GALAMMAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(An ISO 9001:2008 Certified Institution)
SIRUGANOOR, TIRUCHIRAPPALLI – 621 105

Department of Mechanical Engineering

FS 81504

I Year II Semester

UNIT III – POWER PLANT ENGINEERING, PUMPS AND TURBINES

PART - A

1. Define power plant.
2. What is meant by Priming?
3. What are the different types of power plants?
4. State the function of the condenser in the steam power plant.
5. What is the function of moderator in nuclear power plant?
6. What are the materials used as a moderator in a nuclear power plant?
7. What are the fuels used in a nuclear power plant?
8. List out the factors to be considered for the selection of site for the hydro-electric power plant.
9. State the reason why the steam power plant is preferred than the other plants.
10. What is a cooling tower?
11. What is the function of a penstock?
12. What is meant by nuclear fission?
13. What is the function of a intercooler in gas turbine power plant?
14. Name the different components used in a gas turbine power plant.
15. What is radiation shielding?
16. What are the different types of hydro power plants?
17. State the demerits of steam power plant.
18. List out the applications of gas turbine power plant.
19. Name the locations where nuclear power plants were installed in India.
20. Define steam turbine.
21. List out the main parts of a steam turbine.
22. How steam turbines are classified.
23. Differentiate between impulse and reaction turbine.
24. Relative velocity of a steam increases in a reaction turbine – Justify.

PART - B

1. Draw the layout of the steam power plant and explain.
2. Sketch the diesel power plant and explain its working principle, also state its merits and demerits.
3. Draw the general arrangement of a nuclear power plant and explain its working. List out its merits and demerits.
4. Explain how energy conversion is taking place in a solar power plant, with a line sketch.
5. Draw the layout of a wind mill and state its advantages and disadvantages.
6. Give the schematic layout of a hydro electric power plant and explain the function of its each component.
7. What is the principle of a tidal power generation? Also explain the low tide and high tide systems.
8. Define a centrifugal pump; explain the working of a single stage pump with a sketch.
9. Explain the construction and working principle of a reciprocating pump with neat sketch. Also state its applications.
10. With pressure velocity diagram explain the working of a single stage impulse turbine.
11. With pressure velocity diagram explain the working of a reaction turbine.
12. Differentiate between impulse and reaction turbine.
13. With a neat sketch, briefly explain about Lamont Boiler.
14. Explain the construction and working principle of Cochran Boiler.
15. Name the important boiler mountings and briefly explain their functions.
16. Name some of the boiler accessories, and explain their functions with sketches.

UNIT IV IC ENGINES

PART-A

1. What is an engine?
2. What are the different types of heat engine?
3. What is meant by SI Engine?
4. What is meant by CI Engine?
5. List out the main components of a SI Engine.
6. What is a four stroke cycle engine?
7. What is the function of a carburetor?
8. What is the fundamental difference between two stroke and four stroke engine?
9. Why fuel is injected in a CI Engine?
10. Mention the different types of ignition systems used in SI engine.
11. What is the function of a choke, in a petrol engine?
12. What is the function of a spark plug, in a petrol engine?
13. What is the function of a fuel pump in a diesel engine?
14. List out the merits of Diesel power plant
15. Why choke is used in Petrol engine?
16. What is the use of Fusible Plug in Boiler?
17. Define fuel injector.
18. What are the different types of cooling system used in IC engines?
19. Define lubrication.
20. Mention some engine parts that require lubrication.
21. What are the different types of lubrication systems in IC Engines?
22. How boilers are classified?
23. List the advantages of high pressure boilers.
24. How modern boilers differ from olden day boilers.
25. What is the function of an economiser?
26. List out the boiler mountings.
27. What is the difference between boiler mountings and accessories?
28. What is the function of a super heater?
29. What is the function of an air pre-heater?
30. Give few examples for water tube boiler.

31. Give few examples for fire tube boiler.

PART - B

1. With neat sketch, explain the major parts of an IC Engine.
2. Explain the working principle of four stroke petrol engine with neat sketches.
3. With neat sketches, explain the working principle of two stroke petrol engines.
5. Explain the working principle of a four stroke Diesel engine with neat sketch.
6. With line diagram, explain the working principle of two stroke diesel engine.
7. Discuss the advantages and disadvantages of a CI engines over SI Engines.
8. Compare two stroke and four stroke engines.
9. Compare air cooling and water cooling system used in IC engines.
10. Explain briefly about knocking and detonation.
11. With a neat sketch briefly explain about fuel injector.

UNIT V REFRIGERATION AND AIR CONDITIONING SYSTEM

PART A

1. Define Refrigeration.
2. What is a refrigerator?
3. Define Refrigerant.
4. Give some examples for refrigerant.
5. Define COP
6. List out the properties of a good refrigerant.
7. State the function of a compressor in refrigeration system.
8. Give the applications of refrigeration.
9. Define air conditioning.
10. Define Relative humidity.
11. Define DBT.
12. Define WBT.
13. List out the types of air conditioning.
14. Define Dew point temperature.
15. Define Psychrometry.
16. Define relative humidity.
17. Differentiate between humidification and dehumidification.
18. What is the function of a capillary tube?
19. Differentiate between window air conditioner and package type air conditioner.
20. Draw the layout of a domestic refrigerator.

PART B

1. With a neat sketch explain the layout of a window air conditioning.
2. Draw the layout of a vapor compression refrigeration system, and explain the working principle of it.
3. With a simple circuit diagram, explain the working principle of the vapor absorption refrigeration system.
4. Mention and describe the different types of refrigerants used.
5. With a neat diagram, briefly explain about the split type room air Conditioner.

6. Draw the layout of multi split air conditioner, and explain the working principle of it.

7. Write down the definitions of the following:

(a) DBT (b) WBT (c) Relative Humidity (d) Dew point temperature (e) humidity (f) Psychrometry (g) COP