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Question Paper Code: 41334

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Third Semester

Electrical and Electronics Engineering

14UEE304 - POWER PLANT ENGINEERING

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- The commercial sources of energy are
 - solar, wind and bio- mass
 - fossil fuels, hydropower and nuclear energy
 - wood, animal wastes and agriculture wastes
 - none of these
- Ash content in lignite
 - 30-45%
 - 90%
 - 6-12%
 - below 8%
- The overall efficiency of the steam power plant is equal to
 - Rrankine cycle efficiency
 - Carnot cycle efficiency
 - Regenerative cycle efficiency
 - Boiler efficiency x turbine efficiency x generator efficiency
- Turbine converts the
 - Kinetic to Mechanical Energy
 - Mechanical to Electrical Energy
 - Mechanical to Thermal Energy
 - Thermal to Electrical

5. India's first nuclear power plant was installed at
(a) Tarapur (b) Kota (c) Kalpakkam (d) None of these
6. The control rod in the nuclear reactor is made up of
(a) Graphite (b) Beryllium (c) Cadmium (d) Lignite
7. Solar thermal power generation can be achieved by
(a) using focusing collector or heliostates (b) using flat plate collectors
(c) using a solar pond (d) any of the above system
8. The main purpose of wind vane is
(a) to control the speed (b) to focus blades towards wind
(c) to measure wind speed (d) to stop the blade rotation
9. In a thermal power station which of the following is not a fixed cost?
(a) Insurance changes (b) Salary of high officials
(c) Interest on capital cost of land buildings (d) Fuel and lubricating oil cost
10. The high level nuclear waste has radioactivity
(a) Above 1000 curie (b) Lies 100 to 1000 curie
(c) Below 100 curie (d) Zero

PART - B (5 x 2 = 10 Marks)

11. List out the four important circuits of steam power plant.
12. List the advantages of combined cycle.
13. Distinguish between fission and fusion.
14. Why is surge tank important in hydro power plant?
15. Define flat rate tariff.

PART - C (5 x 16 = 80 Marks)

16. (a) Draw general layout of thermal power plant and explain the working of different circuits. (16)

Or

- (b) (i) Explain the forced and induced draught system. (10)
- (ii) List the advantages of high pressure boiler. (6)
17. (a) Name the essential components of diesel power plant and explain its operation with neat diagram. (16)
- Or
- (b) Discuss the working of various types of combined cycle power plant. (16)
18. (a) Explain the main parts of nuclear reactor in brief. (16)
- Or
- (b) Discuss the working of boiling water reactor and list the advantages and disadvantages. (16)
19. (a) (i) Draw a schematic diagram of a Hydro power plant and explain its operation. (10)
- (ii) Write the merits and demerits of hydro power plant. (6)
- Or
- (b) (i) Explain the construction and operation of horizontal type wind power plant. (8)
- (ii) Describe the method of biogas production and its advantages. (8)
- 20.(a) (i) Discuss how the solid nuclear waste materials are disposed safely. (8)
- (ii) Summarize the site selection criteria for thermal and nuclear power plant. (8)
- Or
- (b) Explain different methods implemented for nuclear waste disposal with a necessary sketch. (16)
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