C 5124 (Pages 2) Name...

Reg. No.....................................

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2010

EE 2K 804/PTEE 2K 702—POWER SYSTEMS—III

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

I. (a) Differentiate between surge diverter and surge obsorber.

(b) Explain the terms : (i) restriking voltage ; (ii) RRRV.

(c) Write short notes on (i) Earth fault protection for alternator.

(d) Write short notes on relaying time.

(e) What are the characteristics of a traction motor ?

(f) Discuss the fundamentals of d.c. arc welding.

(g) Define Harmonics. What are the different sources of harmonics ?

(h) Write short note on energy conservation in electric motors.

(8 × 5 = 40 marks)

Part B

II. (a) Explain the construction and working of SF_6 circuit breaker also command about its merits and demerits.

Or

(b) A 10 MVA 132 kV transformer is connected to the end of a transmission line of surge impedance 400 ohm. The transformer has an equivalent capacitance of 0.002 microfarad and leakage inductance of 16 Henry. If rectangular wave of 1,000 kV travels through the line and strikes the transformer find the surge voltage on the transformer.

III. (a) Describe the principle of differential protection system applied to Delta-star connected transformer.

Or

(b) State the various methods of neutral earthing of generators. Explain their merits and limitation.

IV. (a) What do you mean by resistance welding ? How does it differ from : (a) Spot welding ; (b) Describe butt welding and its various applications ?

Or

(b) (i) State the advantages of electric heating and explain the various methods of heat transfer.

(8 marks)

(ii) Explain the high frequency method of electric heating and state its application.

(7 marks)

Turn over

V. (a) What are the main objectives in designing the size and branches of AC Hormonic filters and DC harmonic filters in a HVDC substation ?

Or

(b) (i) What are DC characteristic Harmonics for a 12 pulse converter ? Explain. (8 marks)

(ii) Write short note on mitigation method. (7 marks)

[4 × 15 = 60 marks]