No. of Printed Pages : 3 **BEE-041**

Diploma in Electrical and Mechanical Engineering

00335

Term-End Examination

June, 2010

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. All questions carry **equal** marks. Use of calculator is permitted.*

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

   (a) Delta-Delta connection of transformer has ±30° phase displacement between primary and secondary voltages.

   (b) Insulating oil of transformer should have high dielectric strength and low viscosity.

   (c) Inherent starting torque of a single phase induction motor is very high.

   (d) Selsyns are well suited for remote signaling/ angular control.

   (e) Majority of power generation in our country is based on conventional sources of energy.

(f) Penstock is a component of thermal power plant.

(g) The cost of electrical energy is variable in nature.

(h) Conductor resistance test cannot be used to indicate how efficient the joint of a cable is.

(i) Fault MVA is inversely proportional to % Reactance.

(j) SF_6 Circuit Breakers are not used for extra high voltages.

(k) Earth resistance of typical electrical installation should not be more than 10Ω.

(l) Electricity is more dangerous at high frequency.

(m) A 10 HP motor requires 20 cm deep foundation.

(n) To change direction of rotation of motor reverse the polarity of one winding.

2. (a) Discuss Open Delta connection of a 3-phase transformer. 7

(b) What are the conditions for satisfactory operation of 3-phase transformers in parallel ? 7

3. (a) Explain double revolving field theory. Why single phase motor fails to self start ? 7

(b) Explain working and constructional features of hysteresis motor. 7

4. (a) What are the causes of failure of underground cables ? 7

(b) Name the equipments used in sub-stations and draw typical lay out of a pole-mounted substation. 7

5. Draw lay out of a thermal power plant and explain the working of its components. 14

6. (a) Explain various over- voltage protection schemes. 7

(b) Explain various protection schemes for transformers. 7

7. (a) Discuss general lighting and wiring accessories. 7

(b) What are the various methods of earthing ? 7

8. (a) What are the various faults in motors ? Write their reasons and remedies. 7

(b) What factors are considered for installation of indoor transformers ? 7