

# DIPLOMA IN - VIEP-ELECTRICAL ENGINEERING

Term-End Examination

December, 2011

## BIEE-034 : ELECTRICAL POWER TRANSMISSION AND DISTRIBUTION

Time : 2 hours

Maximum Marks : 70

**Note :** All the questions to be answered in English Language only. Question No. 1 is **Compulsory** and 4 questions are to be attempted out of question No. 2 to 8. Use of calculator is allowed.

1. (a) As per IE rules the maximum allowable variation between declared and actual voltage at consumer's premises should be :
 

(i) $\pm 6\%$	(ii) $\pm 8\%$	<b>7x2=14</b>
(iii) $\pm 5\%$	(iv) $1\%$	
- (b) 66 kV is suitable for Transmission of Power over :
 

(i) 30 km	(ii) 66 km
(iii) 120 km	(iv) 200 km
- (c) ACSR Conductors have :
  - (i) All Conductors made of aluminium
  - (ii) Outer Conductor made of aluminium
  - (iii) Inner Conductors are made of aluminium
  - (iv) No conductor made of aluminium

- (d) Primary distribution lines are known as :
  - (i) reactor
  - (ii) feeders
  - (iii) sub transmission line
  - (iv) none of the above
- (e) A Ground wire runs :
  - (i) above the conductor
  - (ii) below the conductor
  - (iii) in level with the line conductor
  - (iv) none of the above
- (f) Transposition of transmission line is done to :
  - (i) reduce line loss
  - (ii) reduce skin effect
  - (iii) balance line voltage drop
  - (iv) reduce corona
- (g) Power dispatch through a line can be increased by :
  - (i) Installing series Capacitor
  - (ii) Installing shunt Capacitors
  - (iii) Installing series reactor
  - (iv) Installing shunt reactor.

- 2. (a) Compare three phase and single phase system and over head and underground distribution system. 7
- (b) What do you understand by tariffs ? 7  
Explain various types of tariffs.

3. (a) Define Power factor. Mention its demerits in low power factor in power system. 7
- (b) What is corona ? Its effect and how it is reduced ? 7
4. (a) Explain Radial and ring main system of distribution. 7
- (b) Find the most economical size of a single core cable working on a 132kV, 3 Phase system. If a dielectric strength of 60kV/cm can be allowed. 7
5. (a) With the help of neat sketch, describe 11kV/440V pole mounted substation. 7
- (b) List the various equipments of 33kV/11kV distribution substation. 7
6. (a) What is difference between symmetrical fault and unsymmetrical fault in 3 phase transmission line. 7
- (b) What are the tests for earth fault and short circuit fault in underground cable ? 7
7. (a) What is the purpose of earthing ? Describe difference between equipment and system earthing. 7

- (b) An over head Transmission line has a span of 220m. The conductor weighs 0.604kg/m. Calculate the max sag, if the ultimate tensile strength of conductor is 5788kg. Assume factor of safety - 02. 7

8. Write short notes on *any four* of the following.  $4 \times 3.5 = 14$

- (a) Two part and three part tariff.
  - (b) Concept of inductance and capacitance in a.c. transmission.
  - (c) Need of circuit break and relay in substation
  - (d) Types of Lightning Arrestors
  - (e) Factors affecting corona
  - (f) Methods of Neutral earthing.
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