

**DIPLOMA IN ELECTRICAL ENGINEERING  
(DELVI) / ADVANCED LEVEL CERTIFICATE  
COURSE IN ELECTRICAL ENGINEERING  
(ACELVI)**

**Term-End Examination**

00346

**June, 2016**

**BIEE-029 : POWER GENERATION SYSTEMS**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** *Attempt any **four** questions from question no. 2 to 6. Question no. 1 is **compulsory**. All questions carry equal marks.*

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1. Choose the correct answer : **7×2=14**
- (a) Economiser is used to heat
- (i) air
  - (ii) feed water
  - (iii) flue gases
- (b) Steam turbines commonly used in steam power station are
- (i) Condensing type
  - (ii) Non-condensing type
  - (iii) None of the above

- (c) Francis, Kaplan and Propeller turbines fall under the category of
- (i) impulse turbines
  - (ii) reaction turbines
  - (iii) impulse reaction turbines
- (d) Main applications of solar energy may be considered in the following categories :
- (i) Solar electric applications
  - (ii) Direct thermal applications
  - (iii) Both (i) and (ii)
- (e) Maximum wind energy available is proportional to
- (i) square of the diameter of rotor
  - (ii) air density
  - (iii) cube of the wind velocity
- (f) In MHD generators, the conductor employed is
- (i) gas
  - (ii) liquid metal or gas
  - (iii) liquid metal
- (g) Biogas consists of
- (i) only methane
  - (ii) methane and  $\text{CO}_2$  with some impurities
  - (iii) a special organic gas

2. (a) Explain the importance of non-conventional sources of energy in the present scenario. 7
- (b) Explain the construction and working of solar water heaters. 7
3. (a) Define the term fuel cell. Explain the working principle of a fuel cell with a neat diagram. 7
- (b) Explain the open and closed cycles of Ocean Thermal Electrical Conversion (OTEC). 7
4. (a) Enumerate essential elements of hydro-electric power plant. 7
- (b) What safety measures need to be taken for the safe operation of hydro-electric plants? Give applications of hydro-electric plants. 7
5. (a) Explain the process of power generation by using gasifiers. Also list its applications. 7
- (b) Discuss the different wet and dry processes of biomass conversion technologies. 7
6. Write short notes on any *two* of the following : 2×7=14
- (a) MHD Generator
- (b) Thermoelectric Power Generation
- (c) Geothermal Energy Conversion
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