Note: Answer any FIVE full questions, choosing one full question from each module.

Module-1

- With a neat sketch briefly explain the Hydro-electric power plant. 1 a. (08 Marks)
 - Write the difference between Renewable & Non Renewable energy resources. (08 Marks) b.

OR

- Briefly explain the construction & working of Lancashire Boiler with a neat sketch. 2 a.
 - (08 Marks) Define: i) Wet Steam; ii) Enthalpy of wet steam; iii) Dryness fraction. (08 Marks) b.

Module-2

Explain the De Laval's Turbine and Parson's Turbine with a neat sketch. a. (08 Marks) With a neat sketch explain the working principle of Pelton wheel turbine. b. (08 Marks)

OR

With a neat sketch Briefly explain the 4 stroke Diesel engine. (08 Marks) a. The following observations were obtained during a trial on a 4 stroke diesel engine. Cylinder b. diameter =25 cm, stroke of the piston = 40 cm, crankshaft speed = 250 rpm, Brake load = 70 kg, brake drum diameter = 2m, Mean Effective pressure = 6 bar, Diesel oil consumption = $0.1 \text{ m}^3/\text{ min}$, Specific gravity of diesel = 0.78, Calorific value of diesel = 43,900 kJ/kg. Find Break Power, Indicated Power, Friction Power, Mechanical Efficiency, Break Thermal Efficiency, and Indicated Thermal Efficiency. (08 Marks)

Module-3

- Briefly Explain the following machining processes on a lathe with the help of neat sketches: a. i) Knurling ii) Facing iii) Drilling. (08 Marks)
 - b. Explain with a neat sketch the taper turning by swivelling compound rest method and also the countersinking process in a lathe. (08 Marks)

OR

- Briefly explain the different types of Automation. a. (08 Marks) b.
 - Sketch the polar and Cartesian coordination of Robotic Configuration. (08 Marks)

Module-4

Write a note on Ferrous Alloys.(Any Two) a. (08 Marks) b. Briefly explain the types and applications of Non-ferrous alloys.(Any three) (08 Marks)

OR

- With a neat sketch briefly explain the Oxy-acetylene Welding method. (08 Marks) a. With a neat sketch briefly explain the Soldering Method. (08 Marks) b.
 - 1 of 2

First/Second Semester B.E. Degree(CBCS)Examination

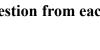
Elements of Mechanical Engineering

USN

Time: 3 hrs.

15EME14/24

Max. Marks: 80



15EME14/24

Module-5

9 a. Briefly explain the construction & working of Vapor Compression Refrigeration. (08 Marks)
b. Differentiate between Vapour Absorption and Vapour Compression Refrigeration.

(08 Marks)

OR

10a.What is air-conditioning? How is it achieved in a domestic air conditioner?(08 Marks)b.Explain the properties of good refrigerant.(08 Marks)

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