

ELECTRICAL & ELECTRONICS ENGINEERING

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Answer all questions
All questions carry equal marks

PART – A**(Electrical Engineering)****UNIT – I**

- 1 (a) Derive the EMF equation of the DC generator.
(b) Calculate the emf generated by a 4 pole wave wound armature having 45 slots with 18 conductors per slot when driven at 1200 r.p.m, the flux per pole is 0.016 Wb.

OR

- 2 (a) Explain the principle of operation of DC motor.
(b) Explain the operation of 3-point starter with neat diagram.

UNIT – II

- 3 (a) Derive the expression for EMF equation of a single phase transformer.
(b) Define and explain efficiency and regulation transformer.

OR

- 4 (a) A 2000/200 V, 20 kVA transformer has 66 turns in the secondary. Calculate the primary turns and the primary and secondary full load currents, neglecting losses.
(b) Compare core and shell type transformers.

UNIT – III

- 5 (a) Explain the constructional details of three phase induction motor.
(b) Explain the torque-slip characteristics of three phase induction motor.

OR

- 6 Explain about the regulation of alternator by synchronous impedance method.

PART – B**(Electronics Engineering)****UNIT – I**

- 7 (a) Give the comparison of N – type and P – type semiconductors
(b) Explain about the working principle and Volt – Amp characteristics of PN junction diode with necessary diagram.

OR

- 8 Show that Zener diode acts as voltage regulator. Explain the Volt-Amp characteristics of the same with circuit diagram.

UNIT – II

- 9 Draw the CB configuration of BJT and Discuss about its I/O characteristics with waveform. Also express the relationship between I_B , I_C and I_E .

OR

- 10 (a) Describe about the construction, working principle and operation of JFET with diagram.
(b) Differentiate between BJT and JFET.

UNIT – III

- 11 (a) Convert the following Hexadecimal number into Decimal number:
(i) A4D9. (ii) DEAB. (iii) BCD3.
(b) Design a full adder circuit using basic gates. Verify its sum and carry output using truth table.

OR

- 12 Draw a logic circuit to implement the expression $Y = AB + A(B + C) + B(B + C)$. Simplify the function and also draw the logic circuit for the simplified function.
