

B.Tech. Mechanical Engineering (NEP Pattern) Semester-I
STPCCMEC104 - Basics of Mechanical Engineering

P. Pages : 1



Time : Two Hours

GUG/S/25/16173

Max. Marks : 40

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- Notes : 1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.
5. Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 8, Q. 9 or Q. 10

1. a) Explain First law of thermodynamics. 4
b) Define system, boundary and surrounding. 4

OR

2. a) Explain Otto cycle with PV diagram. 4
b) State Zeroth law of thermodynamics. 4

3. a) Enlist the component of steam power plant. 4
b) Define refrigeration and unit of refrigeration. 4

OR

4. a) Explain working of four stroke petrol engine with neat sketch. 4
b) Enlist the application of refrigeration. 4

5. a) Enlist the different power transmission systems. 4
b) Discuss the different types of belts and their material used for power transmission. 4

OR

6. a) State the advantages and disadvantages of the chain drive over belt and rope drive. 4
b) List the important physical characteristics of a good bearing material. 4

7. a) Define casting, moulding and pattern making and forging. 4
b) Explain the different types of defects in casting with a neat sketch. 4

OR

8. a) Explain Soldering process and enlist its types. 4
b) Explain Oxy-acetylene welding with a neat sketch. 4

9. a) Enlist various Non Destructive testing used in the industry. Explain any one in detail. 4
b) Compare and contrast between steel and cast iron in detail. 4

OR

10. a) How do you classify materials for engineering use? 4
b) Define stress and strain. What are the different types of stresses? 4
