Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 40016

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

Second Semester

Agriculture Engineering

BE 8251 – BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Civil Engineering/Environmental Engineering/Chemical and Electrochemical Engineering/Fashion Technology/Handloom and Textile Technology/Plastic Technology/Polymer Technology/Textile Chemistry/ Textile Technology)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A

(10×2=20 Marks)

1. State Kirchoff's voltage law.
2. Find the current flowing through the circuit shown in Fig. 2.

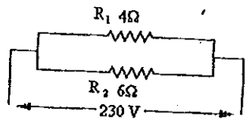

Fig. 2

3. Define slip in induction motor.
4. Why the transformer rating in kVA ?
5. What you mean by depletion layer ?
6. Mention the functions of amplifier.
7. List the universal gates.
8. Write the role of counters.
9. Name the elements of communication system.
10. What is demodulation ?

PART – B (5×13=65 Marks)

11. a) i) Calculate the branch currents and also calculate voltage across 0.8 Ω. Use Kirchoff's Law. (8)

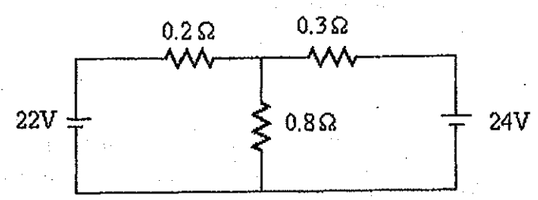

Figure 11. a

ii) Explain the working principle of Permanent Magnet Moving Coil meter (PMMC) with neat construction diagram. (5)

(OR)

b) Write the mesh equations for the circuit shown in Figure 11. b and solve for the current in 12 Ω resistor. (13)

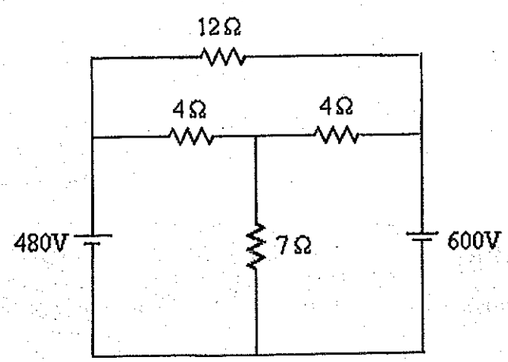

figure 11. b

12. a) Explain with neat diagram, the construction and working principle of DC generator. (13)

(OR)

b) i) Why single phase induction motor is not self starting ? (7)

ii) Explain any two starting methods suitable for single phase induction motor. (6)

13. a) With neat circuit diagram and waveforms, elucidate the working principle of half wave and full wave rectifier. (13)

(OR)

b) Explain the construction and working of bipolar junction transistor (BJT). (13)

14. a) Explain the sequential circuits with necessary circuit diagram and truth tables. (13)

(OR)

b) Find the complement of the functions $F_1 = x'yz' + x'y'z$ and $F_2 = x(y'z' + yz)$. By applying De-Morgan's theorems as many times as necessary. (13)

15. a) Describe the working principle of amplitude modulation and frequency modulation. (13)

(OR)

b) Write a technical note on the following :

i) Microwave communication. (4)

ii) Satellite communication. (4)

iii) Optical fiber communication. (5)

PART – C (1×15=15 Marks)

16. a) A balanced star connected load having an impedance (15+j20) ohm per phase is connected to a three phase, 440 V, 50 Hz supply. Find the line currents and the power absorbed by the load. Assume R Y B phase sequence. (15)

(OR)

b) Draw the construction diagram of single phase transformer. Also explain the working principle of the same. (15)

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