

22566

22232

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.

Marks

1. Attempt any FIVE :

10

- (a) List different types of power plants.
- (b) Name the components in control system of FBC boilers.
- (c) Identify various elements in control system of steam power plant.
- (d) State any two present practices of cogeneration.
- (e) Name the regulating agencies for nuclear power plant.
- (f) List different performance parameters of power plants.
- (g) State any four limitations of diesel power plant.

2. Attempt any THREE :

12

- (a) Classify hydroelectric power plant.
- (b) Explain with neat sketch working of Ramsin boiler.
- (c) State the advantages of gas turbine power plant.
- (d) Define trigeneration and discuss the necessity of it.



- 3. Attempt any THREE :** **12**
- (a) Elaborate world scenario of demand and supply of energy.
 - (b) Describe the operation of an electrostatic precipitator.
 - (c) Explain various waste heat recovery opportunities in thermal power plant.
 - (d) State any four advantages and limitations of nuclear power plant.
- 4. Attempt any THREE :** **12**
- (a) Draw a layout of hydroelectric power plant and explain its working.
 - (b) List the properties of nuclear fuel and name any two nuclear fuels.
 - (c) A powerstation is said to have use factor of 47% and capacity factor of 40%. For how many hours in a year was the power station not in service.
 - (d) Draw a plant layout for 5 MW diesel power plant showing all required components.
 - (e) State the factors which affect selection of power plant.
- 5. Attempt any TWO :** **12**
- (a) Explain the predictive maintenance procedure of high pressure boilers.
 - (b) Describe the working of constant pressure open cycle gas turbine with neat sketch. How does actual cycle differ from the theoretical ?
 - (c) State the function of pressurizer in PWR and explain the characteristic features of a PWR.
- 6. Attempt any TWO :** **12**
- (a) Explain with neat sketch working of Loeffler boiler. State its advantages.
 - (b) Draw a neat line diagram of in-plant coal handling and indicate the components used at different stages.
 - (c) A power plant has the following annual factors :
Load factor = 0.75, capacity factor = 0.60, use factor = 0.65.
Maximum demand is 60 MW. Estimate
 - (i) Annual Energy Production
 - (ii) Reserve capacity over and above the peak load and
 - (iii) The hours during which plant is in operation per year.
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