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**Reg. No. :**

**Question Paper Code: 42036**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. Ohm’s law is applicable at

(a) 20° C (b) 37.5° C

(c) constant temperature (d) none of these

2. Which of the following are integrating instruments?

(a) Ammeters (b) Voltmeters (c) Wattmeters  (d) Ampere-hour and watt-hour meters

3. A 4 point starter is used to start and control the speed of a

(a) DC shunt motor with armature resistance control (b) DC shunt motor with field weakening control (c) DC series motor (d) DC compound motor

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. What is the binary equivalent (16)10

(a)(10001)2 (b)(10000)2 (c)(11011)2 (d)(11001)2

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

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

10. The bandwidth for AM wave is

(a) fc (b) fm (c) 2fm (d) fc - fm

PART - B (5 x 2 = 10 Marks)

11. State Kirchoff’s laws.

12. What is back emf?

13. What is early effect?

14. Convert 7F8H into Decimal.

15. Define the term modulation.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Explain the terms power and power factor in connection with AC circuits. (8)

(ii) Explain about construction and working of induction type energy meter. (8)

Or

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

17. (a) A 4 pole, wave wound generator having 40 slots and 10 conductors placed per slot. The flux per pole is 0.02 *wb*. Calculate the generated emf when the generator is drive at 1200 *rpm*. (16)

Or

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

18. (a) Draw and explain Zener diode shunt voltage regulator with its line and load regulations. (16)

Or

(b) Describe the construction and working principle of split phase and shaded pole single phase induction motor. (16)

19. (a) Briefly explain the working of JK flip flop. (16)

Or

(b) Draw the logic diagram, truth table and logic equations for the following gates

(i) NOT (ii) OR (iii) NAND (iv) NOR. (16)

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

Or

(b) With block diagram, discuss about the satellite communication systems. Also specify its

merits and demerits. (16)