No. of Printed Pages : 3

BIEE-034

DIPLOMA IN VIEP-ELECTRICAL ENGINEERING (DELVI)

Term-End Examination

December, 2013

01051

BIEE-034 : ELECTRICAL POWER TRANSMISSION AND DISTRIBUTION

Time : 2 hours *Maximum Marks : 70*

Note : *Q. No. **1** is **compulsory**. Attempt **any four** questions out of **2** to **8**. All questions **carry equal** marks.*

1. (a) In transmission system a feeder feeds power to : **7x2=14**

(i) service main

(ii) generating stations

(iii) distributors

(iv) all of the above

(b) Which type of insulators are used on 132kV transmission lines ?

(c) ACSR conductor having 7 steel stands surrounded by 25 aluminium conductor will be specified as :

(i) 7/25

(ii) 7/32

(iii) 25/7

(iv) 25/32

(d) The fact that a conductor carries more current on the surface as compared to core, is known as _____ .

(e) The bundling of conductors is done primarily to :

(i) reduce reactance

(ii) increase reactance

(iii) increase radio interference

(iv) reduce radio interference

(f) Which device automatically interrupts the supply in the event of surges ?

(g) For a lossless line the characteristic impedance is called surge impedance. (True/False)

2. (a) Define the term diversity factor. Prove that the load factor of a power system is improved by an increase in diversity factor. 7

(b) Define the terms - plant capacity factor and plant use factor and explain their importance in a power system. 7

3. (a) The maximum demand of a power station is 200 MW. If the annual load factor is 0.55, calculate the total energy generated in a year. 7

(b) Define the terms per unit voltage, per unit impedance and per unit voltamperes. What are the advantages of per unit representation ? 7

4. In a dc 2-wire system a feeder is working on 250V supplying a constant load. If the supply voltage is increased to 400V with the same power transmitted, calculate the percentage saving in conductor material. 14

5. In a 3-phase, 3-core metal sheathed cable the measured capacitance between any two cores is 2μF. Calculate the charging current and/kVA taken by the cable when it is connected to 11/kV, 50Hz supply. 14

6. (a) Define string efficiency. What is the necessity of having a high string efficiency ? How can it be achieved ? 7

(b) Write a brief note on vibration of conductors. How is the vibration minimised ? 7

7. (a) Define string efficiency. What is the necessity of having a high string efficiency ? How can it be achieved ? 7

(b) What is Ferranti effect ? Deduce an expression for the voltage rise of an unloaded line. 7

8. (a) Explain the function of a synchronous phase modifier placed at the receiving end of the transmission line. 7

(b) What are the advantages of series compensation ? What are the problems associated with series capacitors ? 7