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R-11/R-13

Code : 1GA51

III B.Tech. I Semester Supplementary Examinations May/June 2016

Managerial Economics and Financial Analysis

(Common to CE, ME and ECE)

Max. Marks: 70

Time: 03 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

1. What is managerial economics? Explain the relationship of Managerial Economics with other disciplines. 14M
2. What do you understand by 'Elasticity of Demand'? write about Demand Forecasting methods 14M
3. What is BEP? Draw break even chart and explain its objectives, importance and its assumptions. 14M
4. What is market? Explain its importance when competition is perfect 14M
5. a) What are the different forms of business organizations? 6M
b) Explain the present role and importance of private sector organization to develop India 8M
6. Explain different DCF methods in capital budgeting? Step by step of evaluation of NPV method with an example 6M
8M
7. From the following data of San Pre Ltd. Co. as on 31-03-2014 you are required to prepare final accounts.

| Particulars | Debit (in ₹) | Credit (in ₹) |
|--------------------------------|-----------------|------------------|
| Stock (01-04-2014) | 25000 | |
| Purchases | 200000 | |
| Carriage inward | 5000 | |
| Carriage outward | 10000 | |
| Discount | 8000 | |
| Wages | 10000 | |
| Salaries | 17000 | |
| Rent | 15000 | |
| Sales | | 335000 |
| Rates and Taxes | 10000 | |
| Sundry Debtors and Creditors | 50000 | 20000 |
| Term loan | | 55000 |
| Bills Receivables and Payables | 35000 | 15000 |
| Investment | 20000 | |
| Cash at Bank | 20000 | |
| Furniture | 30000 | |
| Land and buildings | 50000 | |
| Vehicles | 20000 | |
| Capital | | 100000 |
| | 525000 | 525000 |

Closing Stock (31-03-2013) ₹ 65000/-

14M

8. What is meant by ratio analysis? Discuss its objectives and limitations 14M

Code : 1G651

III B.Tech. I Semester Supplementary Examinations May/June 2016

Structural Analysis-II
(Civil Engineering)

Max. Marks: 70

Time: 03 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

- Analyse the three hinged parabolic arch shown in Fig.1. Determine the bending moment, radial shear and normal thrust at distance of 8 m from left support.

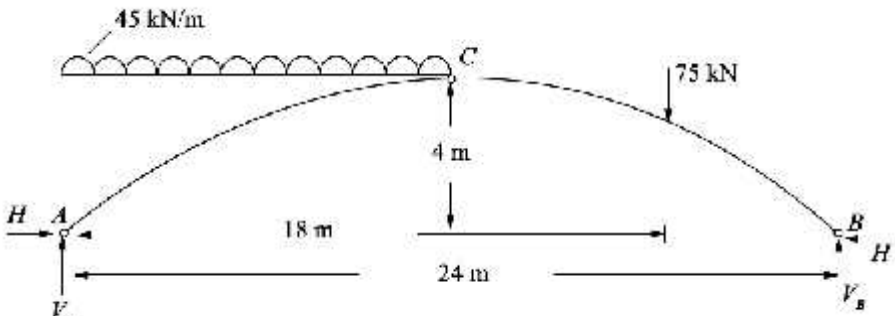


Fig.1

- A two hinged parabolic arch of 36 m span and central rise of 6 m. It carries a udl of 25 kN/m over the right half of the span and concentrated load of 160 kN at the crown. Locate and find the magnitude of maximum bending moment. Also find the shear force and normal thrust at quarter span section from the left support. Assume that moment of inertia at a section varies as secant of the slope. Neglect the effect of rib shortening.
- Analyse the frame shown in Fig.2 using Slope Deflection method, and draw shear force and bending moment diagrams. Draw elastic curve.

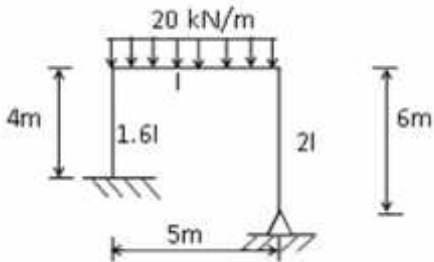
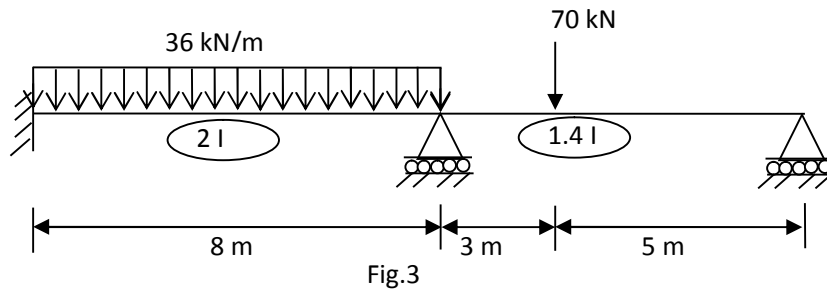


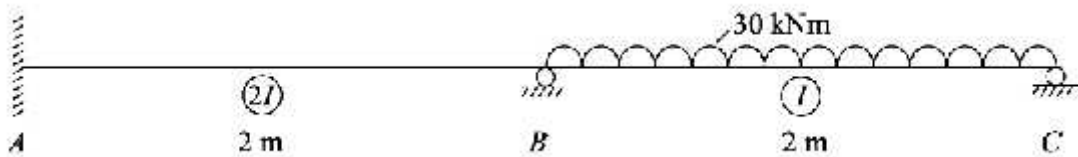
Fig 2

- Analyse the frame shown in Fig.2 using Moment distribution method, and draw shear force and bending moment diagrams. Draw elastic curve.

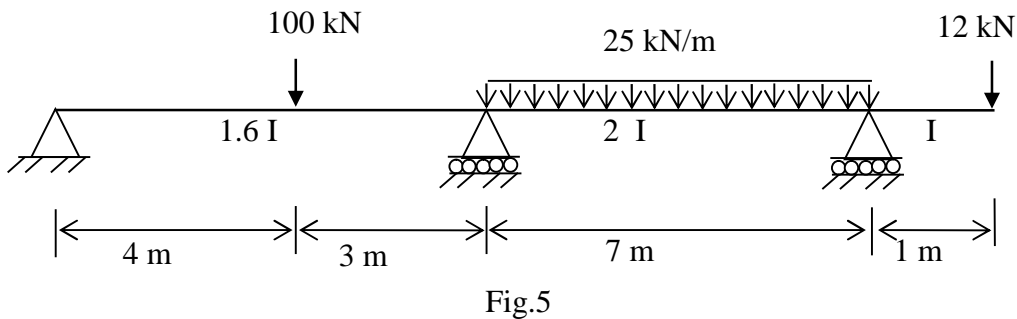
5. Analyse the continuous beam shown in the Fig.3 using Kani's Method. Draw shear force and bending moment diagrams. Also draw Elastic curve.



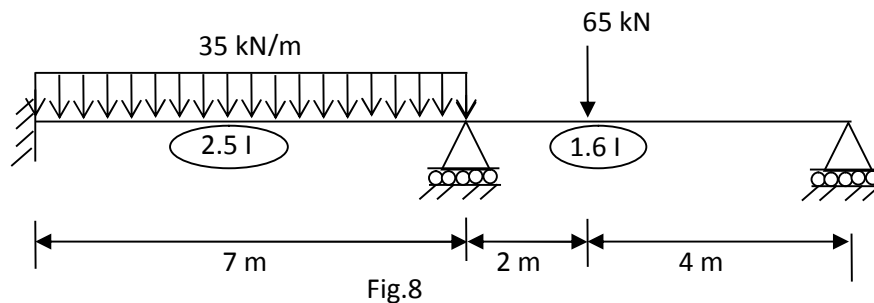
6. Analyse the continuous beam shown in Fig.4, using Flexibility method, and draw shear force and bending moment diagrams. During loading the support B settles by 25 mm and the support C settles by 15 mm. Locate and find the distances of the points of contra-flexure from supports. Draw elastic curve. $EI = 17,000 \text{ kNm}^2$.



7. Analyse the continuous beam shown in Fig.5, using Stiffness method, and draw shear force and bending moment diagrams. Locate and find the distances of the points of contra-flexure from supports. Draw elastic curve.



8. Find the collapse load for the beam shown in Fig.8, using Plastic Analysis.



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| R-11/R-13 |
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Code : 1G652

III B.Tech. I Semester Supplementary Examinations May/June 2016

Engineering Geology

Max. Marks: 70

Time: 03 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

1. Define weathering? List the effects on rocks and add a note on weathering importance with reference to dams and reservoirs. 14M
2. a) Briefly explain the different methods of study minerals. 6M
b) Describe the physical properties of Feldspar, Talc, Pyrite and Augite 8M
3. Explain the method of origin of igneous rocks? Describe the structures and textures in igneous rocks? 14M
4. Write a detailed note on available types of soils, their origin and occurrence in India. 14M
5. Write a note on causes, effects of earthquakes and precautions to be taken for the buildings construction in seismic areas 14M
6. Write a detailed note on seismic refraction method of exploration? 14M
7. Write a note on geological considerations in selection of dam site? 14M
8. Write a short note on
i) Purpose of tunneling
ii) Effects of tunneling on ground
iii) Over break 14M

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R-11/R-13

Code : 1G653

III B.Tech. I Semester Supplementary Examinations May/June 2016

Engineering Hydrology-I
(Civil Engineering)

Max. Marks: 70

Time: 03 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

1. a) Explain the types of rain gauges used for measurement of rain fall 7M
b) Explain with the help of a diagram the hydrologic cycle 7M
- 2 a) Explain briefly infiltration capacity, ϕ -index and w-index. 7M
b) What are the factors affecting Evaporation? 7M
3. What is run off? Factors Affecting run off from a catchment area 14M
4. a) What is hydrograph? Draw a single peaked hydrograph and explain its components? 7M
b) Explain about S-hydrograph, IUH, Synthetic Unit Hydrograph 7M
5. a) What are the assumptions and limitations of dupuit's theory? 4M
b) A tube well having a diameter of 15cm fully penetrates a confined aquifer of thickness 10m. The discharge from the well at a drawdown of 8m is 80 lps. Determine the coefficient of permeability and the transmissibility of the aquifer. Take the radius of influence as 300m. 10M
6. A water course has a culturable commanded area of 1200 hectares. The intensity of irrigation for crop A is 40% and for B is 30%, both crops being rabi crops. Crop a has a kor period of 2 days and crop B has kor period of 20 days and for crop b 15 days. Calculate the discharge of a water course if the depth for a water course is 10 cm and for crop B is 16 cm. 14M
7. What is consumptive use of water? Describe any two methods for determining the consumptive use of water. 14M
8. a) What are the difference between Kennedy's and Lacey's theory? 4M
b) A channel Cross-section designed to the following data, Discharge= 30 cumecs, silt factor= 1.00, slide factor = $\frac{1}{2}$:1, find also longitudinal slope 10M

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Code : 1G654

III B.Tech. I Semester Supplementary Examinations May/June 2016

Environmental Engineering-I*(Civil Engineering)***Max. Marks: 70****Time: 03 Hours**Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) List the objectives of water supply scheme 5M
 b) Estimate future population in year 2031 by arithmetic increase method and incremental increase method from following census data:

| Year | 1971 | 1981 | 1991 | 2001 | 2011 |
|-------------------------|------|------|------|------|------|
| Population in thousands | 350 | 465 | 785 | 1015 | 1530 |

9M

2. a) Compare the sources of water supply with respect to quantity, quality and cost aspects 7M
 b) List and explain factors affecting water demand. 7M
3. a) With the help of neat sketch explain canal intake. 7M
 b) List and explain the factors to be considered for the selection of a pump. 7M
4. a) Write BIS standards and significance for the following. 8M
 (i) Nitrate (ii) Fluoride (iii) Hardness (iv) Chloride
- b) Describe multiple fermentation test for bacteriological analysis of water 6M
5. a) List the objectives and importance of aeration in water treatment process 5M
 b) 12MLD of water treated in a water treatment plant daily using ferrous sulphate and lime. If the dosage of ferrous sulphate is 10 mg/L determine the total quantities of ferrous sulphate and quick lime(Cao) required daily. 5M
 c) Find the dimensions of a rectangular sedimentation basin for the given data. 4M
 (i) Volume of water to be treated – 3 MLD
 (ii) Detention period – 4 hrs
 (iii) Velocity of flow – 10 cm/min.
 (iv) Assume depth as 3m.
6. a) Design 6 slow sand filter beds from the following data. 6M
 Population -50000
 Per capita demand – 150 l/d.
 Rate of filtration – 180 l/hr/m²
 Length of each bed = twice the breadth
 Assume maximum demand as 1.8 times the average demand (one unit out of 6 is standby)
- b) List different methods of disinfection. With the help of neat sketch explain break point chlorination. 8M
7. a) With the help of equations explain the process of hardness removal by lime soda process and list the advantages. 10M
 b) Write a note on defluoridation techniques. 4M
8. a) With the help of neat sketch explain general layout of water supply scheme for single storey building. 10M
 b) List the precautionary measures to be taken in laying water supply pipeline. 4M

Code : 1G655

III B.Tech. I Semester Supplementary Examinations May/June 2016

Design and Drawing of Reinforced Concrete Structures*(Civil Engineering)***Max. Marks: 70****Time: 03 Hours**

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)
(Assume any data, if necessary)*

1 × 28 = 28 marks

- Design continuous R.C. slab for a hall 7 m wide and 14 m long. The slab is supported on R.C.C. beams, each 230 mm wide are monolithic. The ends of the slab are supported on walls, 300 mm wide. Design the slab for of live load of 4 kN/m². Adopt M 20 grade concrete and Fe 415 steel. Assume the weight of roof finishing equal to 1.5 kN/m².
- The floor of a hall measures 16m x16 m to the faces of the supporting walls. The floor consists of three beams spaced at 4 m centre to centre, and the slab thickness is 120 mm. The floor carries a uniformly distributed load of 5 kN/m², inclusive of the floor finishes. Design the intermediate beam. Use M 20 grade concrete and Fe 415 steel. The support width may be assumed as 500 mm.

PART – B*(Answer any three questions)***3x14 = 42 marks**

- Design a doubly reinforced concrete beam, supporting a uniformly distributed superimposed load of 40 kN/m over a clear span of 6m. The beam carries two concentrated loads of 20 kN each at a distance of 2 m from the face of the support. The overall depth and width of the beam is restricted to 90 cm and 40 cm respectively. Use M20 concrete, and Fe 415 steel. 14M
- Design a reinforced concrete footing for a rectangular column of section 400 mm x 250 mm supporting an axial factored load of 1400 kN. The safe bearing capacity of the soil at site is 200 kN/m². Adopt M 20 grade concrete and Fe 415 steel. 14M
- a) Design a circular short column 350 mm in diameter to support an axial load of 1500 kN. Use M 20 concrete and Fe 415 steel. 12M
b) Calculate the development length for 18mm diameter bar for M 25 grade of concrete and Fe 415 steel 2M
- A reinforced concrete beam 250 mm wide and 400 mm effective depth is subjected to ultimate design shear force of 150 kN at the critical section near supports. The tensile reinforcement at the section near supports is 0.5 per cent. Design the shear stirrups near the supports. Also, design the minimum shear reinforcement at the mid span. Use M 20 concrete and Fe 250 steel and Fe 415 steel. 14M
- a) What are the major types of shear failure modes encountered in reinforced concrete beams? 4M
b) Why is shear reinforcement required? 4M
c) Explain how you can control cracking of reinforced concrete structural elements. 6M
