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**Question Paper Code: 45705**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fifth Semester

Mechanical Engineering

14UME505 - POWER PLANT TECHNOLOGY

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Which of the following generating stations has the minimum running cost
  - hydroelectric
  - nuclear power
  - thermal power
  - diesel power
- Identify the non-renewable energy resource from the following
  - Coal
  - Fuel cells
  - Wind power
  - Wave power
- Compounding of steam turbine is done for
  - reducing the work done
  - increasing the rotor speed
  - reducing the rotor speed
  - balancing the turbine
- \_\_\_\_\_ has maximum effect on cooling tower performance.
  - Drift
  - Louvers
  - Fill media
  - Casing
- Half-life of radioactive isotope is the time required for half of the \_\_\_\_\_ to decay.
  - electrons
  - protons
  - atom
  - nucleus
- In a hydro-electric plant a conduct system for taking water from the intake works to the turbine is known as
  - Dam
  - Reservoir
  - Penstock
  - Surge tank

7. Gas turbine is widely used in
- (a) Pumping stations (b) Aircraft  
(c) Locomotives (d) Automobiles
8. A diesel power plant operates on
- (a) Carnot cycle (b) Otto cycle (c) Diesel cycle (d) Brayton cycle
9. \_\_\_\_\_ is the main factor to form tides in the sea.
- (a) Sun (b) Moon (c) Star (d) None of these
10. Efficiency of the solar panel decreases with
- (a) decrease in temperature (b) increase in temperature  
(c) decreases with pressure (d) none of these

PART - B (5 x 2 = 10 Marks)

11. What do you understand by load duration curves?
12. What is a pulveriser and why it is used?
13. List the factors to be considered in selecting turbines.
14. What is intercooling and why it is done?
15. What is OTEC?

PART - C (5 x 16 = 80 Marks)

16. (a) Draw the layout of a steam power plant and explain its principle of working. (16)

Or

- ((b) Explain the working principle of Fluidized Bed Boiler with a neat sketch. (16)

17. (a) With neat sketch explain the various steps involved in coal handling system on a steam power plant. (16)

Or

- (b) List the different types of coal-pulverizing mills. Enumerate its significance. Describe ball mill with a sketch. (16)

18. (a) Draw and explain the construction and working principle of Pressurized Water Reactor. (16)

Or

- (b) (i) Explain the operation of an electronic precipitator with a neat sketch. (8)
  - (ii) Explain the Evaporative Condenser with a neat diagram. (8)
19. (a) Demonstrate with a layout structure of the diesel power plant. Discuss its advantages and disadvantages over gas turbine power plant. (16)

Or

- (b) Explain the constructional details and operation of a gas turbine power plant. List the advantages and limitations of open and closed cycle gas turbine power plant. (16)
20. (a) (i) Explain the power generation from geothermal energy. (8)
- (ii) Explain the construction and working principle of Tidal power plants. (8)

Or

- (b) Enumerate the construction of a solar central receiver system. Explain the function and its types. (16)
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