SHRI ANGALAMMAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(An ISO 9001:2000 Certified Institution)
SIRUGANOOR, TIRUCHIRAPPALLI – 621 105

FS81504

DEPARTMENT OF MECHANICAL ENGINEERING

BASIC CIVIL & MECHANICAL ENGINEERING

UNIT--- III- Power Plant Engineering, Pumps and Turbines.

PART – A

1. Define power plant.
2. What are the different types of power plants?
3. State the function of the condenser in the steam power plant.
4. What is the function of moderator in nuclear power plant?
5. What are the materials used as a moderator in a nuclear power plant?
6. What are the fuels used in a nuclear power plant.
7. List out the factors to be considered for the selection of site for the hydro electric power plant.
8. State the reason why the steam power plant is preferred than the other plants.
9. What is a cooling tower?
10. What is the function of a penstock?
11. What is meant by nuclear fission?
12. What is the function of a intercooler in gas turbine power plant?
13. Name the different components used in a gas turbine power plant.
14. What is radiation shielding.
15. What are the different types of hydro power plants?
16. State the demerits of steam power plant.
17. List out the applications of gas turbine power plant.
18. Name the locations where nuclear power plants were installed in India.
19. Define steam turbine.
20 List out the main parts of a steam turbine.
21 How steam turbines are classified.
22. Differentiate between impulse and reaction turbine.
23. 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. Describe Pelton wheel turbine with neat diagram.
14. Describe Francis turbine with neat diagram.
15. Describe Kaplan turbine with neat diagram.
16. Explain single and double acting reciprocating pump.
17. What are the main differences between Pump and Turbines ? Explain any one pump.
18. Draw the layout of Gas turbine power plant and define the principles of working?
19. Describe Solar power plant with suitable layout ?
20. Describe Solar Thermal power plant using Solar Collectors?

UNIT--- IV- INTERNAL COMBUSTION 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. Define fuel injector.
15. What are the different types of cooling system used in IC engines.
16. Define lubrication.
17. Mention some engine parts, that require lubrication.
18. What are the different types of lubrication systems in IC Engines.
19. How boilers are classified.
20. List the advantages of high pressure boilers.
21. How modern boilers differ from olden day boilers.
22. What is the function of an economiser.
23. List out the boiler mountings.
24. What is the difference between boiler mountings and accessories.
25. What is the function of a super heater.
26. What is the function of a air pre-heater.
27. Give few examples for water tube boiler.
28. Give few examples for fire tube boiler.

PART – B

1. **Differentiate two stroke engines and four stroke engines.**
2. **State the merits and demerits of two stroke engine.**
3. **Compare the salient features of petrol engine and diesel engine.**
4. **With a neat sketch explain the construction & working principle of four stroke diesel engine.**
5. **Explain about Cochran boiler with a neat sketch. Give the functions of each parts.**
6. **Explain briefly about the function of various main components in I.C Engines with a neat sketch.**
7. **With a neat sketch, briefly explain about Lamont Boiler**
8. **Explain the construction and working principle of Cochran Boiler.**
9. **Name the important boiler mountings and briefly explain their functions.**
10. **Explain Lubrication system?**
11. **Explain Mist lubrication system?**

12. **Explain Wet lubrication system?**
13. **What is a cooling system ? Explain with any one type.**
14. **Explain Air cooling with neat diagram.**
15. **Explain Water cooling with neat diagram.**
16. **What is Ignition system? Explain any one type?**
17. **Explain the working principle of Coil Ignition system?**
18. **Explain the working principle of a Magneto Ignition system ?**
19. **Explain the working principle of a Fuel Injector?**
20. **Explain the working principle of a Fuel Injection pump ?**
21. **Explain the working principle of a Single Jet Carburettor?**
22. **Describe the Spark plug about its construction with neat diagram ?**
23. **Describe Water circulation system with diagram?**

UNIT--- V- AIR CONDITIONING & REFRIGERATION

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 a 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. **Draw a neat layout of a domestic refrigerator. Describe the components and the working principle.**
2. **What is the principle of vapour absorbtion refrigerator with a suitable sketch.**
3. **Compare (1) VCR and VAR system (2) Window room air conditioner and split type air conditioner.**
4. **Explain the working principle of a window room air conditioner with a neat sketch.**
5. **Discuss the working principle of a split type air conditioner with a neat sketch.**
6. **Explain the working principle of vapour compression refrigeration system with a neat sketch. How it differs from vapour absorption system?**
7. **What are all the basic terms used in Refrigeration ?**
8. **What are all the purposes of Refrigeration?**
9. **What are all the applications of Refrigeration?**
10. **What are all the components of Refrigeration cycle?**
11. **What are the types of Refrigeration system ? Explain any one.**
12. **What are the main types of Refrigerants ? Explain any one.**
13. **Describe Domestic Refrigerator ?**
14. **What is Air conditioning ? Write down the applications.**
15. **What is Air conditioner ? Explain any one.**
16. **Describe AC – Control Panel ?**
17. **Write the Comparison of Vapour Absorption and Vapour Compression Refrigeration system.**
18. **What are all the desirable properties of an Ideal Refrigerant?**
19. **What are all the components of Refrigeration system?**
20. **Define the terms (1) Air conditioning (2) Air conditioner (3) Refrigeration cycle (4) Refrigeration system (5) AC-Control panel.**