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Question Paper Code:53304

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Electrical and Electronics Engineering

15UEE304 - POWER SYSTEM GENERATION

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer all questions

PART A - (10 x 1 = 10 Marks)

1. In a regenerative cycle, feed water is heated by CO1- R
 - (a) heaters
 - (b) drained steam from turbine
 - (c) exhaust gases
 - (d) All of the above
2. The major use of the Economiser is _____ CO1- R
 - (a) Heat up the incoming water with exhaust steam
 - (b) Heat up the pulverised fuel by exhaust steam
 - (c) Heat up the incoming air by exhaust gases
 - (d) Heat up the incoming water by exhaust gases.
3. Out of the following diesel engines, the minimum air consumption per BHP will be in CO2- R
 - (a) 4 stroke, mechanical injection
 - (b) 4 stroke, air injection
 - (c) 2 stroke, air injection
 - (d) All the above
4. Combined cycle power plants are suitable for? CO2- R
 - (a) Base loads
 - (b) Peak loads
 - (c) Intermediate loads
 - (d) Both base and peak loads

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5. Moderator in nuclear plants is used to CO3- R
- (a) reduce temperature
 (b) extract heat from nuclear reaction
 (c) control the reaction
 (d) cause collision with the fast moving neutrons to reduce their speed
6. Control rods are made of CO3- R
- (a) U238 (b) graphite or barium
 (c) boron or cadmium (d) lead
7. Which of the following is a disadvantage of most of the renewable energy sources? CO4 -R
- (a) Highly polluting (b) High waste disposal cost
 (c) Unreliable supply (d) High running cost
8. Which of the following power plants can generate power at unpredictable or uncontrollable time? CO4 -R
- (a) Tidal power plant (b) Wind power plant
 (c) Solar power plant (d) Any of the above
9. Which of the following gases is the major contributor to global warming? CO5 -R
- (a) Methane (b) Hydrogen
 (c) Nitrogen (d) Carbon Dioxide
10. Load factor of a power station is defined as CO5- R
- (a) Maximum demand/average load (b) average load x maximum demand
 (c) average load / maximum demand (d) average load x maximum demand x base load

PART – B (5 x 2= 10Marks)

11. Define super critical boilers. CO1- R

12. Define integrated gasification combined cycle (IGCC)? CO2 -R
13. Mention the use of control rod in nuclear power station. CO3 -R
14. List the factor which determines the power from wind plant. CO4 -U
15. Define load factor of power plant. CO5 -R

PART – C (5 x 16= 80Marks)

16. (a) Explain with a neat sketch the working of a thermal electric power plant station and discuss the functions of major components in it. Also mention the advantages and limitations of thermal power plant. CO1-App (16)

Or

- (b) Explain with neat sketch the principle and operation of an Atmospheric classic Fluidized Bed Combustion (AFBC) system. CO1 -App (16)

17. (a) Analyze the Otto, Diesel and dual cycle engine and compare its performance in details. CO2- App (16)

Or

- (b) Describe with neat diagram the principle of a gas turbine power plant and the function of different components of the plant. Also discuss the advantages over a steam power plant CO2 -Ana (16)

18. (a) Give a brief review of generation of electrical power by nuclear power plant with the help of neat block diagram? CO3- Ana (16)

Or

- (b) (i) Classify the different types of nuclear reactor. CO3 -Ana (10)

- (ii) Write a short note on CANDU reactor. CO3 -Ana (6)

19. (a) Describe with neat sketch the construction, principle and operation of a hydro power plant and mention its advantages and disadvantages. CO4- U (16)

Or

- (b) Write short notes on the following, CO4 -Ana (8)
- (i) Explain the basic solar PV system used for power generation
- (ii) Explain in detail about the electric energy generation by tital power plant. CO4 -Ana (8)
20. (a) (i) Explain the different types of load distribution parameter CO5 -U (10)
- (ii) Write the significance of tariff also list the various types of tariff system followed in India. CO5- U (6)
- Or
- (b) Explain the pollution control methods of coal based power plant. CO5- U (16)