



Reg. No. :

Name :

**Combined First and Second Semester B.Tech. Degree
Examination, April 2015
(2008 Scheme)
08-107 : BASIC MECHANICAL ENGINEERING
(CMNPHTARUFBS)**

Time : 3 Hours

Max. Marks : 100

Instruction : Answer *all* questions from Part **A** and *two* questions from *each* Module of Part **B**.

PART – A

1. State and explain second law of thermodynamics.
2. Briefly explain the working of an impulse steam turbine.
3. What are the important properties needed for refrigerant ? Name any two refrigerant.
4. Explain fluidized bed combustion.
5. What are the methods for governing IC engines ?
6. Explain GDI system.
7. Explain the terms slip and velocity ratio with respect to belt drive.
8. Differentiate between soldering and brazing.
9. What is the working principle of ECM.
10. What are the various methods of taper turning ?



(4×10=40 Marks)

PART – B

Module – I

11. In an otto cycle, condition of air is 27°C and 1 bar at the start of compression. If the clearance volume is 20% of the swept volume, estimate :
 - i) Temperature at the end of compression
 - ii) Air standard efficiency of the cycle.

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12. Explain Benson boiler, with suitable sketches.
13. With the help of neat sketch (including P-V and T-S diagram) explain the working of four stroke diesel engine. **(2×10=20 Marks)**

Module – II

14. With the help of a suitable sketch, explain the working of a centrifugal pump.
15. Explain the working of a nuclear power plant. What are its practical challenges ?
16. With the help of flow and p-h diagrams, explain the working of a vapour compression refrigeration system. **(2×10=20 Marks)**

Module – III

17. Explain the concept and working of a CNC machine.
18. With suitable sketch, explain single plate clutch.
19. Describe the following machining operations : **(2×10=20 Marks)**
- 1) Drilling
 - 2) Grinding.

