KUMARAGURU
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Register Number: ………….

B.TECH DEGREE EXAMINATIONS: MAY 2015

(Regulation 2013)

Fourth Semester

FASHION TECHNOLOGY

U13MET407: 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 not correct statement of the second law of thermodynamics?

a)	It is impossible to construct an engine working on a cyclic process, whose sole purpose is to convert heat energy into work.	b)	It is impossible to transfer heat from a body at a lower temperature to a higher temperature, without the aid of an external source.
c)	There is a definite amount of mechanical energy, which can be obtained from a given quantity of heat energy.	d)	All Heat energy will be converted into work

2.   If the dryness fraction of the steam is 1 then steam is called as _____steam

3.   The long tube that carries water from the dam to the turbine in hydel power plant is called

a)	Spillway	b)	Draft tube
c)	Control gates	d)	Penstock

4.   Steam power plants use _____ to generate steam.

5.   In internal combustion engine the essential four operations are carried out in the following sequence.

a)	Suction, exhaust, power and compression	b)	Suction, power, exhaust and compression
c)	Suction, compression, power and exhaust	d)	Suction, compression, exhaust and power

6. Coefficient of performance of a refrigerator is the ratio of _____ to _____.

7. Which of the following types of flames has a supply of excess of acetylene as compared to oxygen?

    a) Oxidizing flame   b) Neutral flame

    c) Carburizing flame   d) Natural flame

8. In milling machine, the work piece is _____and tool _____.

9. In which of the following drives, there is no slip

    a) Open belt drive   b) Rope drive

    c) Crossed belt drive   d) Chain drive

10. _____ is the used for connecting two coplanar and intersecting shafts

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. State the first law of thermodynamics.

12. Distinguish between open and closed system.

13. What is the difference between impulse turbine and the reaction turbine?

14. Distinguish between conventional and non -conventional sources of energy.

15. List the advantages of diesel engine over the petrol engine.

16. Why air conditioning is important for textile industries?

17. What do you mean by forging?

18. List the any four types of milling operation.

19. What are the advantages of the gear drive as compared to belt, rope and chain drives?

20. Name few applications of worm gears in textile machines.

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21.   Describe with the aid of a neat sketch the working of a wind Power Plant.

22. a)   Derive the steady flow energy equation.

(OR)

    b)   Explain the working of different circuits of a thermal power plant with the aid of a schematic layout.

23. a) Explain the working of a 4-stroke cycle diesel engine with neat sketches.

(OR)

b) Explain about the Vapour compression refrigeration system with a neat sketch.

24. a) Explain about arc welding and equipments used in detail.

(OR)

b) Describe different types of rolling mills with neat sketches.

25. a) Outline the advantages and disadvantages of V-belt drive over flat belt drive.

(OR)

b) (i) List the types of gear trains (2)

(ii) Illustrate simple and compound gear trains with neat sketches. (12)

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