Reg. No. :

Question Paper Code: 41427

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

Second Semester

Electronics and Communication Engineering

14UEC207 - ELECTRONIC DEVICES

(Regulation 2014)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Define Electron Volt.

    (a) 2eV   (b) 1eV   (c) 9eV   (d) 7eV

2. The energy gap decreases with the ------------ in temperature

    (a) Constant   (b) unity   (c) decreases   (d) increases

3. Mention any one application of Zener Diode.

    (a) detector   (b) tunnel diode

    (c) For Controlling the output amplitude   (d) demodulation circuit

4. In reverse saturation current Io of diode increases approximately--------- percentnt, for both germanium and silicon

    (a) 5.2   (b) 7   (c) 1.1   (d) 2.3

5. By providing proper bias voltage ,the transistor can be made to work as an------

    (a) amplifier   (b) regulator   (c) switch   (d) diode

6. Mention the application of CC configuration

    (a) low frequency circuits   (b) high frequency circuits

    (c) audio frequency circuits   (d) Impedance maching

7. When a FET acts as a voltage variable resistor?

    (a) Vgs=1 (b) Vgs=0 (c) Vgs<0 (d) Vgs>0

8. Which mode JFET can operate-------------

    (a) depletion   (b) enhancement

    (c) depletion and enhancement (d) normal mode

9. Unipolar devices only the ----------------- are responsible for the current flow.

    (a) minority charge carriers and majority charge carriers (b) minority charge carriers

    (c) majority charge carriers   (d) charge particles

10. LCD are used for display of

    (a) printer   (b) numeric only

    (c) alphanumeric character only (d) numeric and alphanumeric character

PART - B (5 x 2 = 10 Marks)

11. Draw energy band diagram of semiconductor.

12. Difference between half wave and full wav rectifier.

13. Write the advantages of JFET.

14. Write the equation for drain current of JFET.

15. Define Phototransistor.

PART - C (5 x 16 = 80 Marks)

16. (a) Derive the expression of carrier concentration in intrinsic semiconductor (16)

Or

(b) (i) Derive expression of Drift and Diffusion current. (12)

 (ii) Write short Notes on Mass action law. (4)

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17. (a) With neat diagram and explain the theory of PN junction diode   (16)

Or

   (b) (i) Derive the expression of diode current equation.   (6)

       (ii) Discuss in detail about Zener diode and its application   (10)

18. (a) (i) Discuss in detail about principle of operation PNP and NPN transistors   (10)

       (ii) Discuss in detail characteristics of CE,CB, and CC configurations.   (6)

Or

   (b) Write short notes on:
       (i) Breakdown in transistors   (8)
       (ii) Switched mode power supply   (8)

19. (a) (i) With neat diagram, explain the operation of N channel JFET.   (10)
         (ii) List out the comparison of JFET and BJT.   (6)
                                        Or
    (b) With neat diagram, explain the construction, operation of MOSFET.   (16)

20. (a) (i) With neat sketch explain the principle of Uni Junction Transistor   (12)
        (ii) Differentiate between photoconductive and photovoltaic cells.   (4)

Or

   (b) Write short notes on :

       (i) LCD   (8)

       (ii).CCD   (8)

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