10112

Reg. No.:_____ Name: _____

FIRST SEMESTER B.TECH DEGREE EXAMINATION, JANUARY 2018

Course Code: BE101-02

Course Name: INTRODUCTION TO MECHANICAL ENGINEERING SCIENCES

Max. Marks: 100 Duration: 3 Hours

PART A

Answer ALL questions. Each question carries 3 marks

1. Distinguish between the terms 'entropy' and 'enthalpy'.
2. List out different applications any one of turbo machines.
3. When you purchase an air conditioning unit, one of its specifications is given in TR. What does this mean?
4. Give any 3 different classifications of automobiles.
5. Apply Grashof's law to any 4-bar mechanism.
6. Define the term mechanical advantage.
7. Mention any 3 applications of composites.
8. Name any three alloys and give their applications.

PART B

Answer any 2 complete questions from each module.

MODULE 1 *(6x2 = 12 Marks)*

9. A) What is irreversibility? What causes it?
   B) State Clausius inequality and its significance
10. State Kelvin Plank and Clausius statements of second law of thermodynamics and give their physical significance.
11. List any three renewable power sources and compare their advantages and disadvantages

MODULE 2 *(6x2 = 12 Marks)*

12. With help of a neat sketch explain working of a four stroke diesel engine.
13. A) Write 3 significant events in the history of development of modern steam turbine.
    B) List the applications of gas turbines
14. Differentiate between impulse and reaction turbines

MODULE 3 *(6x2 = 12 Marks)*

15. Give 6 different applications of refrigeration.
16. What are the different psychrometric operations in an air conditioning system?
17. With help of a diagram explain working of an All-water air conditioning system

MODULE 4 *(6x2 = 12 Marks)*

18. Write a short note of current scenario of Indian automobile sector.
19. What are the major components of an automobile? Give special emphasis to their function.
20. Give the different types of air craft engines and their applications

MODULE 5 *(7x2 = 14Marks)*

21. Distinguish between planer, spherical and spatial mechanisms with help of suitable examples.
22. Explain 6 different kinds of kinematic pairs giving examples to each one of them.
23. Give an account of different types of loads considered during design of a machine element.

MODULE 6 *(7x2 = 14Marks)*

24. Discuss about any three different types of manufacturing methods that are practiced nowadays.
25. With help of block diagram explain the philosophy of Computer Integrated Manufacturing
26. What do you understand by lean production and agile manufacturing?