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220732

3rd Sem. / Civil

Subject : Structural Mechanics

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Which of the material is more elastic? CO1

a) Rubber b) Glass

c) Steel d) Wood

Q.2 A brittle material has _____ CO2

a) No elastic zone b) No plastic zone

c) Large plastic zone d) None of the above

Q.3 The bending moment at the fixed end of the cantilever is _____ CO4

a) Maximum b) Minimum

c) WL/2 d) WL

Q.4 For no tension condition, eccentricity should not be more then CO5

a) Z/A b) Z/2A

c) A/Z d) 2A/Z

Q.5 Retaining wall is subjected to pressure due to CO6

a) Water b) Earth

c) Gas d) All of the above

Q.6 Ratio of average shear stress to maximum shear stress for circular section is CO6

a) 5/2 b) 4/3

c) 3/4 d) 1

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Unit of Force _____ CO1

Q.8 Brittleness is opposite to _____ CO2

Q.9 In a beam deflection is _____ CO3

Q.10 Unit of strain is _____ CO2

Q.11 The diameter of core or kernel for a circular section is _____ CO4

Q.12 Shear stress for rectangular section is maximum at _____ CO6

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define elastic and elastic material. CO1

Q.14 Define a strain, discuss various types of strains in details. CO2

Q.15 Discuss different types of loads in details. CO3

Q.16 Define moment of resistance & section modulus. CO6

Q.17 What is Mohr's theorem? CO2

Q.18 What are assumptions made in theory of simple bending? CO6

Q.19 Explain impact test. CO1

Q.20 What is passive earth pressure? CO6

Q.21 Explain limit of proportionality with neat diagram. CO2

Q.22 Explain classification of columns. CO5

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 A cantilever beam of length 2mtr. carries a uniformly distributed load of 1.5 KN/mtr over the whole length and a point load 2 KN at the distance of .5mtr from free end. Draw Shear force and bending moment diagram for cantilever. CO4

Q.24 A bar of 20mm is square crossection is subjected to tensile load of 15KN & the measured extension over the length of 200mm was found to be 0.2mm. The contraction in the lateral dimension was found to be 0.006mm. Determine modulus of rigidity. CO1

Q.25 Discuss the graphical to method to find out forces in the members. CO3

(**Note:** Course outcome/CO is for office use only)