

PSG POLYTECHNIC COLLEGE, COIMBATORE - 641 004

E12301 BASICS OF MECHANICAL ENGINEERING

MODEL QUESTION PAPER

Time: 3 Hours

Max. Marks: 100

Instructions:

1. **Group A** and **Group B** questions should be answered in the Main Answer book.
2. Answer any **TEN** questions in **Group A**. Each question carries three marks.
3. Answer **ALL** questions either **(a)** subdivision or **(b)** subdivision in **Group B**. Each question carries 14 marks.

Group – A

Marks: 10 x 3 = 30

1. State any four advantages of flat belt drive.
2. Mention the properties of lubricants.
3. State the purpose of lubrication.
4. Classify the boilers
5. Mention any four differences between petrol and diesel engines.
6. State any four advantages of diesel power plant.
7. Describe: Relative Humidity
8. Compare central air conditioning with window air conditioning.
9. Mention the types of refrigerants commonly used.
10. List the non conventional energy sources.
11. State any four advantages of thermal power plant
12. Mention the advantages of solar power plant
13. State the uses of compressed air in engineering field.
14. Discuss the advantages of submersible pump.
15. Describe the basic elements of hydraulic system.

Group– B

Marks: 5 x 14 = 70

16. a) Explain the types of belt drives with neat sketches.
(OR)
b) i] Compare spherical roller and taper roller bearings. (4)
ii] Explain the types of lubricants with their properties. (10)
17. a) i] Classify Turbines. (4)
ii] Compare water tube boiler with fire tube boiler. (10)
(OR)
b) Explain with a neat sketch, working principle of two stroke petrol engine.
18. a) Describe with neat sketch the working principle of vapour absorption system.
(OR)

- b) Explain with a neat sketch working of a central air conditioning plant.
19. a) Draw the schematic layout of thermal power plant and explain.

(OR)

- b) Explain with the neat sketch the working principle of tidal power plant.

20. a) Describe the working principle of airlift pump.

(OR)

- b) Explain with the neat sketch the working principle of single stage reciprocating air compressor.

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Note :

- i) Group A should have three questions from each unit.
- ii) Group B should have two questions, subdivision (a) and subdivision (b) from each unit.
- iii) In Group B, subdivision (a) / (b) may have two sections. Section [i] carries 5 marks and Section [ii] carries 6 marks.