

AU – 2523

Third Semester B. E. (Elect. Engg./Elec. and Power) (CGS) Examination

ENERGY RESOURCES AND GENERATION

Paper – 3 EP 03 / 3 EX 03 / 3 EL 03 / 3 EE 03

(USC – 10479)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering material of Civil branch and separate answer book must be used for Section A and B in pharmacy and Cosmetic Tech.
(2) Answer **Three** questions from Section A and **Three** questions from Section B.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data wherever necessary.
(5) Use pen of Blue/Black ink/refill only for writing book.

SECTION A

1. (A) Draw and explain schematic diagram of thermal power station. 7
(B) State the advantages and disadvantages of using pulverized coal in steam plant. 7

OR

2. (A) What are factors required to be consider for selecting a site for hydro - electric power station ? 7
(B) Explain the working and functions of following components of the hydro power plant :—
(i) Forebay
(ii) Penstock
(iii) Tailrace. 7

AU-2523

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3. (A) What is the necessity of cooling in diesel power plant ? Explain the tower cooling system in diesel power plant. 6
(B) What are the various control rods used in a nuclear reactor ? Describe the function of each of them. 7

OR

4. (A) Classify the reactor for power plant and explain with neat sketch Gas Cooled Reactor. 7
(B) Discuss the various factors which affect selection of site for nuclear power plant. 6
5. (A) What is solar cell ? Explain its principle of operation. 6
(B) Explain solar flat plate collector in solar energy. 7

OR

6. (A) Write a short note on energy balance equation and collector efficiency. 6
(B) Explain beam and diffuse radiation in solar energy. 7

SECTION B

7. (A) State the advantages and disadvantages of a fuel cell. 7
(B) Derive energy balance equation of wind power. 6

OR

8. (A) What are various applications of wind energy ? 7
(B) Explain the principle of operation of molten carbonate fuel cell system with a suitable diagram. 6
9. (A) Write a short note on historical development of tidal power. 7

(B) Write short notes on :—

(i) Bio – fouling

(ii) Site selection for OTEC plants.

6

OR

10. (A) What is wave power ? Explain two devices used for converting wave power into mechanical power. 6

(B) Explain with neat sketches the various methods of tidal power generation. What are its various advantages and limitations ? 7

11. (A) What is meant by anaerobic digestion ? Explain with neat sketch its application used in biomass energy production. 7

(B) What are mini and micro hydro – electric power plants ? Explain the types of turbines suited for micro – hydel power plants. 7

OR

12. (A) Explain the criteria for site selection of a biogas plant. 7

(B) Define and classify the geothermal energy sources. 7



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