

Some Important Questions for Final Examination

Subject with Code: Basics of Mechanical Engineering (ME- 101 F)

1. a) What do you mean by taper turning operation?
- b) What is knurling and reaming operation?
- c) Define open, closed and isolated system.
- d) What do you mean by state, path and process of a thermodynamic system?
- e) Define work and energy.
- f) What are the macroscopic and microscopic properties?
- g) What is sensible and latent heat?
- h) What is superheated steam?
- i) What do you mean by 1 TR in case of refrigeration and air conditioning?
- j) What are primary and secondary refrigerants?
- k) What do you mean by a hydraulic turbine? How can we classify them?
- l) What is the difference between impulse and reaction turbine?
- m) What are pumps? How can we classify them?
- n) What is the use of an idler pulley in a power transmission system?
- o) Define Epicyclic and compound gear train.
- p) What do you mean by stress and strain?
- q) Define shear stress and volumetric stress.
- r) Define Hooks law and Poisson ratio.
- s) Define young, Bulk and shear modulus.
- t) Define ultimate and working stress.
- u) What do you mean by factor of safety?
- v) Define belt, rope and chain.
- w) What do you mean by elasticity and plasticity?
- x) What is the difference between CNC and NC machines?
- y) Classify NC machines on the basis of programming method, control system and types of motion.
- z) What are the principle parts of a CNC machine?

Section A

2. Define milling. What is the principle of working of milling machine? Explain it with its principle parts in detail.
3. What is the principle of working of drilling machine? Explain it with its principle parts in detail.
4. Draw a sketch of single point cutting tool and label its parts and important angles.
5. Explain lathe machine in with its construction and principle parts in detail.
6. Define shaper. What is the principle of working of shaper machine? Explain it with its principle parts in detail.

7. a) Explain first and second and third law of thermodynamics?
b) What do you mean by Heat Engine, Heat pump and Refrigerator? Give the expression of efficiency and COP.
8. a) Explain thermodynamic property of steam. What is the use of steam table?
b) Explain throttling calorimeter in detail.

Section B

9. a) What is psychometric chart? What is the information that can be extracted from this chart?
b) Explain DBT, WBT and DPT.
10. a) What is refrigeration? Explain simple vapor compression cycle.
b) What do you mean by human comfort? Explain the factors that affect human comfort.
11. a) Explain the working of Francis and Kaplan turbine.
b) Explain working principle of Pelton turbine.
12. a) Describe in detail centrifugal and reciprocating pump with their parts.
b) Explain specific speed of turbine.

Section C

13. a) Derive the expression for length and tension of open belt
b) Derive the expression for velocity ratio of open and closed belt drive by taking slip in consideration?
14. a) What do you mean by clutch? Explain the different types of clutches.
b) What do you mean by power transmission? What are the various methods of power transmission? Explain in detail.
15. a) Derive the relationship of elastic constants.
b) Explain various types of stress and strain with stress-strain diagram in detail.

Section D

16. Explain the working principle of CNC and NC with their parts.
17. What are the advantages of using these machines over conventional machines? Differentiate between open and closed loop CNCs.