



17324

21415

3 Hours/100 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.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not **permissible** in Examination Hall.
 - (8) **Use** of Steam tables, logarithmic, Mollier's chart is **permitted**.

MARKS

1. Attempt **any ten** :

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- a) State any two gaseous fuel.
- b) State any four thermal power plants in Maharashtra with their capacities.
- c) Write function of boiler in a thermal power plant.
- d) State any two hydroelectric power plants in Maharashtra with their capacities.
- e) Classify hydroelectric power plant according to the type of load and according to head.
- f) State any two nuclear power plants in India with their capacities.
- g) State any four factors on which location of nuclear power plant depends.
- h) Write function of coolant in nuclear power plant.
- i) State different types of engines in diesel power plant.
- j) Write meaning of captive power generation.
- k) Define firm power and connected load.
- l) Write difference between cold reserve and hot reserve in power plant.

P.T.O.

**MARKS****16****2. Attempt any four :**

- a) State any four differences between conventional energy and renewable energy sources.
- b) State any four factors on which selection of site for a thermal power plant depends.
- c) Draw a complete block diagram of a thermal power plant.
- d) Explain working of superheater and condenser.
- e) Explain how ash is disposed in a thermal power plant.
- f) State any four salient features of hydrogenerator.

3. Attempt any four :**16**

- a) Explain working of each of the following in a thermal power plant.
 - i) induced draught
 - ii) forced draught
- b) Draw a block diagram of a hydroelectric power plant.
- c) State the function of each of following elements in hydroelectric power plant.
 - i) dam
 - ii) surge tank
 - iii) penstock
 - iv) tail race.
- d) Explain working of nuclear power plant with block diagram.
- e) Explain how nuclear waste is disposed.
- f) State any four advantages and four disadvantages of diesel electric power plant.



4. Attempt **any four** :

- a) Write any four salient features of a turboalternator.
- b) Write any four merits and four demerits of a thermal power plant.
- c) State any four advantages and four disadvantages of hydroelectric power plant.
- d) Explain fuel system in diesel electric power plant.
- e) Explain starting system in diesel electric power plant.
- f) Define each of following terms :
 - i) Plant capacity factor
 - ii) Plant use factor
 - iii) Diversity factor
 - iv) Load factor.

5. Attempt **any four** :

- a) Explain working of pumped storage hydroelectric power plant.
- b) Explain how nuclear reactor is controlled using control rods.
- c) Explain working of boiler water nuclear reactor.
- d) Explain nuclear chain reaction and multiplying factor w.r.t. nuclear power plant.
- e) State any four limitations in using renewable energy resources.
- f) Draw block diagram of wind power/energy conversion system. Write function of each block.

**MARKS****16**

6. Attempt **any four** :

- a) Explain working of fast breeder reactor.
 - b) A plant having load factor of 0.6 has peak load of 110 MW. Calculate energy generated by this plant in one month of 30 days.
 - c) State any four advantages of interconnected power plants.
 - d) Explain working of concentrating type of solar collector.
 - e) Explain working of solar power plant.
 - f) Write how energy can be stored or generated in each of following :
 - i) solar cell
 - ii) geothermal energy
 - iii) hydrogen energy in biomass.
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