Code: 1G655

R-11 / R-13

III B.Tech. I Semester Supplementary Examinations May 2017
Design and Drawing of Reinforced Concrete Structures
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any *five* questions
All Questions carry equal marks (**14 Marks** each)
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Use of IS 456:2000, SP16 Design aided charts only and IS:875 (Part 1 & Part 2) books is permitted in the examination hall.

PART - A
(Answer any **one** question)   1 × 28=**28 marks**

1. Design reinforced concrete slab for a room measuring 5mx4.5m.The slab is to rest upon 11/2 brick thick walls constructed all round. The flooring is to consist of 25mm thick cement concrete layer. The flooring may be assumed to be subjected to a uniformly distributed super imposed load of 6 kN/m^2 .The following data may be assumed in the design: Use M25 grade concrete and Fe 415 grade steel. Draw a cross section of the designed slab showing clearly the bar bending schedule of the reinforcement.

2. A simply supported reinforced concrete beam is subjected to a working bending moment of 700kNm and a shear force of 300kN.Design a T-beam cross section to resist the above forces using following data: maximum width of the flange is 750 mm, and thickness of the flange is 200 mm, Use M25grade concrete and Fe 415 grade steel. Draw the cross section and elevation details.

PART - B
(Answer any **Three** question)   3 × 14=**42 marks**

3. a) Explain the balanced, under-reinforced and over-reinforced sections as per Working Stress and Limit State Methods.

   b) What are the basic requirements of structural design?

4. A simply supported RC rectangular beam of 250 mm x 500 mm overall size carries an udl of 12.5 kN/m (inclusive of its self weight) over an effective span of 5.5 m. It is reinforced with 3 numbers of 20 mm dia. Mild steel bars in tension with a clear cover of 25 mm throughout its length. The concrete is of M25 grade. Design the shear reinforcement in the form of vertical stirrups for the maximum shear force using 6 mm dia. mild steel bars.

5. a) What is the difference between single reinforced and double reinforced section?

   b) Determine the moment capacity of a doubly-reinforced rectangular cross-section beam for the following data: b = 300 mm, d = 600 mm, Ast = 1500 mm2, fck = 415 N/mm2, fck = 25 N/mm2.

6. Design an axially loaded tied column with an unsupported length of 4 m. The column is fixed at one end and pinned at the other end. The column has to carry a factored load of 2200 kN. Use M 25 grade concrete and Fe 415 grade steel. Sketch the reinforcement details. Assume moderate exposure condition.

7. Design a rectangular isolated footing for a column of size 350 mm x 650 mm carrying an axial load of 2300 kN. The S.B.C. of the soil is 280 kN / m^2 . Use M 25 grade concrete and Fe 415 grade steel.

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III B.Tech. I Semester Supplementary Examinations May 2017
Engineering Geology
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any *five* questions
All Questions carry equal marks (**14 Marks** each)
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1. a) Explain the role of geology in the field of civil engineering.   7M

   b) What is weathering? Explain types of weathering.   7M

2. a) Define mineral. Explain physical properties of mineral.   8M

   b) Describe any two minerals with respect to their properties.
      i) Quartz   ii) Feldspar   iii) Haematite   6M

3. a) What are Igneous rocks? Explain types of Igneous rocks based on depth of origin and silica percentage.   8M

   b) Describe primary structures of sedimentary rocks with sketch.   6M

4. a) What is fold? Explain different types of folds with sketches.   7M

   b) Explain soil profile with their origin.   7M

5. a) Explain vertical distribution of sub surface water.   6M

   b) Explain any two   i) Cone of depression.   ii) Porosity   iii) Permeability   8M

6. a) Explain electrical resistivity method in ground water exploration.   10M

   b) Write a note on seismic method in ground water exploration.   4M

7. a) Explain factors considered for the selection of dam site.   8M

   b) Explain reservoir siltation and remedial measures.   6M

8. a) Describe the importance of tunnel in development activities.   7M

   b) Explain with neat sketch the tunneling through folded rocks.   7M

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R-11 / R-13

Code: 1G653

III B.Tech. I Semester Supplementary Examinations May 2017
Engineering Hydrology-I
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any **Five** questions
All Questions carry equal marks (**14 Marks** each)
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1. a) What is hydrologic cycle? Explain how the man activities influence on it

    b) How do you estimate average rainfall over given catchment area?

2. a) What is difference between evaporation and transpiration? Explain the various methods of estimating evapotranspiration?

    b) What are infiltration indices? Explain how you estimate these indices

3. a) Explain the factors affecting run-on and run-off?

    b) Explain the concept base flow separation. Discuss the practical applications of unit hydrographs?

4. Find out the ordinates of a storm hydrograph resulting from a 3 hour storm with rainfall of 3, 4, 5 and 1.5 cm during subsequent 3 hour intervals. The ordinates of unit hydrograph are given below

Time (h)	0	3	6	9	12	15	18	21	24	03	6	9	12
Ordinate(m^3/s)	0	90	200	350	450	350	260	190	130	80	45	20	0

5. a) What is meant by specific capacity of a well and derive an expression for finding the specific capacity of a well?

    b) A 300 mm diameter well penetrates 25 m below the static water table. After 24 hours of pumping at 600 rpm, the water table in test well at 90 m is lowered by 0.53 m and in a well 30 m away the drawdown is 1.11 m. What is the transmissibility of the aquifer?

6. a) What is irrigation? State different types of irrigation systems and their merits and demerits?

    b) What is major ingredients of soil required for irrigation? Explain the different methods of improving fertility of soils.

7. a) Explain the water soil plant relationship. Discuss the different methods of consumptive use of water.

    b) A field channel has culturable commanded area of 2000 hectares. The intensity of Irrigation for gram is 30% and for wheat is 50%. Gram has a kor period of 18 days and kor depth of 12 cm, while wheat has a kor period of 15 days and kor depth of 15 cm. Calculate the discharge of the field channel.

8. a) Compare Kennedy's and Lacey's theory. Why is Lacey's conception superior to that of Kennedy's?

    b) What is balancing depth? Derive expression for the same with the usual notations.

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Code: 1GA51

III B.Tech. I Semester Supplementary Examinations May 2017
Managerial Economics and Financial Analysis
(Common to CE, ME and ECE)

Max. Marks: 70   Time: 3 Hours

Answer any **Five** questions
All Questions carry equal marks (**14 Marks** each)
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1.   What is Managerial Economics? Discuss its relation with other areas of Management?

2.   Explain various Demand forecasting techniques with suitable examples?

3.   Define Production function? Explain about Cobb-Douglas production function?

4.   How do you classify markets? Discuss price output determination in monopoly market?

5.   What is the need of Public Sector business organizations? Explain various public sector organizations in detail?

6.   What is Capital budgeting? Discuss various methods of capital budgeting?

7.   What is Trail balance? Explain its role and importance in financial accounting?

8.   What is Ratio Analysis? Discuss various financial ratios in financial analysis?

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R-11 / R-13

Code: 1G651

III B.Tech. I Semester Supplementary Examinations May 2017
Structural Analysis II
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer any *five* questions
All Questions carry equal marks (**14 Marks** each)
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1. a) State Eddy' theorem and explain its application to arches   04M

   b) A symmetrical three hinged parabolic arch of 20m span and 4m central rise carries a point load of 40 kN at 4m horizontally from the left hand hinge. Calculate the normal thrust, shear force and bending moment at the load point.   10M

2. A symmetrical two pinned parabolilc arch spans 15m and has a central rise of 3m. Assume I =I$_c$sec , find the horizontal thrust at the supports if the span carries a central load of 20 kN.   14M

3. Analyse the rigid joint frame shown in Figure, by the slope deflection method. Draw the bending moment diagram.

14M
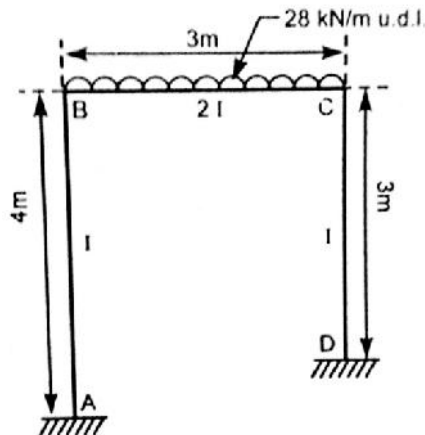
4. Analyse the frame shown in Figure by moment distribution method. Assume E is same for all members.
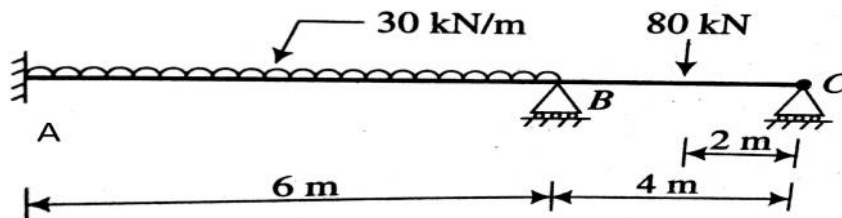

14M
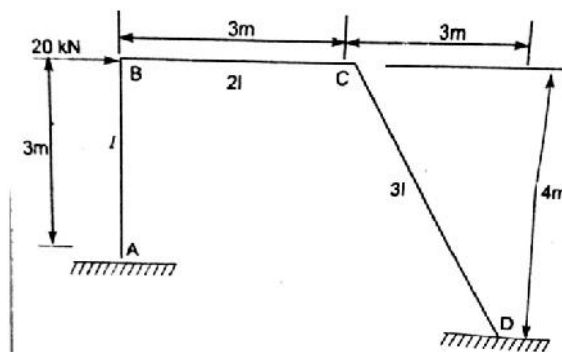
5. Analyse the portal framed structure shown in figure using Kani's method. Also draw Bending moment diagram.
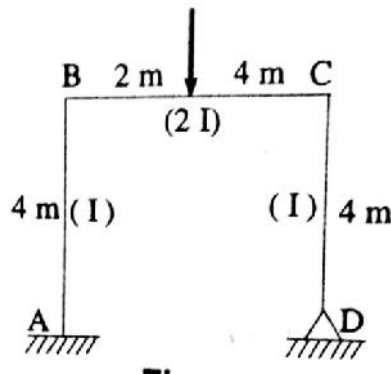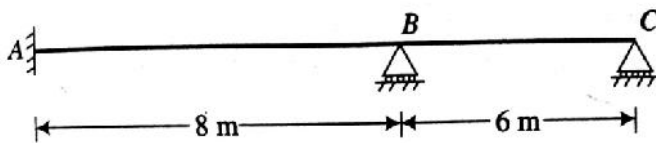

14M

6. Analyse the continuous beam shown in Figure by flexibility method. Flexural rigidity is constant throughout.
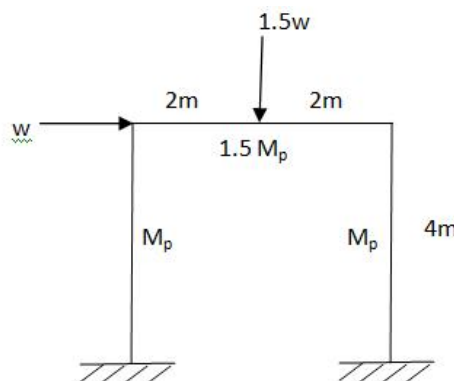

14M

7. Analyse the continuous beam ABC shown in Figure,if support B sinks by 10mm. Take EI = 60000 kN-m^2. Use stiffness matrix method.

14M

8. a) Define plastic hinge and determine the collapse load in terms of M_p ,for the portal frame shown in figure below. The plastic moment of beam is 1.5 M_p and that for column section is M_p.

07M

    b) Define plastic moment? For the fixed beam of constant section, carries two point loads P at 1.5m and 3.0m from the left support. The span of the beam is 6m Find the collapse load if the plastic moment is Mp.

07M

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