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Question Paper Code: 21007

B.E. / B.Tech. DEGREE EXAMINATION, OCTOBER 2014.

Second Semester

Civil Engineering

01UEE206- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering)

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

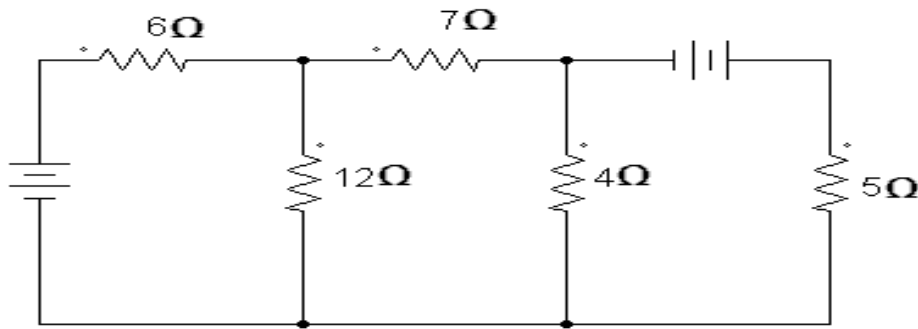
PART A - (10 x 2 = 20 Marks)

1. Define power and power factor.
2. What is the use of copper shading band in energy meter?
3. Define back emf in a dc motor.
4. Why the transformer rating is in kVA?
5. Define peak inverse voltage in a diode.
6. What is meant by uncontrolled rectifiers?
7. Draw the symbol and truth table of EX-NOR gate.
8. What is a synchronous counter?
9. Define demodulation of a signal.
10. What are the basic types of communication systems?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) State Ohm's law, Kirchhoff's voltage and current laws. (6)

- (ii) Find the current through 4Ω resistor in the circuit by using mesh analysis. All the DC voltage sources have 12V output.



(10)

Or

- (b) (i) Explain in detail the errors, advantages and disadvantages of moving iron instruments. (6)
- (ii) Explain the constructional details and principle of a dynamometer type wattmeter. (10)
12. (a) Draw and explain the constructional details of a dc generator and also derive the emf equation. (16)

Or

- (b) (i) Draw and explain the core type and shell type transformers. (6)
- (ii) Explain the principle of operation of single phase induction motor based on double field revolving theory. (10)
13. (a) (i) Describe the working principle of Zener diode with neat diagram and also explain its V-I characteristics. (8)
- (ii) Explain the operation of full wave bridge rectifier with neat sketch. (8)

Or

- (b) (i) Explain with neat diagram, the input and output characteristics of a Common Base configuration of a BJT. (8)
- (ii) Explain in detail about small signal CE amplifier. (8)
14. (a) (i) Design and explain the working of a full adder. (8)
- (ii) Briefly explain the working of JK flip flop. (8)
- Or
- (b) (i) Explain the operation of shift-right register. (8)
- (ii) Explain the operation of successive approximation type ADC with a neat sketch. (8)
15. (a) Explain the principle of Amplitude and Frequency modulation. (16)
- Or
- (b) (i) With neat diagram, explain the basic components of satellite communication. (8)
- (ii) Explain the block diagram of optical fiber communication systems. (8)
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