

**DIPLOMA IN ELECTRICAL ENGINEERING
(DELVI)**

Term-End Examination

December, 2017

00272

**BIEE-034 : ELECTRICAL POWER TRANSMISSION
AND DISTRIBUTION**

Time : 2 hours

Maximum Marks : 70

Note : *Attempt any **five** questions. Question no. 1 is compulsory. Use of scientific calculator is allowed.*

1. Attempt the following objective type questions : $7 \times 2 = 14$

- (a) A three-phase four-wire system is commonly used for
- (i) Primary distribution
 - (ii) Secondary distribution
 - (iii) Primary transmission
 - (iv) Secondary transmission
- (b) A synchronous compensator (condenser) absorbs inductive reactive power when it is
- (i) Under excited
 - (ii) Over excited
 - (iii) Unexcited
 - (iv) None of the above

- (c) Armouring in cable is to
 - (i) Provide electrical strength
 - (ii) Decorate the cable
 - (iii) Provide mechanical strength
 - (iv) Provide insulation

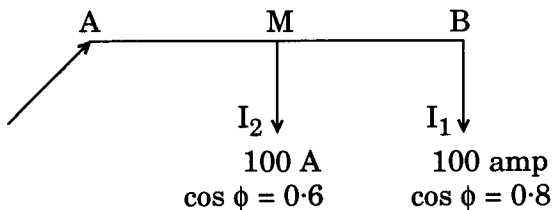
- (d) Maximum KVA demand tariff is a type of
 - (i) Block rate tariff
 - (ii) Two-part tariff
 - (iii) Uniform rate tariff
 - (iv) Power factor tariff

- (e) To reduce the corona effect usually
 - (i) Bundled conductors are used
 - (ii) Distance between conductors is reduced
 - (iii) Conductor diameter is reduced
 - (iv) Supply frequency is increased

- (f) An 11 kV/440 V pole mounted substation is installed for
 - (i) Primary distribution
 - (ii) Secondary distribution
 - (iii) Bulk consumers
 - (iv) Secondary transmission

- (g) Which of the following is a self-clearing fault ?
 - (i) L – L – L
 - (ii) L – G
 - (iii) L – L
 - (iv) Bird fault

2. (a) Enumerate the various types of insulators used in transmission lines. Explain any one of them with the help of a neat sketch. 7
- (b) What is Sag ? Give its importance and explain the effect of ice and wind on sag. 1+2+2+2
3. (a) Draw a neat cross-sectional view of a typical single core cable and explain all the labelled sections/parts of the cable. 7
- (b) A single-phase distributor has total resistance of 0.2Ω and reactance of 0.3Ω . A current of 100 amp at 0.6 p.f. lagging is tapped at mid-point M and a current of 100 amp at 0.8 p.f. lagging at the far end B. If voltage at far end is 220 volts, find the voltage at mid-point. 7



4. (a) Draw a layout of 33/11 kV substation and enlist various accessories and equipments. 7
- (b) What are the common types of Faults in overhead and underground lines ? 7

5. (a) What are the various types of Tariff ?
Explain any one tariff in brief. 7
- (b) What is the significance of Earthing ?
Explain any one method of earthing with
the help of neat sketch. 7
6. Write short notes on any **four** of the
following : $4 \times 3 \frac{1}{2} = 14$
- (a) String Efficiency
 - (b) Causes of Low Power Factor
 - (c) Classification of Cables
 - (d) HVDC Transmission Lines
 - (e) Corona
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