Reg. No. : | | | | | | | | | | |

Question Paper Code: 41755

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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)

1. Which of the following generating stations has the minimum running cost

   (a) hydroelectric (b) nuclear power
   (c) thermal power (d) diesel power

2. Identify the non-renewable energy resource from the following

   (a) Coal (b) Fuel cells
   (c) Wind power (d) Wave power

3. In a steam turbine cycle, the lowest pressure occurs in

   (a) Turbine in let (b) Boiler
   (c) Condenser (d) Super heater

4. _____ has maximum effect on cooling tower performance.

   (a) Drift (b) Louvers (c) Fill media (d) Casing

5. Half-life of radioactive isotope is the time required for half of the _____ to decay.

   (a) electrons (b) protons (c) atom (d) nucleus

6. In a hydro-electric plant a conduct system for taking water from the intake works to the turbine is known as

   (a) Dam (b) Reservoir (c) Penstock (d) Surge tank

7. The property of ignition lag is measured in terms of

(a) Octane number (b) Cetane number
(c) Calorific Value (d) None of these

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. A high tide occur

(a) on every new moon day (b) on every full moon day
(c) both on new moon and full moon day (d) any time

PART - B (5 x 2 = 10 Marks)

11. Define load curve.

12. What is a pulversier and why it is used?

13. Indicate the purpose of control rod in a nuclear power plant.

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) Classify hydraulic turbines. Discuss any two types suitable for hydro-electric power generation. (16)

19. (a) How do you select engine for a diesel power plant ? Draw a diesel power plant and explain its major components. (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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