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Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

Term End Examination 2025-2026
Programme – Dip.EE-2024
Course Name – Introduction to Electric Generation Systems
Course Code - DEE30104
(Semester III)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify the form of solar energy radiated from the sun is :

a) Ultraviolet Radiation
b) Infrared radiation
c) Electromagnetic waves
d) Transverse waves

(ii) Memorize that a load curve is a plot of

a) Load versus generation capacity
b) Load versus current
c) Load versus time
d) Load versus cost of power

(iii) Identify that one enters to the superheater is:

a) Superheated steam.
b) Wet steam.
c) Hot water.
d) Cold water.

(iv) Select the function of the economizer is to

a) heat up the incoming water with exhaust steam.
b) heat up the pulverized fuel by exhaust gases.
c) heat up the incoming air by exhaust gases.
d) heat up the incoming water by exhaust gases.

(v) Tell in nuclear chain fission reaction each neutron causing fission produces

a) no new neutron.
b) less than one new neutron.
c) one new neutron.
d) at least one new neutron.

(vi) Observe steam is superheated in order to

a) improve Rankine cycle efficiency.
b) reduce initial condensation losses.
c) avoid too high temperature in the last stage of the turbine.
d) all of the these

(vii) Identify in a steam turbine cycle, the lowest pressure occurs in

a) condenser.
b) turbine inlet.
c) boiler
d) super-heater

(viii) Tell that the hydroelectric power plant is mainly located in _____

a) Flat areas
b) Deserts
c) Hilly areas
d) Deltas

(ix) Select the type of hydro power plant can be with or without pondage

a) Mini hydel plants
b) Pump storage power plants
c) Low head plants
d) Run-off river power plants

(x) Select which of the following is not a disadvantage of Hydro Power

a) A large land area submerges into the water leading to deforestation
b) It causes dislocation of a large population and rehabilitation
c) It causes ecological disturbances like earthquake
d) It causes calamities like landslides

(xi) Select that Uranium isotope is used in nuclear power plants

a) U-235
b) U-234
c) U-215
d) U-218

(xii) Choose that Sustainable development requires that energy resource _____

a) cannot be exhausted completely
b) can be complete exhausted
c) can destroy the environment
d) cannot meet the growing demand

(xiii) Identify the main component of a gas turbine plant is

a) Condenser
b) Compressor
c) Boiler
d) Both Compressor & Boiler

(xiv) Predict that size and cost of installation depends upon

a) average load
b) maximum demand
c) square mean load
d) square of peak load

(xv) Identify that transparent cover used in a flat plate collector

a) To maximize transmission of the incident sunlight into the box
b) To minimize transmission of the incident sunlight into the box
c) To entirely reflect the incident sunlight back
d) To ensure partial transmission of the incident sunlight into the box

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Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain with diagram the equivalent circuit of solar cell. (3)

3. Describe about forbay and what for it is provided? (3)
4. Define load duration curve. (3)
5. State the function of preheating systems. (3)
6. A generating station has a connected load of 23 MW. And maximum demand of 20 MW. The units generated 61.5X10^6 per annum, Calculate demand factor. (3)

OR

The maximum demand of a power plant is 40 MW. The capacity factor is 0.5 and UF is 0.8. Calculate Plant capacity. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Explain about pump storage power plant with necessary diagram. (5)

8. Describe the block diagram of thermal power plant with necessary diagram. (5)

9. Discuss about merit of nuclear power plant. (5)
10. Compare between HAWT and VAWT. (5)

11. Explain the operating principles of Flat Plate Collectors. (5)
12. The peak load of a power station is 30 MW. The loads having maximum demands of 25 MW,10MW,5MW and 7MW are connected to power station. The capacity of the plant is 40 MW.annual load factor 50%. Evaluate average load, demad factor. (5)

OR

A residential consumer has 10 lamps of 40 Watt each connected at his premises. His demand is as follows: from 12 midnight to 5am-40watt ,5 am to 6pm-noload , 6pm-7pm-320 watt, 7pm-9pm- 360watt,9pm-12 midnight-160watt. Plot load curve. Evaluate average load. (5)

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