AU – 2527

Third Semester B. E. (Electrical and Electronics) Examination

(New)

ENERGY RESOURCE AND GENERATION

Paper – 3 EX 03

(USC – 10364)

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) Explain the function of economizer, air preheater, cooling towers and feed water heater. 7

   (B) Give the classification of hydro power plants according to water flow regulation and according to head. Explain each type in brief. 7

OR

2. (A) Draw and explain schematic diagram of thermal power station. 7

   (B) Explain base load and peak load hydro – electric power plants. 7

3. (A) State the main features of :—

   (i) AGR (Advanced Gas Cooled Reactor)

(ii) Pressurized water reactor

(iii) Boiling water reactor. 6

(B) Draw a plant layout of a diesel power plant. Explain its working. 7

OR

4 (A) Discuss the various factors which affect selection of site for nuclear power plant. 6

(B) Explain the cooling system in diesel power plant. 7

5. (A) What is solar cell ? Explain its principle of operation. 7

(B) Write a short note on energy balance equation and collector efficiency. 6

OR

6. (A) Define the following terms :—

(a) Solar constant

(b) Zenith angle

(c) Hour angle

(d) Surface azimuth angle

(e) Solar azimuth angle

(f) Altitude angle

(g) Incident angle. 7

(B) With a neat diagram explain solar radiation. 6

SECTION B

7. (A) What is fuel cell ? Explain principle of working of $H_2 - O_2$ fuel cell. 7

(B) Derive the expression for power developed due to wind. 7

OR

8. (A) Explain the wind energy conversion system with the help of neat diagram. 7

   (B) State advantages and disadvantages of fuel cell. 7

9. (A) Explain with neat sketch, the principle of ocean thermal energy conversion system. 7

   (B) Explain with sketch single basin tidal power scheme. 6

OR

10. (A) State the various advantages and limitations of tidal power generation. 7

    (B) Write short note on :—

    (a) Bio – fooling

    (b) Site selection for OTEC plants. 6

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

    (B) Give the list of materials used for bio–mass power generation. 6

OR

12. (A) What are the factors which affect bio digestion ? 6

    (B) Define geothermal source. How can it be classified ? Describe a vapour dominated power system with a neat diagram. 7