

Hall Ticket Number :

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R-14

Code: 4GA51

III B.Tech. I Semester Regular Examinations November 2016

Managerial Economics and Financial Analysis

(Common to CE, ME and ECE)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. Define Managerial Economics? Explain its Nature and Scope?

OR

2. What is Law of Demand? Explain its assumptions and exceptions?

UNIT-II

3. Explain Production function with single variable?

OR

4. What is Break-even analysis? Discuss its objectives, assumptions and importance?

UNIT-III

5. Elaborate Price output determination in perfect competition market.

OR

6. Explain various public sector business organizations with suitable examples?

UNIT-IV

7. What is Capital? Explain various sources of raising capital?

OR

8. Distinguish between payback period method and accounting rate of return in capital budgeting?

UNIT-V

9. What is Journal? Explain its importance in book-keeping accounting system?

OR

10. Discuss various liquidity ratios in financial analysis?

Code: 4G651

III B.Tech. I Semester Regular Examinations November 2016

Structural Analysis II

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70Marks)

UNIT-I

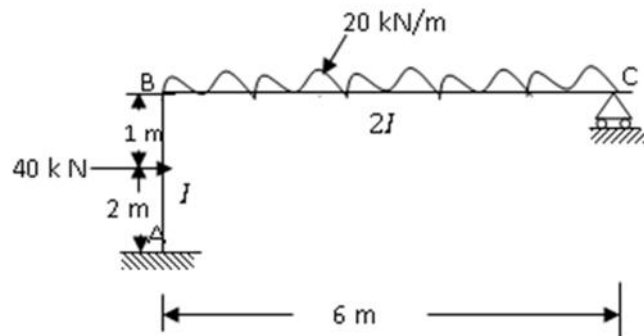
1. A three-hinged parabolic arch has a span of 50 m. Its supports of abutments A and B are at depth 16 m and 25 m below the crown. The arch carries a concentrated load of 100 kN at a distance of 10 m from crown towards left. Another concentrated load of 200 kN is placed at a distance of 20 m from crown towards right. Calculate the vertical and horizontal reactions.

OR

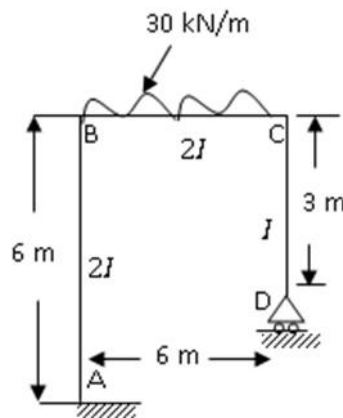
2. A parabolic arch of span 40 m and rise 8 m is subjected to rise of temperature to 30°C. Determine the maximum bending stress at the crown due to rise in temperature. The rib section is 1000-mm Take $E = 2 \times 10^5 \text{ N/mm}^2$ and $\alpha = 12 \times 10^{-6} \text{ per } ^\circ\text{C}$.

UNIT-II

3. Analyse the portal frame shown in figure given below by slope deflection method and drawn bending moment diagram.

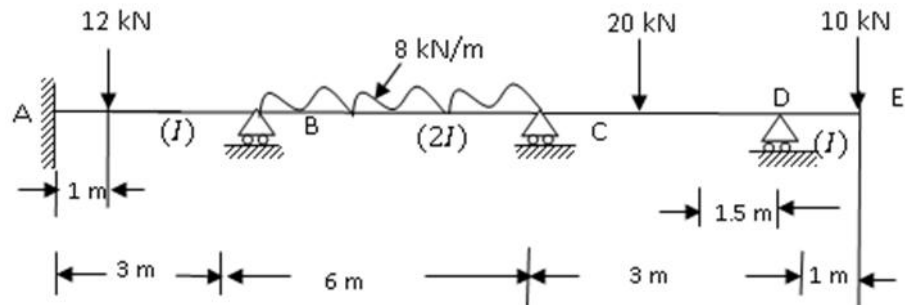
**OR**

4. Analyse the frame shown in figure by moment distribution method and drawn bending moment diagram.



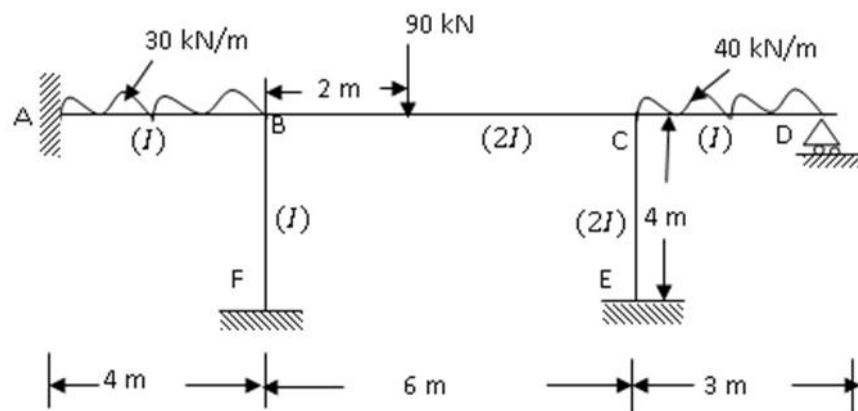
UNIT-III

5. Analyse the continuous beam shown in figure given below by Kani's method.



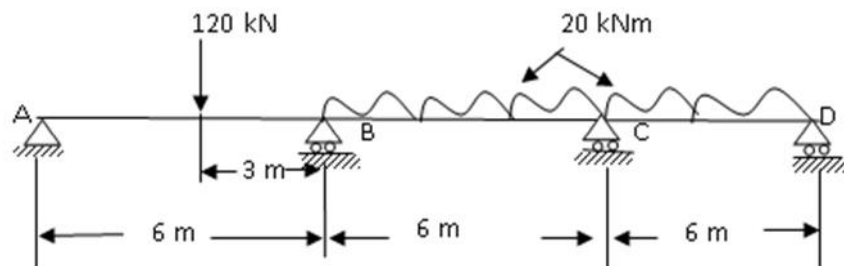
OR

6. Analyse the frame shown in figure given below by Kani's method.



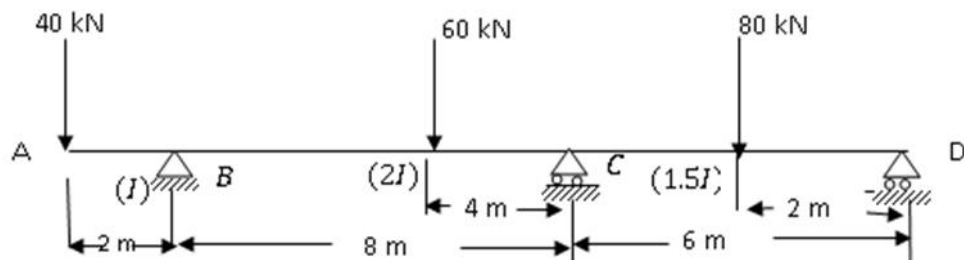
UNIT-IV

7. Analyse the continuous beam ABCD shown in figure given below by force method. Take EI same throughout.



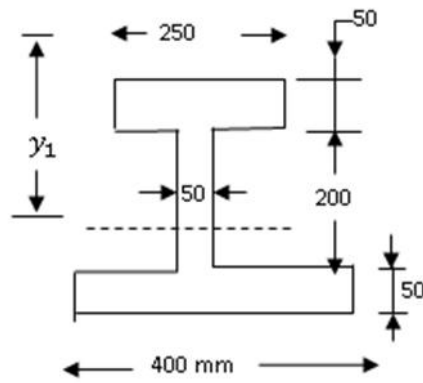
OR

8. Analyse the continuous beam shown in figure by displacement method.



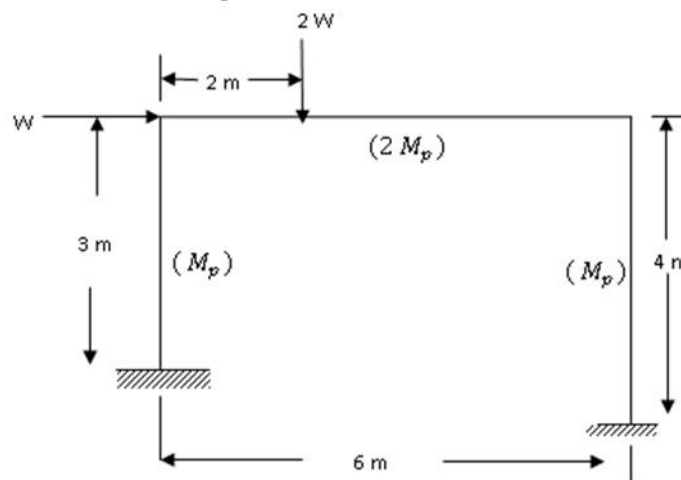
UNIT-V

9. Determine the shape factor of unequal I – section shown in figure.



OR

10. Determine the collapse load W_c of the frame shown in figure given below.



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R-14

Code: 4G652

III B.Tech. I Semester Regular Examinations November 2016

ENGINEERING GEOLOGY

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. Write about the various branches of Geology? Explain the Importance of Geology in Civil Engineering point of view. 14M

OR

2. Define Weathering? Explain in detail effect of Weathering over the properties of Rocks. What are the principle agents of weathering their impacts? 14M

UNIT-II

3. Describe how to identify the Physical properties of minerals? 14M

OR

4. a) Differentiate between Silicate and Non –Silicate Group of minerals? 7M
b) What are the physical properties of the following minerals
(i) Asbestos
(ii) Hematite 7M

UNIT-III

5. Define Rock? Explain How to formation of Sedimentary Rocks? Describe the various structures present in these Rocks? 14M

OR

6. Define Fault? What is the Classification of Faults? How to Recognize Faults in field? What precaution to be taken for this Civil engineering construction? 14M

UNIT-IV

7. What is a Ground water? Explain in detail Electrical Resistivity Method? 14M

OR

8. a) Explain about various types of Soils and their origin in India 7M
b) What are the Hydrological properties of Rocks? 7M

UNIT-V

9. a) Describe in detail the different stages for Investigations of Constructions of Dams? 7M
b) What are the criteria for selection of dam site 7M

OR

10. Write an essay on Tunneling? 14M

Code: 4G653*III B.Tech. I Semester Regular Examinations November 2016***Engineering Hydrology- I**

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. a) Define precipitation. What is cyclonic precipitation? Distinguish between cold front and warm front
b) Differentiate between recording and non - recording type of rain gauges

OR

2. a) Explain the processing of rainfall data.
b) Describe the working principle of a recording type rain gauge with neat sketch Mentioning its advantages and disadvantages

UNIT-II

3. a) Define
i) evaporation
ii) potential evapo-transpiration
iii) Actual evapo transpiration
iv) Pan coefficient
b) What are the components of runoff and factors affecting runoff?

OR

4. For the given data below, Determine the evapo transpiration . The crop factor may be taken as 0.8

Month	Mean monthly temp. °C	Monthly % of sunshine hrs.
Nov	18.0	7.20
Dec	15.0	7.15
Jan	13.5	7.30
Feb	14.5	7.10

UNIT-III

5. What do you understand by unit hydrograph? How is it derived? Explain its use in construction of flood hydrograph resulting from two or more periods of rainfall

OR

6. a) What are the factors affecting the runoff from a catchment? Explain any one of them.
b) With a neat sketch, explain the various components of a flood hydrograph. Also explain anyone methods of base flow separation

UNIT-IV

7. Design a channel in alluvial soil by lacey's theory for the data given.

Full supply discharge= 15m³/sec

Lacey's soil factor= 1.0

Channel side slope= ½ H: 1V

Find also the bed slope of channel.

OR

8. a) Describe the different types of aquifers with neat sketches
b) "Lacey's conception of design of canal on an alluvial soil is superior to Kennedy's concept". Justify the statement

UNIT-V

9. a) Define various irrigation efficiencies used in irrigation system
b) Define duty, delta and base period. Obtain the relationship between them

OR

10. The gross commanded area for a distributary is 20000 hectares, 75% of which can be irrigated. The intensity of irrigation for Rabi season is 40% that for Kharif season is 10%. If Kharif period is 4 weeks for rabi and 2.5 weeks for rice, determine the outlet discharge. Outlet factors for rabi and rice may be assumed as 1800 hectares/ cumec and 775 hectares/ cumec. Also calculate delta for each crop.

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R-14

Code: 4G654

III B.Tech. I Semester Regular Examinations November 2016

Environmental Engineering-I

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Answer all five units by choosing one question from each unit (5 x 14 = 70Marks)

UNIT-I

1. a) What is meant by protected water supply? Explain the necessity of protected water supply schemes?
- b) What are the various demands of water? Explain the factors affecting the demand of water

OR

2. a) What is meant by the variations in the rate of demand? What are the effects of these variations on the design of various units of water supply scheme?
- b) List the various sources of water for a water supply scheme. Compare them with reference suitability, quality, quantity and treatment

UNIT-II

3. a) Explain the layout of distribution networks with neat sketches
- b) Explain the Hardy -Cross method of Method used for pipe network analysis in water distribution system

OR

4. a) List out the various sources of water pollution. Explain the causative organisms and impacts of different types water-borne diseases.
- b) What is indicator of organism of Pathogenic bacteria present in water? Explain the Membrane filter technique with neat sketches

UNIT-III

5. a) What is difference between coagulation and flocculation? Explain the chemical reaction of alum with Raw water. Calculate quantity of alum required for treatment of 13 million liters of water per day if dosage of alum 12 ppm.
- a) What are functions of aeration treatment? Explain the various methods of aeration for water purification

OR

6. a) What is difference between detention time and flow through period? Explain the functional principle of clariflocculator with neat sketches
- b) Design a coagulation cum sedimentation tank with continuous flow for treatment 7 MLD of raw water. Make suitable assumptions if necessary

UNIT-IV

7. a) Differentiate between slow sand filter and rapid sand filters
- a) Explain the different types of chlorination practices with practical examples

OR

8. a) Design a rapid sand filters to treat 10 mld of raw water. Calculate the quantity of water required for backwashing. Make suitable assumptions
- b) Explain the following aspects with reference water treatment
(i) Residual chlorine (ii) chloramines (iii) disinfectants

UNIT-V

9. a) Explain the principles and precautions to be taken in laying of pipes in the building premises
- b) What are pipe appurtenances used in water supply plumbing system in Residential buildings

OR

10. a) Draw the general layout of water supply system in Multistoried buildings. Mention various components and their functions
- b) Write short note on detection and prevention of water leakage in buildings.

Code: 4G655

III B.Tech. I Semester Regular Examinations November 2016

Design and Drawing of Reinforced Concrete Structures

(Civil Engineering)

Max. Marks: 70

Time: 3 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****1 X 28 = 28 Marks**

1. Design a two way slab for an office floor of size 3.5m x 4.5m with discontinuous and simply supported edges on all the sides with corners prevented from lifting and supporting a service live load of 4KN/m^2 . Adopt M_{20} grade concrete and Fe_{415} grade steel. Sketch the reinforcement details. 28M

OR

2. Design a rectangular sloped footing for a column of size 350mm x 450mm using 20mm diameter bars to transmit characteristic loads of 600KN as dead load and 400KN as live load to a foundation with safe bearing capacity of 120KN/m^2 . Assume M_{20} grade concrete and Fe_{415} grade steel. Draw the reinforcement details. 28M

PART-BAnswer any **Three** questions**3 X 14 = 42 Marks***Each question carry 14 Marks*

3. a) What are the assumptions made in the limit state design method? Explain stress block parameters. 7M
- b) A Tee beam has an effective flange width of 2500mm and depth of flange is 150mm, width of rib is 300mm, effective depth is 800mm. Using M_{20} grade concrete and Fe_{415} HYSD bars, estimate the area of tension reinforcement required if the section has to resist a design ultimate moment of 1200 KN.m? 7M
4. a) Define anchorage and development length. 3M
- b) Determine the reinforcement required for a rectangular beam section with the following data?
Width = 300mm, Depth = 500mm, Factored B.M = 65KN.m,
Factored torsional moment = 40KN.m, Factored S.F = 70KN. Use M_{15} grade concrete and Fe_{415} grade steel. 11M
5. a) What is meant by slenderness ratio of a compression member and what are its implications? 3M
- b) Design the reinforcement in a circular column of 300mmdiameter to support a service axial load of 800KN. The column has an unsupported length of 3m and is braced against side sway. The column is reinforced with helical ties. Adopt M_{20} grade concrete and Fe_{415} grade steel. 11M
6. Estimate the long term deflection of a simply supported beam of size 350mm wide and 500mm effective depth. The span of the beam is 4.5m. The beam is reinforced with 5 bars of 20mm diameter in the tension zone. The external load on the beam is 25KN/m , exclusive of dead load. Use M_{25} grade concrete and Fe_{415} grade steel. Assume the required data from I.S. 456-2000. 14M
7. a) Compare working stress method and limit state method of design of R.C. Structures. 7M
- b) What are the factors that influencing the crack width? 7M
