



B.TECH DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Fourth Semester

FASHION TECHNOLOGY

MEC221: Basics of Mechanical Engineering

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which of the following is an extensive property?
 - a) Pressure
 - b) Volume
 - c) Specific volume
 - d) density
2. Wind energy is a
 - a) renewable energy
 - b) non renewable energy
 - c) both (a) and (b)
 - d) none of these
3. Why is the Nuclear reactor usage Predicted
 - a) To produce heat for thermoelectric power
 - b) To produce fissionable material
 - c) To propel ships, submarines, aircrafts
 - d) All of these
4. Hydro power plant uses
 - a) Water energy
 - b) Wind energy
 - c) Electric energy
 - d) Steam energy
5. Indicate the device used to increase the temperature of saturated steam without raising its Pressure, is called
 - a) blow off cock
 - b) fusible plug
 - c) super heater
 - d) stop valve
6. In 4 stroke engines, one power stroke is obtained for energy
 - a) One revolution of crank
 - b) Two revolution of crank
 - c) Three revolution of crank
 - d) Four revolution of crank

7. Pre heating is essential in welding of
 - a) High speed steel
 - b) German steel
 - c) Stainless steel
 - d) Cast iron
8. Rolling done below recrystallization temperature known as
 - a) Cold rolling
 - b) Hot rolling
 - c) Both (a) and (b)
 - d) None of these
9. The strength of balata belts is
 - a) 25% higher than that of rubber belts
 - b) 50% less than that of rubber belts
 - c) 75% less than that of rubber belts
 - d) Equal to that of rubber belts
10. Simple gear train contains _____ number of gears in one shaft
 - a) One
 - b) Two
 - c) Three
 - d) Four

PART B (10 x 2 = 20 Marks)

11. State Zeroth law of thermodynamics.
12. Define Quasi- static process.
13. Differentiate between solar and wind energy.
14. Differentiate between impulse turbine and reaction turbine.
15. Distinguish 4 stroke and 2 stroke engine.
16. Give the principle of vapour absorbing systems.
17. Distinguish Arc and Gas welding process
18. What are the different types of flames in arc welding?
19. Give the different types of gears
20. What is a gear train?

PART C (5 x 14 = 70 Marks)

21. a) Deduce the expression for the displacement work for the following processes.
 - (i) Isochoric process (5)
 - (ii) Isentropic process (5)
 - (iii) isobaric process (4)

OR

- b) Write short notes on the following.
 - (i) First law and second law of thermodynamics. (7)
 - (ii) Properties of steam, Dryness fraction, latent heat of wet steam. (7)

22. a) Explain the working principle of Steam Power Plant with a neat sketch.

(OR)

b) Explain the working principle of Nuclear Power Plant with a neat sketch.

23. a) Describe about Four stroke diesel engine with neat sketch.

(OR)

b) Discuss vapour compression refrigeration system with neat sketch.

24. a) Explain the equipment setup for Arc welding and process with a sketch.

(OR)

b) (i) Compare extrusion, drawing and rolling processes. (10)

(ii) State the operations of milling. (4)

25. a) (i) Compare and explain power transmission by belt drives. (8)

(ii) Explain power transmission by chain drives. (6)

(OR)

b) Compare and explain power transmission by simple and compound gear trains.
