

24008

B.Tech. 2nd Semester Examination, May-2016

BASICS OF MECHANICAL ENGINEERING

Paper-ME-101-F

Common for all branches

Time allowed : 3 hours] [Maximum marks : 100

Note : Attempt five questions. Question No. 1 is compulsory and attempt at least one question from each section.

1. Explain following : $4 \times 5 = 20$
- (a) Explain any three properties of steam.
 - (b) What is a NC and CNC system ?
 - (c) What is C.O.P. of Refrigerator and Heat pump ?
 - (d) What is Third law of thermodynamics ?

Section-A

2. What is manufacturing process ? Explain working of Lathe machine with a neat and labelled diagram. 20
3. Explain 2nd Law of thermodynamics with reference to Kelvin Planck statement and Clausius statement in detail. 20

Section-B

4. Explain construction and working of a Francis Turbine with the help of a neat and labelled sketch. 20
5. Explain working of a Vapour Compression Refrigeration system with neat and labelled diagram in detail. Calculate its COP also. 20

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Section-C

6. Explain construction and working of a single plate clutch with the help of a neat sketch. 20
7. Derive an expression for a shaft subjected to pure torsion i.e. $T/J = \tau/R = G\theta/L$. 20

Section-D

8. Explain following : 20
- (a) Principle of superposition
- (b) CNC Machine.
9. What is NC system ? Explain different component of NC system with their merits and demerits. 20

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