

Register Number:.....

B.TECH., DEGREE EXAMINATIONS MAY/JUNE 2013

Fourth Semester

TEXTILE TECHNOLOGY (FASHION TECHNOLOGY)

MEC221: Basics of Mechanical Engineering

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10x1=10 Marks)

1. According to the first law of thermodynamics
 - (a) Work done by a system is equal to heat transferred by the system
 - (b) Total internal energy of the system during a process remains constant
 - (c) Internal energy, enthalpy and entropy during a process remains constant
 - (d) Total energy of the system remains constant
2. The value of $n=1$ in the polytropic process indicates it to be
 - (a) Reversible Process
 - (b) Isothermal Process
 - (c) Adiabatic Process
 - (d) Free Expansion Process
3. The Nuclear power plant at Tarapur has the following reactor
 - (a) Fast Breeder
 - (b) Pressurized Water
 - (c) Boiling Water
 - (d) Sodium graphite
4. Which instrument is used for measure the solar beam radiation?
 - (a) Pyrometer
 - (b) Pyranometer
 - (c) Ammeter
 - (d) Voltmeter
5. If the intake air temperature of IC Engine increases, its efficiency will
 - (a) Increases
 - (b) Decreases
 - (c) Remains same
 - (d) unpredictable
6. An important characteristic of absorption system of the refrigeration is
 - (a) Noisy operation
 - (b) Quiet operation
 - (c) Cooling below 0°C
 - (d) Its input only in the form of heating
7. Swaging is an operation of
 - (a) Hot rolling
 - (b) Forging
 - (c) Piercing
 - (d) Drawing
8. The arc length in electric arc welding is the distance between the tip of the electrode and the
 - (a) Work piece
 - (b) Centre of crater
 - (c) Bottom of crater
 - (d) Work piece top surface minus electrode diameter
9. The Transverse section of a helical gear is identical to
 - (a) Bevel gear
 - (b) Spur gear
 - (c) Worm gear
 - (d) Rack & Pinion

10. In a V- belt drive, the belt makes contact at
- (a) Bottom of the pulley (b) Sides of the groove of pulley
(c) Sides of the groove and bottom of the pulley (d) could make contact anywhere

PART B (10 x 2 = 20 Marks)

11. State the First Law of Thermodynamics.
12. What is meant by Polytropic process?
13. Define Reaction turbine.
14. What is meant by OTEC?
15. List out any five components of IC Engines.
16. Differentiate between absolute and relative humidity.
17. Distinguish between Soldering and Brazing.
18. List out the various types of milling process and its applications.
19. What are the types of drives?
20. What is meant by gear trains?

PART C (5x14=70 Marks)

21. a) (i) What is meant by Steady flow energy equation ? Explain it briefly. (10)
(ii) Demonstrate the second law of thermodynamics with suitable example. (4)
- (OR)
- b) Describe about throttling and free expansion process.
22. a) Explain the Velocity - Compounding of the Impulse Turbine.
(OR)
b) Explain briefly about OTEC.
23. a) (i) Describe briefly about the Four stroke petrol engine . (10)
(ii) Distinguish between petrol and diesel engine. (4)
- (OR)
- b) Explain the principle of Vapour absorbing system.

24. a) What is meant by arc welding and explain its principle, types, applications.

(OR)

b) (i) Briefly explain about milling and its types. (12)

(ii) Discuss the drawing process with help of suitable sketch. (2)

25. a) Describe briefly with neat sketch about Belt drive and chain drive.

(OR)

b) Explain about Simple gear train and compound gear train.
