Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 4021473

M.E. / M.Tech. DEGREE EXAMINATIONS, NOV/ DEC 2024
First Semester
CAD / CAM
P20CC102 - ADVANCED STRENGTH OF MATERIALS
(Regulation 2020)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Define stress and strain.

2. State Hooks law.

3. Define deflection.

4. State shear flow.

5. Define buckling.

6. List the various stresses in circular and rectangular plates.

7. Define torsion.

8. State Prandtl's stress function.

9. State tangential stress.

10. List the methods of computing contact stress.

PART – B (5 x 16 = 80 Marks)

11. (a) Develop the compatibility equation in terms of stress function for polar co-ordinate system and write the equilibrium equation in polar coordinate system. (16)

(OR)

(b) Explain St.Venant's principle. (16)

12. (a) Explain location of shear center for sections. (16)

(OR)

(b) Discuss kern of a section. (16)

13. (a) Explain curved beam with suitable Examples. (16)

(OR)

(b) Discuss various types of loading and end conditions. (16)

14. (a) Explain elastic membrane analogy. (16)

(OR)

(b) Using Prandtl's stress function method derive the expression for (i) twist per unit length, (ii) torsional rigidity and (iii) the resultant stress for elliptical cross section under torsion. (16)

15. (a) Discuss the different stresses in disc and ring. (16)

(OR)

(b) Construct various methods of computing contact stress. (16)

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