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BEE-041

01574

Diploma in Electrical and Mechanical Engineering

Term - End Examination

June, 2011

BEE-041 : APPLIED ELECTRICAL TECHNOLOGY

Time : 2 hours *Maximum Marks : 70*

Note : *Question No.1 is* ***compulsory****. Attempt any* ***four*** *questions from the remaining questions. Assume if any missing data, use of calculator is permitted.*

1. Indicate *true* or *false* for the following : **14x1=14**

(a) Insulating oil in transformer has high viscosity to provide good heat transfer.

(b) Single phase induction motor has very high starting torque.

(c) Hydro power plant has lowest running cost.

(d) Points or load in any circuit should not exceed 10 points or 800 W.

(e) The maximum permissible resistance of earth for a substation is 2.0 ohm.

(f) The depth of foundation is 20 cm for 10 to 25 HP motors.

(g) A step - up transformer increases frequency of the ac input supply.

(h) Air natural cooling in transformer is used for more than 10 kVA.

(i) Nuclear power plant has maximum efficiency.

(j) Low tension cables are used for operating voltage upto 10,000 volts.

(k) The main purpose of performing open - circuit test on a transformer is to measure its insulation resistance.

(l) Hysteresis motors are known for quick start and constant speed operation.

(m) High tension cables are used for operating voltage upto 11000 volts.

(n) Electricity is less dangerous at high frequency.

2. (a) Explain the installation of motors. 7

(b) What is the importance of earthing in an electrical set up ? Discuss various types of earthing used. 7

3. (a) How the testing is conducted after installation of wiring ? 7

(b) Explain the fluorescent tube connections. Also give wiring diagram for staircase lighting. 7

4. (a) Explain the construction and operational features of any two important relays, explain the use of relay in power system. 8

(b) Define the following terms : 6

(i) Fault Power

(ii) Peak short circuit current

(iii) Fusing Factor

5. (a) Discuss the difference between transmission by overhead lines and by underground cables. 7

(b) What are the various tests which are necessary after laying and jointing of a underground cable ? 7

6. (a) A overhead line has the following data : span length 150 meters, conductor diameter 0.90 cm, weight per meter length of conductor 0.64 kg, ultimate stress 4200 kg/cm^2, wind pressure 40 kg/cm^2 of projected area factor of safety 5. Calculate the sag. 10

(b) Explain the transmission line inductance for single phase line. 4

7. (a) Draw the layout of Hydro power plant. 7

(b) What are the advantages and disadvantages of diesel power stations ? 7

8. Write down short notes on **any two** of the following. **7x2=14**

(a) Repulsion Motor.

(b) Circuit for one lamp controlled by two switches.

(c) Phasor group of 3 - phase transformer.

(d) Parallel operation of transformers.