DR.SHYAMA PRASAD MUKHERJEE UNIVERSITY, RANCHI

UNIVERSITY DEPARTMENT OF ELECTRONICS

Subject : Electronics   Semester- 3rd   Paper : cc –v

GROUP – (A)

Multiple choice Question

(1) The voltage gain of a transistor connected in………….arrangement the highest.
    a. Common base b. common collector c. common emitter d. none of these

(2) The operating point is also called the………………
    a. cutoff point b. quiescent point c. saturation point d. none of these

(3)   The maximum efficiency of a half wave rectifier is……………………..
    a.   40.6 %   b. 81.8 %   c. 50   %   d. 25 %

(4)   The most widely used rectifier is……………………
    a.   Half wave rectifier   b. center tap full wave rectifier
    b.   Bridge full wave rectifier   d. none of the above

(5) Emitter following is also known as---
    a.   Grounded emitter circuit   c. grounded base circuit
    b.   Grounded collector circuit d. none of the above

(6) The PIV rating of each diode in bridge rectifier is………..that of the equivalent Centre tap rectifier.
    a.   One half b. the same as   c .twice d. four times

(7)   A transistor is a …………………..operated device.
    a.   Currentb. voltage   c. both a & b   d. none of the above

(8) A Zener diode is used as-
    a.   An amplifier b. a voltage regulator c. a rectifier d. a multivibrator

(9) The leakage current is a crystal diode is due to…….
    a.   Minority carriers b. majority carriers c. junction capacitance d. none of the above

(10) The emitter of a transistor is ………………….doped.
    a.   Lightly   b. heavily   c. moderately   d. none

(11) A Pn junction acts as a………….
    a.   Controlled switch b. bidirectional switch c. unidirectional switch d, none of the above

(12) The relation between β and α is ……………………

  a. $\beta = \frac{1}{1-\alpha}$ b. $\beta = \frac{1-\alpha}{\alpha}$ c. $\beta = \frac{\alpha}{1-\alpha}$ d. $\beta = \frac{\alpha}{1+\alpha}$

(13) The most commonly used transistor arrangement is ………………arrangement
    a.   Common emitter   b. common base   c. common collector   d. none

(14) When negative voltage feedback is applied to an amplifier, its voltage gain…………..
      a. Is increased   b. is reduced   c. remains the same   d. none

(15) The voltage of negative feedback fraction is always ……………
      a. Less than 1   b. more than 1   c. equal to 1   d. none

(16) The input impedance of a transistor connected in ………..arrangement is the highest
      a. Common emitter b. common collector c. common base d. none of these

(17) The basic purpose of applying negative voltage feedback is to ………………
      a. Increase voltage gain   b. reduce distortion

      c. keep the temperature within limits   d. none of the above

(18) The ripple factor of a half -wave rectifier is ……………………….

      a.1.21   b. 2.5   c. 2   d. 0.48

(19) when a pentavalent impurity is added to a pure semiconductor, it becomes…….

a. an insulator b. an intrinsic semiconductor c. p-type semi-conductor d. n-type semi-conductor

(20) In the depletion region of a PN junction, There is a shortage of …..

a. acceptor ions b. holes and electrons c. donor ions d. none of the above

GROUP- B

Short answer type question

(1) What is ideal diode ? what its advantage and disadvantages .
(2) What is rectifier ? Explain half wave rectifier with its circuit diagram.
(3) What is transistor ? Explain its type with symbol.
(4) What is negative feedback? Explain it with diagram.
(5) Show the relation between α and β function .
(6) Write the advantage of negative voltage feedback.
(7) Explain barkhausen criterion.
(8) Compare the various characteristics of the three connection configuration.
(9) What is Q-point transistor? Also draw its graph.
(10)   What is DC load line in a transistor ?

GROUP –C

Long answer type question.

(1) Explain the full wave rectifier with diagram , working and waveforms and find its D.C current and voltage ,ripple factor and efficiency.

(2) Explain and draw the common emitter configuration of transistor and its input and output characteristics graph.

(3) Draw and explain the circuit diagram of Hartley oscillator.

(4) Explain the working PNP transistor in common base (CB) connection. Also draw its input and output characteristics.

(5) Draw and explain how transistor works as an amplifier.

(6) Explain the full wave rectifier with diagram ,working and wave forms also find the d.c current and voltage ,ripple factor &efficiency.