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Question Paper Code: 43304

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2021

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 the above
- In jet type condensers
 - cooling water passes through tubes and steam surrounds them
 - steam passes through tubes and cooling water surrounds them
 - steam and cooling water mix
 - steam and cooling water do not mix
- Mechanical efficiency of a diesel engine is defined as
 - I.H.P/B.H.P
 - B.H.P/I.H.P
 - B.H.P x I.H.P
 - none of the above
- The temperature of the combustion gas at the gas turbine inlet is about
 - 900⁰C
 - 1200⁰ C
 - 715⁰C
 - none of the above
- Control rods used in nuclear reactor are made up of
 - Steel
 - cadmium
 - copper
 - None of the above

6. India's first nuclear power plant was installed at
 (a) Tarapur (b) Kota (c) Kalpakkam (d) None of the above
7. Solar cells are made of
 (a) Copper (b) Aluminum (c) Silicon (d) None of the above
8. Power co-efficient (k) for wind power is given by
 (a) $K = P_1/P_2$ (b) $K = P_2/P_1$ (c) $K = P_1 \times P_2$ (d) None of the above
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. Define air standard efficiency of diesel cycle.
13. Distinguish between fission and fusion.
14. Write any four advantages of hydro power.
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) Draw neat diagram of Lamont boiler and explain its working. (16)

17. (a) Sketch the diesel cycle on p-V and T-s diagrams and derive the expression for its mean effective pressure. (16)

Or

- (b) Discuss the working of combined cycle power plant in detail with neat sketch. (16)
18. (a) What are the different components of a nuclear power plant? Explain the working of a nuclear power plant. What are the different fuels used in such a power plant? (16)

Or

- (b) Describe the site selection and commissioning procedure of Nuclear Power plants in our country. (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) What is wind mill? What are various types of wind mill? Describe a horizontal axis and vertical axis wind mill. (16)
20. (a) Discuss the various power tariff types. Also list out its merits and demerits each tariff. (16)

Or

- (b) Explain different methods implemented for nuclear waste disposal with a necessary sketch. (16)
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