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

Question Paper Code: 41326

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Second Semester

Civil Engineering

14UEE206 – BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to Mechanical Engineering)

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 1 = 10 Marks)

1. If 750 µA is flowing through 11 kΩ of resistance, what is the voltage drop across the resistor?
   (a) 8.25 V (b) 82.5 V (c) 14.6 V (d) 146 V

2. Which of the following series combinations dissipates the most power when connected across a 120 V source?
   (a) one 220 Ω resistor (b) two 220 Ω resistors
   (c) three 220 Ω resistors (d) four 220 Ω resistors

3. The material for commutator brushes is generally
   (a) mica (b) copper (c) cast iron (d) carbon

4. A D.C. generator works on the principle of
   (a) Lenz's law (b) Ohm's law (c) Faraday's law (d) None of the above

5. The barrier potential for a silicon diode at 25°C is approximately
   (a) 0.4V (b) 0.3V (c) 0.7V (d) 0.5V

6. When both emitter and collector junctions are forward biased, the transistor is in which region?

(a) Active (b) Cut-off (c) Break down (d) Saturation

7. Convert $(11110111)_2$ to Octal

(a) 267 (b) 367 (c) 376 (d) 276

8. With OR operation, 1+1 is

(a) 1 (b) 0 (c) 10 (d) 2

9. In transistor radio receivers the number of IF amplifier stages are

(a) 1 (b) 2 (c) 4 (d) 6

10. Video signals are transmitted through

(a) amplitude modulation
(b) frequency modulation
(c) Both amplitude and frequency modulation
(d) neither amplitude nor frequency modulation

PART - B (5 x 2 = 10 Marks)

11. A 120Ω resistor has a specified maximum power dissipation of 1W. Calculate the maximum current level.

12. What is back emf?

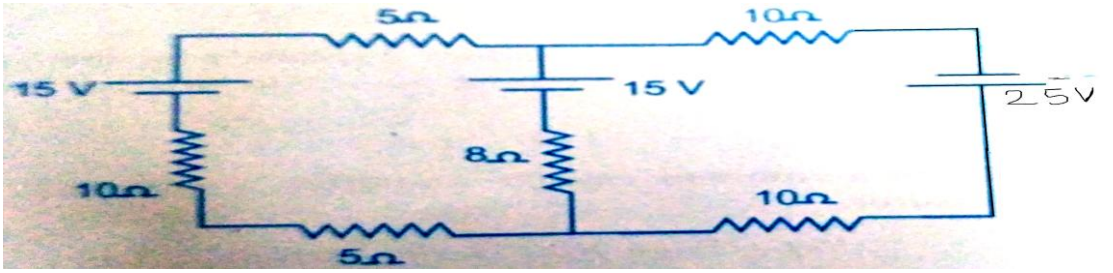
13. Compare PN junction diode and Zener diode

14. Convert $7F8_H$ into Decimal

15. Write the advantages of optic fibre communication

PART - C (5 x 16 = 80 Marks)

16. (a) Find the current through 8Ω resistor in the following circuit using Kirchoff's law (16)



Or

(b) Explain the construction and principle of operation of single phase energy meter (16)

17. (a) (i) Derive the EMF equation of DC generator (8)

(ii) Derive the torque and speed equation of DC motor (8)

Or

(b) Explain the construction and working principle of single phase transformer in detail. (16)

18. (a) Explain the working principle of half wave and full wave rectifier with neat circuit diagram and waveform. (16)

Or

(b) Explain the elementary treatment of small signal amplifier (16)

19. (a) Explain in detail about T-Flip flop, S-R flip flop and J-K flip flop (16)

Or

(b) Write short notes on

(i) Registers and counters (8)

(ii) A/D conversion. (8)

20. (a) Why modulation is necessary? Explain frequency modulation in detail. (16)

Or

(b) With the help of block diagram describe the working of

(i) a typical TV transmitter (8)

(ii) a typical TV receiver. (8)