G 599

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

First and Second Semesters

EN 010 107—BASIC MECHANICAL ENGINEERING

(New Scheme—2010 Admission onwards—Regular/Improvement/Supplementary)

[Common for all branches]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. Define the terms (i) State ; (ii) Property ; and (iii) Cycle.
2. What is Phychrometry ?
3. Name different methods of Power Transmission.
4. Define the term slip of a reciprocating pump.
5. Name different types of patterns used in moulding.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. State and explain First Law of Thermodynamics.
7. What are the desired properties of an ideal refrigerant ?
8. List the advantages and disadvantages of flat belt drives.
9. What is priming ? Why is it necessary ?
10. State the advantages of gas welding.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each question carries 12 *marks.*

11. State the Kelvin Plank's statement and Clausius statement of second law of thermodynamics and prove its equivalence.

Or

12. Derive an expression for the air-standard efficiency of Otto cycle.

Turn over

13. Compare and contrast four stroke cycle engines with two stroke cycle engines.

Or

14. Explain the working of a vapour absorption refrigerator with a suitable sketch.

15. Derive the expression for calculating the length of belt for a cross-belt drive.

Or

16. Draw the arrangement of a compound gear train. What are its advantages compared to simple gear train ? Obtain the equation for its velocity ratio.

17. Sketch schematically the arrangement of a diesel power plant for electric power generation and explain the functions of its main components.

Or

18. Sketch and explain the working of a low head reaction turbine.

19. Sketch a milling machine and indicate the important components in it.

Or

20. Describe with a sketch the principle of gas welding process. Draw the three types of gas flames, stating their applications.

(5 × 12 = 60 marks)