

17324

21819

3 Hours / 100 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) Assume suitable data, if necessary.
  - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. **Attempt any TEN :**

**10 × 2 = 20**

- (a) State any two gaseous fuel.
- (b) List any two thermal power plant with their capacities and location in Maharashtra.
- (c) State the different types of condensers used in Thermal Power Station.
- (d) Define penstock in Hydroelectric Plant.
- (e) State any two Hydroelectric Power Plants in Maharashtra with their capacities.
- (f) State any four factors on which location of Nuclear Power Plant depends.
- (g) Name any two parts of reactor and also write their functions w.r.t. NPS.
- (h) State the meaning of 'Captive Power'.
- (i) State the different types of engines in Diesel Power Plant.

[1 of 4]

P.T.O.

- (j) Define : (i) Connected load, (ii) Firm Power.
- (k) Write difference between cold reserve and hot reserve in Power Plant.
- (l) State location of any four nuclear plants in India.

**2. Attempt any FOUR :****4 × 4 = 16**

- (a) State any four differences between conventional energy sources and renewable energy sources.
- (b) Write any four advantages and four disadvantages of Thermal Power Plant.
- (c) State any four factors on which selection of site for a Thermal Power Plant depends.
- (d) State any four factors for selection of site for Hydropower Plant.
- (e) Draw a block diagram of a Thermal Power Plant.
- (f) Write the purpose of coal and ash handling unit also write different activities those are carried out in this unit.

**3. Attempt any FOUR :****4 × 4 = 16**

- (a) Draw a block diagram of a Hydroelectric Power Plant.
- (b) Explain the nuclear chain reaction in a Nuclear Power Plant.
- (c) Explain the working of two stroke diesel engine with the help of neat diagram.
- (d) Draw and explain the working of cooling tower in a Thermal Power Station.
- (e) Draw the function of each of following elements in Hydroelectric Power Plant  
(i) dam, (ii) Surge tank.
- (f) State types of radioactive waste generated in a Nuclear Power Station. Explain the methods employed for their disposal.

**4. Attempt any FOUR :****4 × 4 = 16**

- (a) State the advantages of Hydro Power Plant.
- (b) Explain the use of Diesel Power Plant as captive power.
- (c) Explain load duration curve with heat diagrams.
- (d) Discuss the special features of turbo-alternator used in a Thermal Power Station.
- (e) Describe the fuel system and exhaust system of a Diesel Power Station.
- (f) “Running & maintenance cost of Thermal Power Station is more than Hydro Power Station.” Justify the statement.

**5. Attempt any FOUR :****4 × 4 = 16**

- (a) Explain the role of control rod in a nuclear reactor. State any two materials for control rod.
- (b) State the principle of Solar cell and give its ratings.
- (c) Draw Wind Power Plant diagram and show main components of Wind Power Plant.
- (d) Explain working of boiler water nuclear reactor.
- (e) Classify Hydro Power Plant on the basis of load & head available.
- (f) Explain the procedure for disposal of Nuclear Waste with suitable diagram.

**6. Attempt any FOUR :****4 × 4 = 16**

- (a) List types of solar cells with their efficiencies.
- (b) Distinguish between base and peak load.
- (c) State any four advantages and any four limitations of wind energy.
- (d) Explain why Nuclear Power Plants are preferred as base load plants.

**P.T.O.**

- (e) The maximum demand of a power plant is 100 Mw. The capacity factor is 0.6 & Utilisation factor is 0.81 find
- (i) Load factor
  - (ii) Plant capacity
  - (iii) Reserve capacity
  - (iv) Annual energy production
- (f) Draw the functional block diagram of photo voltaic power generating system and explain each block in brief.
-