

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

P. Pages : 2

Time : Two Hours



GUG/W/24/16173

Max. Marks : 40

-
- 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. Diagrams and Chemical equation should be given wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Solve : Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.

1. a) Define the temperature and establish a relation between Celsius and Fahrenheit scale. 4
b) Differentiate between close system and open system 4

OR

2. Define properties of fluids 8
 - a) Sp. gravity
 - b) Viscosity
 - c) Density
 - d) Kinetic viscosity
3. a) What are the components of vapour compression refrigeration system? State their function. 4
b) Enlist boiler mounting and accessories. 4

OR

4. a) Explain working of two stroke petrol engine with neat sketch. 4
b) Explain the working of Vapour Compression Refrigeration System (VCRS). 4
5. a) What types of stresses are induced in shafts? 4
b) Explain with the help of neat sketches any two types of various flat belt drives. 4

OR

6. a) What are the advantages and disadvantages of V-belt drive over flat belt drive? 4
- b) What is a clutch? Discuss the various types of clutches giving at least one practical application for each. 4
7. a) What are pattern allowances? Explain any two pattern allowances with a neat sketch. 4
- b) Differentiate between soldering, brazing and welding processes. 4

OR

8. a) What are the types of welding? What are the types of welding joints? 4
- b) Give the advantages of adhesives and resistance welding. 4
9. a) Define tensile stress with suitable example. 4
- b) Enlist various Destructive testing used in the industry. Explain any one in detail. 4

OR

10. Draw conceptual Fe-Fe₃C phase equilibrium diagram showing critical lines and temperatures. 8
