C 80645

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Name.....

Reg. No.....

COMBINED FIRST AND SECOND SEMESTER B.TECH. (09 SCHEME) (ENGINEERING) DEGREE [SUPPLEMENTARY] EXAMINATION, APRIL 2015

EN 09 107—BASICS OF ELECTRICAL, ELECTRONICS AND COMMUNICATION ENGINEERING

Time : Three Hours

Maximum : 70 Marks

Section I (Basics of Electrical Engineering)

Part A

Answer **all** *questions.*

1. Expressions for line and phase voltage for star and delta connected systems. (2 marks)
2. Define time period. (1 mark)
3. Briefly explain the two types of rotor of a 3-phase induction motor. (2 marks)

Part B

Answer any **two** *questions.*

4. Write down the advantages of three-phase system.
5. Explain with equation voltage transformation and I ratio of a transformer.
6. Comparison of salient pole and cylindrical rotor synchrnous generator.

(2 × 5 = 10 marks)

Part C

Answer **all** *questions.*

7. (a) (i) Derive the expression for self and mutual inductance. (6 marks)

   (ii) A flux of 0.04 Wb is produced in a solenoid of axial length 25 cm. with 500 turns carrying a current of 4A. Find reluctance of the magnetic circuit.

   (4 marks)

   Or

   (b) Explain the relationship between line and phase voltages and current in balanced star system. (10 marks)

8. (a) Explain the types of dc generator.

   Or

   (b) Explain principle of operation of dc motor and also write about back emf.

(2 × 10 = 20 marks)

Turn over

Section II (Basics of Electronics and Communication Engineering)

Part A

Answer **all** *questions.*

1. What is noise in amplifier ? (1 mark)
2. What is logic gate ? What are the types ? (2 marks)
3. What is frequency reuse ? (2 marks)

Part B

Answer any **two** *questions.*

4. Explain the principle of DAC.
5. What is modulation ? Compare AM and FM.
6. Draw and explain the block diagram of optical communication system.

(2 × 5 = 10 marks)

Part C

Answer **all** *questions.*

7. (a) (i) Explain the principle of cellular communication. (5 marks)

   (ii) Draw and explain block diagram of pulsed radar. (5 marks)

   Or

   (b) (i) Explain the principle of GSM. (5 marks)

   (ii) Explain satellite communication system. (5 marks)

8. (a) Explain the working and block diagram of CRO. (10 marks)

   Or

   (b) (i) Write short note on programmable logic devices. (5 marks)

   (ii) Explain the open-loop and closed-loop system. (5 marks)

[2 × 10 = 20 marks]