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BIEE-037

DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)

00275

Term-End Examination

December, 2014

BIEE-037 : POWER PLANT ECONOMICS AND CENTERING

Time : 2 hours *Maximum Marks : 70*

Note : *Attempt any* ***five*** *questions. Question no.* ***1*** *is* ***compulsory.***

1. Choose the correct alternative out of the given : *7×2=14*

(a) In a superheater

(i) the pressure rises and the temperature drops

(ii) the temperature rises and the pressure remains unchanged

(iii) the temperature rises and the pressure drops

(iv) the pressure rises and the temperature remains the same

(b) Coal used in thermal power plants is also known as

(i) Soft coal

(ii) Steam coal

(iii) Charcoal

(iv) Coke

(c) Large size steam plants and nuclear plants are suitable for

(i) Peak loads

(ii) Intermediate loads

(iii) Base loads

(iv) Both base and peak loads

(d) Flat rate tariff can be charged on the basis of

(i) connected load

(ii) units consumed

(iii) maximum demand

(iv) both (i) and (ii)

(e) Load factor of a power plant is

(i) generally equal to unity

(ii) always less then unity

(iii) always more than unity

(iv) normally more than unity

(f) The knowledge of diversity factor helps in computing

(i) plant capacity

(ii) average load

(iii) units (kWh) generated

(iv) peak demand

(g) Static capacitors are rated in terms of

(i) kVAR

(ii) kW

(iii) kVA

(iv) kWh

2. Explain with a neat diagram various parts of a nuclear reactor, mentioning clearly the function of each part. Discuss in brief, the principle of operation of any one of the nuclear reactors. *14*

3. What is the function of a condenser in a steam power plant ? Describe with a neat sketch any one type of condenser commonly used in power plants. Explain the effect of air leakage on the performance of a condenser. *14*

4. What are the advantages and disadvantages of interconnection of power stations ? Explain the methods of effecting a power transfer between two stations. *14*

5. Define load factor, demand factor, diversity factor, installed capacity, operating reserve, spinning reserve and load curve. *14*

6. What are the advantages of power factor improvement for a distribution system ? What is a static VAR compensator ? Draw a schematic diagram of a static VAR compensator and explain its operation. *14*

7. What are the different systems of tariffs used by the electricity authority ? Discuss any two of them and indicate the types of consumers where such tariffs are used. *14*

8. Write notes on any ***two*** of the following : *2×7=14*

(a) Load frequency control in interconnected power system

(b) Power factor tariff

(c) Economic limits of power factor improvement