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Code : 1GC43

R-11 / R-13

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

Environmental Science

(Common to CE, ME & CSE)

Max. Marks: 70

Time: 03 Hours

Answer any five questions

All Questions carry equal marks (14 Marks each)

1. What is the crisis of the environment? Explain thoroughly the indicators of global environmental crisis. 14M
2. As per the growing needs, discuss the importance of renewable energy resources against the non-renewable energy resources. 14M
3. a) What are the environmental hazards associated with mineral extraction? 7M
b) Explain briefly about equitable use of natural resources for sustainable life style. 7M
4. a) Discuss the adverse effects and control measures of noise pollution. 8M
b) What is earthquake? Enumerate its effects? 6M
5. a) Discuss the process of ecological succession. 7M
b) Write a brief note on ecological pyramids. 7M
6. a) Explain about hot-spots of biodiversity. 7M
b) Discuss regarding biogeographical classification of India. 7M
7. a) Discuss the concept of sustainable development. 7M
b) Write about global warming and its effects. 7M
8. a) Discuss the necessity of value education. 6M
b) Explain the role of information technology in environment and human health. 8M

Code: 1G643

II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

Structural Analysis-I

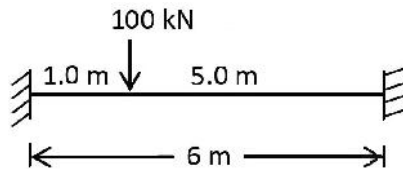
(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

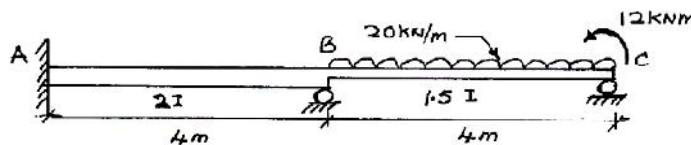
Answer any **five** questionsAll Questions carry equal marks (**14 Marks** each)

1. a) What are the advantages of fixed beam? 6M
 b) A fixed beam of 6 m span carries a concentrated load of 100 kN at a distance of 1.0 m from the left support. Calculate the B.M at mid span and draw BMD.



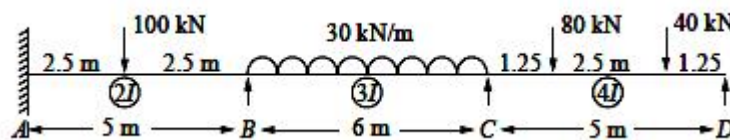
8M

2. A continuous beam ABCD 20 m long is fixed at A, simply supported at D and carried on the supports B and C at 5 m and 12 m from the left end A. It carries two concentrated loads of 80 kN and 40 kN at 3 m and 8 m respectively from A and uniformly distributed load of 12 kN/m over the span CD. Analyse the beam by theorem of three moments and draw the shear force and bending moment diagrams. 14M
3. Analyse the beam shown in figure. End support C is subjected to an anticlockwise moment of 12 kNm.



14M

4. Analyse and sketch the bending moment diagram for the beam shown in Fig. The values of the second moment area of each span are indicated along the members. Modulus of elasticity is constant.



14M

5. a) State the difference between strain energy method and unit load method in the determination of deflection of structures. 7M
 b) What are the assumptions made in the unit load method? 7M
6. Four wheel loads of 3,5,9,6 and 5kN cross a girder of span 20m from the left to right. The 11kN load is leading. The spacing between each load is 2.0m. using influence lines calculate the shear force and bending moment at a section 7m from the left support. 14M
7. a) Illustrate the procedure to find the forces in the members of a truss due to moving loads using the influence line diagrams. 7M
 b) What is the shape of influence line diagram for the maximum bending moment is respect of a simply support beam 7M
8. a) Write short notes on Castigliano's theorem I and II. 7M
 b) What are the different methods for analysis of frame? Write the assumptions made in analyzing perfect frames. 7M

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II B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

Strength of Materials-II

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questionsAll Questions carry equal marks (**14 Marks** each)

1. a) Recall the thin cylindrical shells? 4M
 b) Illustrate the various stresses acting in thin cylindrical shell? 10M
2. A Spherical shell of internal diameter 20cm, wall thickness 5cm is subjected to an internal pressure of 800N/am². Calculate the values of maximum and minimum circumferential stresses and radial stresses. 14M
3. A 2cm thick hallow circular shaft transmits 300KW at 200 rpm. Determine the diameter of the shaft if the shear strain due to torsion is not to exceed 0.00086. Take $C=8\text{MN/cm}^2$. 14M
4. a) Derive the elongation of close coiled helical spring subjected to axial pull of W , with a diameter d , number of coils n and modulus of rigidity c . 7M
 b) A close coiled helical spring is to be made out of 5mm diameter wire that is 2.0m long so that it deflects by 20mm under an axial load of 50KN. Determine the mean diameter of the coils. Take $C=81\text{GN/m}^2$. 7M
5. Derive the maximum stress of an eccentrically loaded short and long column? 14M
6. a) Illustrate the bending stress and net stress for a trapezoidal section dams with vertical water face? 7M
 b) The theoretical profile of concrete straight gravity dam is a right angled triangle with the water face vertical. The depth of water retained is the same as the height of dam. Show that the resultant thrust to act with in the middle third, the base width should be $H\sqrt{s}$ where H is the vertical height of the dam and s is the specific gravity of the concrete dam. 7M
7. Write the assumptions made for the analysis of beam subjected to unsymmetrical bending. Determine the stresses due to unsymmetrical bending and deflection? 14M
8. A curved beam in the form of a quadrant of a circle of radius R and having a uniform cross section is in a horizontal plane. It is fixed at A and free at B . It carries a vertical concentrated load W at the free end Compute the shear force, bending moment and twisting moment values and sketch variations of the above quantities. Also determine the vertical deflection of the free end B . 14M
