

5E3126

Roll No. _____

Total No of Pages: **3****5E3126****B. Tech. V Sem. (Old Back) Exam., Nov.-Dec.-2016****Electrical Engineering****5EE4 (O) Generation of Electrical Power****Time: 3 Hours****Maximum Marks: 80****Min. Passing Marks Main: 26****Min. Passing Marks Back: 24***Instructions to Candidates:*

*Attempt any **five** questions, selecting **one** question from **each** unit. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination.

(Mentioned in form No. 205)

1. NIL2. NIL**UNIT – I**

- Q.1 (a) Distinguish between a breeder reactor and a converter reactor. Derive an expression for maximum conversion of fertile material in a converter reactor. [8]
- (b) How can hydro plants be classified according to following? [8]
- (i) Water flow regulation
 - (ii) Head & Load

OR

- Q.1 (a) Briefly discuss the functions of following equipments in a steam station - [8]
- (i) Condenser
 - (ii) Cooling towers
 - (iii) Economizer
 - (iv) Feed water heater

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[1220]

- (b) Explain the basic schemes and working principle of Gas Power Plant with open cycle. [8]

UNIT – II

- Q.2 (a) Explain the impact of thermal and hydro power station on environment. [8]
(b) How can solar energy be converted into electrical energy? Give a diagram showing the elements of such a plant. [8]

OR

- Q.2 (a) Give a brief classification of various energy resources. What is the future of non – conventional energy sources in India? [8]
(b) What do you mean by Global Warming? What will happen due to it? [8]

UNIT – III

- Q.3 (a) What are the disadvantages of low power factor? Explain the methods of power factor improvement. rtuonline.com [8]
(b) Define the following terms for a power station: [8]
(i) Diversity factor
(ii) Load factor
(iii) Utilization factor
(iv) Annual plant capacity factor

OR

- Q.3 (a) What is the difference between chronological curve and load duration curve? Explain the difference between base load and peak load also. [8]
(b) The maximum demand of power plant is 80 MW. The capacity factor is 0.5 and the utilization factor is 0.8. Find – [8]
(i) Load factor
(ii) Plant capacity
(iii) Reserve capacity
(iv) Annual energy production

UNIT – IV

- Q.4 (a) Calculate the most economical power factor when KW demand is constant. [8]
(b) Explain the role of load diversity in power system economics. [8]

OR

- Q.4 (a) Explain the concept of co- generation and energy conservation in terms of power plant economics. [8]
(b) Explain the capital cost, annual fixed and operating costs of plants. [8]

UNIT – V

- Q.5 (a) Distinguish between operating reserve and spinning reserve. Explain why the size of power plant units have been continuously increasing for the past many years. [8]
(b) How do demand factor, load factor and diversity factor in a power system affect the fixation of tariffs? [8]

OR

- Q.5 (a) Explain flat demand rate and straight meter rate in terms of Electrical tariff. [8]
(b) Describe in detail methods of selection and location of various power plants. [8]
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