# 315374

**12526**

**3 Hours / 70 Marks** Seat No. | | | | | | | | |

*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.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

**1. Attempt any FIVE of the following :** **10**

a) List different types of power plants.

b) State the types of FBC Boiler.

c) Name any four components of Gas Turbine Power Plant.

d) State the need of waste heat recovery in Thermal Power Plants.

e) Name the regulating agencies for Nuclear Power Plant.

f) Define captive power plant.

g) State the four schemes under National Mission for Enhanced Energy Efficiency (NMEEE).

P.T.O.

**Marks**

**2. Attempt any THREE of the following :** **12**

a) Mention the factors to be considered while selecting site for steam power plant.

b) Explain with neat sketch working of electrostatic precipitator.

c) Explain with neat sketch working principle of Fluidized Bed combustion Boiler (FBC).

d) State the four advantages of gas turbine power plant over other power plant.

**3. Attempt any THREE of the following :** **12**

a) State the four objectives of feed water treatment in steam power plant.

b) Explain with neat sketch closed cycle gas turbine power plant.

c) Name any four Nuclear Power Plant situated in India with their capacity.

d) State single line function of the following components

i) Superheater

ii) Air preheater

iii) Economizer

iv) Feed pump

**4. Attempt any THREE of the following :** **12**

a) State the Maharashtra Pollution Control Board (MPCB) norms for power plants.

b) Define Trigeneration and discuss the necessity of it.

c) State four advantages and disadvantages of Nuclear Power Plant.

d) State the four functions of Atomic Energy Regulatory Board (AERB).

e) Define following terms :

i) Demand factor

ii) Load factor

**Marks**

**5. Attempt any TWO of the following :** **12**

a) Draw schematic diagram of boiler feed water control system. State its importance in Thermal Power Plant.

b) Explain with neat sketch intercooling method used to improve the thermal efficiency of open cycle gas turbine power plant.

c) State different types of Nuclear reactors. Explain the working of Boiling Water Reactor (BWR) with neat sketch.

**6. Attempt any TWO of the following :** **12**

a) Explain Indian Boiler Regulation Act.

b) Draw a neat line diagram of in-plant coal handling and indicate the components used at different stages.

c) A thermal power plant consists of two units of 60 MW each running at 7000 hours and one unit of 20 MW runs at 3000 hours per year. Energy produced by the plant is $850 \times 10^6$ KWh per year. Determine the plant load factor and plant use factor.

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