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Question Paper Code: 41334

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

1. Economiser is used to heat the
 - (a) air
 - (b) feed water
 - (c) flue gases
 - (d) steam
2. Ash content in lignite
 - (a) 30-45%
 - (b) 90%
 - (c) 6-12%
 - (d) below 8%
3. A gas turbine works on
 - (a) Otto cycle
 - (b) Rankine cycle
 - (c) Brayton cycle
 - (d) Dual cycle
4. Turbine converts the
 - (a) Kinetic to Mechanical Energy
 - (b) Mechanical to Electrical Energy
 - (c) Mechanical to Thermal Energy
 - (d) Thermal to Electrical
5. India's first atomic power plant located in
 - (a) Kalpakkam
 - (b) Kudankulam
 - (c) Narora
 - (d) Tarapur

6. The control rod in the nuclear reactor is made up of
 (a) Graphite (b) Beryllium (c) Cadmium (d) Lignite
7. The solar photovoltaic panel works with
 (a) the light energy from sun (b) the heat energy from the sun
 (c) both (a) and (b) (d) none of these
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. The rate of the energy is depend on
 (a) load factor (b) total energy consumed
 (c) demand factor (d) both (a) and (b)
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. What is the necessity of air preheater in thermal power plant?
12. List the advantages of combined cycle.
13. What is meant by nuclear fission?
14. Why is surge tank important in hydro power plant?
15. What are the costs includes under operating cost?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Explain with the general layout of modern coal based thermal power plant in detail. (12)
- (ii) What is the function of pulverizer and condenser in steam power plant? (4)

Or

- (b) (i) Explain the forced and induced draught system. (12)
- (ii) List the advantages of high pressure boiler. (4)
17. (a) Name the essential components of diesel power plant and explain its operation with neat diagram. (16)
- Or
- (b) (i) Explain gasifier and its operation. (8)
- (ii) Illustrate the operation of gas turbine power plant briefly. (8)
18. (a) (i) Discuss the safety measures to be adopted for nuclear power plant. (8)
- (ii) Name the parts of pressurized water reactor and explain its working with neat diagram. (8)
- Or
- (b) Discuss the working of boiling water reactor and list the advantages and disadvantages. (16)
19. (a) Demonstrate the construction of hydro power plant with neat sketch and list the advantages and disadvantages. (16)
- 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) List the types of power tariffs and explain the types in detail. (16)
- Or
- (b) (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)
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