Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech (ME) (Sem.–4)

STRENGTH OF MATERIAL-II

Subject Code : ME-202

M.Code : 59013

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Write briefly :

a) Define resilience.

b) Define proof stress.

c) What is permanent deformation?

d) Name the two important types of helical springs.

e) What are compound cylinders?

f) Write the importance of shear center.

g) What is circumferential stress?

h) State Castigliano's theorem.

i) What do you understand by 'hub shrunk'?

j) State Maxwell's theorem of reciprocal deflection.

SECTION-B

2. Explain the terms : gradually applied load, suddenly applied load and load applied with an impact load.

3. What do you understand by 'Theories of failure'? Name the important theories of failure.

4. What do you mean by 'Lames equation'? How you will drive theses equation?

5. Find an expression for bending stresses produced in a curved bar which is subjected to bending moment.

6. A wooden beam 100 mm wide and 150 mm deep is simply supported over a span of 4 meters. If shear stress at a section of a beam is 4500 N, find the shear stress at a distance of 25 mm above the NA.

SECTION-C

7. Derive an expression for the stress induced in a body due to suddenly applied load and hence find the value of extension produced in a body.

8. Differentiate between thick and thin cylinders. Find an expression for the radial pressure and hoop stress at any point in case of thick cylinder.

9. Find an expression for the circumferential stress and radial stress developed in rotating solid disc.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.