% of gross rent.

Work out the fair valur of property.

b) What is meant by Year Purchase? [3]

Q8) Write a note on (Any two): [12]

a) Price, cost and value.

b) Bar bending schedule.

c) Types of leases.

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