# SRINIX COLLEGE OF ENGINEERING, BALASORE

## *PROBABLE QUESTIONS AND ANSWERS*

# SUBJECT-BETC (2nd semester)

**Q1.A semiconductor is formed by ……… bonds.**
1. Covalent
2. Electrovalent
3. Co-ordinate
4. None of the above

**Answer : 1**

**2.A semiconductor has ………… temperature coefficient of resistance.**
1. Positive
2. Zero
3. Negative
4. None of the above

**Answer : 3**

**Q3. The most commonly used semiconductor is ………..**
1. Germanium
2. Silicon
3. Carbon
4. Sulphur

**Answer : 2**

**Q4. A semiconductor has generally ……………… valence electrons.**
1. 2
2. 3
3. 6
4. 4

**Answer : 4**

**Q5. The resistivity of pure germanium under standard conditions is about ……….**
1. $6 \times 10^4$
2. $\Omega$ cm
3. 60
4. $\Omega$ cm
5. $3 \times 10^6$
6. $\Omega$ cm
7. $6 \times 10^{-4}$
8. $\Omega$ cm

**Answer : 2**

**Q6. The resistivity of a pure silicon is about ……………**
1. 100 $\Omega$ cm
2. 6000 $\Omega$ cm
3. $3 \times 10^5$ $\Omega$ m
4. $6 \times 10^{-8}$ $\Omega$ cm

**Answer : 2**

**Q7. When a pure semiconductor is heated, its resistance …………..**

1. Goes up
2. Goes down
3. Remains the same
4. Can't say

**Answer : 2**

**Q8. The strength of a semiconductor crystal comes from ……..**

1. Forces between nuclei
2. Forces between protons
3. Electron-pair bonds
4. None of the above

**Answer : 3**

**Q9. When a pentavalent impurity is added to a pure semiconductor, it becomes ………**

1. An insulator
2. An intrinsic semiconductor
3. p-type semiconductor
4. n-type semiconductor

**Answer : 4**

**Q10. Addition of pentavalent impurity to a semiconductor creates many ……..**

1. Free electrons
2. Holes
3. Valence electrons
4. Bound electrons

**Answer : 1**

**Q11. A pentavalent impurity has ………. Valence electrons**

1. 3
2. 5
3. 4
4. 6

**Answer : 2**

**A12. An n-type semiconductor is ………**

1. Positively charged
2. Negatively charged
3. Electrically neutral
4. None of the above

**Answer : 3**

**Q13. A trivalent impurity has ….. valence electrons**

1. 4
2. 5
3. 6
4. 3

**Answer : 4**

**A14. Addition of trivalent impurity to a semiconductor creates many ……..**

1. Holes
2. Free electrons
3. Valence electrons
4. Bound electrons

**Answer : 1**

**Q15. A hole in a semiconductor is defined as …………….**

1. A free electron
2. The incomplete part of an electron pair bond

3. A free proton
4. A free neutron

**Answer : 2**

**Q16. The impurity level in an extrinsic semiconductor is about ….. of pure semiconductor.**

1. 10 atoms for $10^8$ atoms
2. 1 atom for $10^8$ atoms
3. 1 atom for $10^4$ atoms
4. 1 atom for 100 atoms

**Answer : 2**

**Q17. As the doping to a pure semiconductor increases, the bulk resistance of the semiconductor** ……….

1. Remains the same
2. Increases
3. Decreases
4. None of the above

**Answer : 3**

**Q18. A hole and electron in close proximity would tend to ……….**

1. Repel each other
2. Attract each other
3. Have no effect on each other
4. None of the above

**Answer : 2**

**Q19. In a semiconductor, current conduction is due to ……..**

1. Only holes
2. Only free electrons
3. Holes and free electrons
4. None of the above

**Answer : 3**

**Q20. The random motion of holes and free electrons due to thermal agitation is called** ……….

1. Diffusion
2. Pressure
3. Ionisation
4. None of the above

**Answer : 1**


**21.A forward biased pn junction diode has a resistance of the order of**

1. $\Omega$
2. $k\Omega$
3. $M\Omega$
4. None of the above

**Answer : 1**

**Q22. The battery connections required to forward bias a pn junction are ……**

1. +ve terminal to p and –ve terminal to n
2. -ve terminal to p and +ve terminal to n
3. -ve terminal to p and –ve terminal to n
4. None of the above

**Answer : 1**

**Q23. The barrier voltage at a pn junction for germanium is about ………**

3. 5 V
4. 3 V
5. Zero

6. 3 V

**Answer : 4**

**Q24. In the depletion region of a pn junction, there is a shortage of ……..**
1. Acceptor ions
2. Holes and electrons
3. Donor ions
4. None of the above

**Answer : 2**

**Q25. A reverse bias pn junction has …………**
1. Very narrow depletion layer
2. Almost no current
3. Very low resistance
4. Large current flow

**Answer : 2**

**Q26. A pn junction acts as a ……….**
1. Controlled switch
2. Bidirectional switch
3. Unidirectional switch
4. None of the above

**Answer : 3**

**Q27. A reverse biased pn junction has resistance of the order of**
1. Ω
2. kΩ
3. MΩ
4. None of the above

**Answer : 3**

**Q28. The leakage current across a pn junction is due to …………..**
1. Minority carriers
2. Majority carriers
3. Junction capacitance
4. None of the above

**Answer : 1**

**Q29. When the temperature of an extrinsic semiconductor is increased, the pronounced effect is on……**
1. Junction capacitance
2. Minority carriers
3. Majority carriers
4. None of the above

**Answer : 2**

**Q30. With forward bias to a pn junction , the width of depletion layer ………**
1. Decreases
2. Increases
3. Remains the same
4. None of the above

**Answer : 1**

**Q31.  The leakage current in a pn junction is of the order of**
1. Aa
2. mA
3. kA
4. µA

**Answer : 4**

**Q32. In an intrinsic semiconductor, the number of free electrons ………**

1. Equals the number of holes
2. Is greater than the number of holes
3. Is less than the number of holes
4. None of the above

**Answer : 1**

**Q33. At room temperature, an intrinsic semiconductor has ……….**
1. Many holes only
2. A few free electrons and holes
3. Many free electrons only
4. No holes or free electrons

**Answer : 2**

**Q34. At absolute temperature, an intrinsic semiconductor has ……….**
1. A few free electrons
2. Many holes
3. Many free electrons
4. No holes or free electrons

**Answer : 4**

**Q35. At room temperature, an intrinsic silicon crystal acts approximately as ……**
1. A battery
2. A conductor
3. An insulator
4. A piece of copper wire

**Answer : 3**

**Q36. Under normal conditions a diode conducts current when it is ……………**
1. reverse biased
2. forward biased
3. avalanched
4. saturated

**Answer : 2**

**Q37. The term bias in electronics usually means ……….**
1. the value of ac voltage in the signal.
2. the condition of current through a pn junction.
3. the value of dc voltages for the device to operate properly.
4. the status of the diode.

**Answer : 3**

**38.A crystal diode has ………**
1. one pn junction
2. two pn junctions
3. three pn junctions
4. none of the above

**Answer : 1**

**39.A crystal diode has forward resistance of the order of ……………**
1. kΩ
2. Ω
3. MΩ
4. none of the above

**Answer : 2**

**Q40. If the arrow of crystal diode symbol is positive w.r.t. bar, then diode is …………..
biased.**
1. forward
2. reverse
3. either forward or reverse

4. none of the above

**Answer : 1**

**Q41. The reverse current in a diode is of the order of ……………….**
1. kA
2. mA
3. μA
4. A

**Answer : 3**

**Q42. The forward voltage drop across a silicon diode is about …………………**
1. 2.5 V
2. 3 V
3. 10 V
4. 0.7 V

**Answer : 4**

**Q43. A crystal diode is used as ……………**
1. an amplifier
2. a rectifier
3. an oscillator
4. a voltage regulator

**Answer : 2**

**Q44. The d.c. resistance of a crystal diode is ………….. its a.c. resistance**
1. the same as
2. more than
3. less than
4. none of the above

**Answer : 3**

**Q45. An ideal crystal diode is one which behaves as a perfect ……….. when forward biased.**
1. conductor
2. insulator
3. resistance material
4. none of the above

**Answer : 1**

**Q46. The ratio of reverse resistance and forward resistance of a germanium crystal diode is about ………….**
1. 1 : 1
2. 100 : 1
3. 1000 : 1
4. 40,000 : 1

**Answer : 4**

**Q 47. The leakage current in a crystal diode is due to …………….**
1. minority carriers
2. majority carriers
3. junction capacitance
4. none of the above

**Answer :1**

**Q48. If the temperature of a crystal diode increases, then leakage current ………..**
1. remains the same
2. decreases
3. increases
4. becomes zero

**Answer :3**

**Q49. The PIV rating of a crystal diode is ………….. that of equivalent vacuum diode**

1. the same as
2. lower than
3. more than
4. none of the above

**Answer :2**

**Q50. If the doping level of a crystal diode is increased, the breakdown voltage………….**
1. remains the same
2. is increased
3. is decreased
4. none of the above

**Answer :3**

**Q51. The knee voltage of a crystal diode is approximately equal to ………….**
1. applied voltage
2. breakdown voltage
3. forward voltage
4. barrier potential

**Answer :4**

**Q52. When the graph between current through and voltage across a device is a straight line, the device is referred to as ……………….**
1. linear
2. active
3. nonlinear
4. passive

**Answer :1**

**Q53. When the crystal current diode current is large, the bias is …………**
1. forward
2. inverse
3. poor
4. reverse

**Answer :1**

**Q54. A crystal diode is a …………… device**
1. non-linear
2. bilateral
3. linear
4. none of the above

**Answer :1**

**Q55. A crystal diode utilises …………….. characteristic for rectification**
1. reverse
2. forward
3. forward or reverse
4. none of the above

**Answer :2**

**Q56. When a crystal diode is used as a rectifier, the most important consideration is ………..**
1. forward characteristic
2. doping level
3. reverse characteristic
4. PIC rating

**Answer :4**

**Q57. If the doping level in a crystal diode is increased, the width of depletion layer………..**
1. remains the same
2. is decreased

3. in increased
4. none of the above

**Answer :3**

**Q58. A zener diode has ………..**
1. one pn junction
2. two pn junctions
3. three pn junctions
4. none of the above

**Answer :1**

**Q59. A zener diode is used as ……………**
1. an amplifier
2. a voltage regulator
3. a rectifier
4. a multivibrator

**Answer :2**

**Q60. The doping level in a zener diode is …………… that of a crystal diode**
1. the same as
2. less than
3. more than
4. none of the above

**Answer :3**

**Q61. A zener diode is always ………… connected.**
1. reverse
2. forward
3. either reverse or forward
4. none of the above

**Answer :1**

**Q62.A zener diode utilizes ……….. characteristics for its operation.**
1. forward
2. reverse
3. both forward and reverse
4. none of the above

**Answer :2**

**Q63. In the breakdown region, a zener didoe behaves like a …………… source.**
1. constant voltage
2. constant current
3. constant resistance
4. none of the above

**Answer :1**

**Q64. A zener diode is destroyed if it…………..**
1. is forward biased
2. is reverse biased
3. carrier more than rated current
4. none of the above

**Answer :3**

**Q65. A series resistance is connected in the zener circuit to………..**
1. properly reverse bias the zener
2. protect the zener
3. properly forward bias the zener
4. none of the above

**Answer :2**

**A66. A zener diode is ………………… device**

1. a non-linear
2. a linear
3. an amplifying
4. none of the above

**Answer :1**

**Q67. A zener diode has ………….. breakdown voltage**
1. undefined
2. sharp
3. zero
4. none of the above

**Answer :2**

**Q68. ……………. rectifier has the lowest forward resistance**
1. solid state
2. vacuum tube
3. gas tube
4. none of the above

**Answer :1**

**Q69. Mains a.c. power is converrted into d.c. power for ……………..**
1. lighting purposes
2. heaters
3. using in electronic equipment
4. none of the above

**Answer :3**

**Q70. The disadvantage of a half-wave rectifier is that the……………….**
1. components are expensive
2. diodes must have a higher power rating
3. output is difficult to filter
4. none of the above

**Answer :3**

**Q71. If the a.c. input to a half-wave rectifier is an r.m.s value of 400/√2 volts, then diode PIV rating is ………………….**
1. 400/√2 V
2. 400 V
3. 400 x √2 V
4. none of the above

**Answer :2**

**Q72. The ripple factor of a half-wave rectifier is ………………..**
1. 2
2. 1.21
3. 2.5
4. 0.48

**Answer :2**

**Q73. There is a need of transformer for ………………..**
1. half-wave rectifier
2. centre-tap full-wave rectifier
3. bridge full-wave rectifier
4. none of the above

**Answer :2**

**Q74. The PIV rating of each diode in a bridge rectifier is ……………… that of the equivalent centre-tap rectifier**
1. one-half
2. the same as

3. twice
4. four times

**Answer :1**

**Q75. For the same secondary voltage, the output voltage from a centre-tap rectifier is ………… than that of bridge rectifier**
1. twice
2. thrice
3. four time
4. one-half

**Answer :4**

**Q76. If the PIV rating of a diode is exceeded, ………………**
1. the diode conducts poorly
2. the diode is destroyed
3. the diode behaves like a zener diode
4. none of the above

**Answer :2**

**Q77. A 10 V power supply would use ………………… as filter capacitor.**
1. paper capacitor
2. mica capacitor
3. electrolytic capacitor
4. air capacitor

**Answer :3**

**Q78. A 1,000 V power supply would use ……….. as a filter capacitor**
1. paper capacitor
2. air capacitor
3. mica capacitor
4. electrolytic capacitor

**Answer :1**

**Q79. The ……………….. filter circuit results in the best voltage regulation**
1. choke input
2. capacitor input
3. resistance input
4. none of the above

**Answer :1**

**Q80. A half-wave rectifier has an input voltage of 240 V r.m.s. If the step-down transformer has a turns ratio of 8:1, what is the peak load voltage? Ignore diode drop.**
1. 27.5 V
2. 86.5 V
3. 30 V
4. 42.5 V

**Answer :4**

**Q81. The maximum efficiency of a half-wave rectifier is ………………..**
1. 40.6 %
2. 81.2 %
3. 50 %
4. 25 %

**Answer :1**

**Q82. The most widely used rectifier is ………………**
1. half-wave rectifier
2. centre-tap full-wave rectifier
3. bridge full-wave rectifier
4. none of the above

**Answer :3**

**Q83. A transistor has ………………**

1. one pn junction
2. two pn junctions
3. three pn junctions
4. four pn junctions

**Answer : 2**

**Q84.The number of depletion layers in a transistor is …………**

1. four
2. three
3. one
4. two

**Answer : 4**

**Q85.. The base of a transistor is ………….. doped**

1. heavily
2. moderately
3. lightly
4. none of the above

**Answer : 3**

**Q86. The element that has the biggest size in a transistor is ………………..**

1. collector
2. base
3. emitter
4. collector-base-junction

**Answer : 1**

**Q87. In a pnp transistor, the current carriers are ………….**

1. acceptor ions
2. donor ions
3. free electrons
4. holes

**Answer : 4**

**Q88. The collector of a transistor is …………. doped**

1. heavily
2. moderately
3. lightly
4. none of the above

**Answer : 2**

**Q88. A transistor is a …………… operated device**

1. current
2. voltage
3. both voltage and current
4. none of the above

**Answer : 1**

**Q89. In a npn transistor, …………… are the minority carriers**

1. free electrons
2. holes
3. donor ions
4. acceptor ions

**Answer : 2**

**Q90. The emitter of a transistor is ………………… doped**

1. lightly
2. heavily

3. moderately
4. none of the above

**Answer : 2**

**Q91. In a transistor, the base current is about ………….. of emitter current**
1. 25%
2. 20%
3. 35 %
4. 5%

**Answer : 4**

**Q92. At the base-emitter junctions of a transistor, one finds ……………**
1. a reverse bias
2. a wide depletion layer
3. low resistance
4. none of the above

**Answer : 3**

**Q93. The input impedance of a transistor is ………….**
1. high
2. low
3. very high
4. almost zero

**Answer : 2**

**Q94. Most of the majority carriers from the emitter ………………..**
1. recombine in the base
2. recombine in the emitter
3. pass through the base region to the collector
4. none of the above

**Answer :3**

**Q95. The current $I_B$ is …………**
1. electron current
2. hole current
3. donor ion current
4. acceptor ion current

**Answer : 1**

**Q96. In a transistor ………………..**

$I_C = I_E + I_B$

$I_B = I_C + I_E$

$I_E = I_C - I_B$

$I_E = I_C + I_B$

**Answer : 4**

**Q97. The value of α of a transistor is ……….**
- more than 1
- less than 1
- 1
- none of the above

**Answer : 2**

**Q98. $I_C = αI_E +$ ………….**
1. $I_B$
2. $I_{CEO}$
3. $I_{CBO}$
4. $βI_B$

**Answer : 3**

**Q99. The output impedance of a transistor is ……………..**

1. high
2. zero
3. low
4. very low

**Answer : 1**

**Q100. In a tansistor, $I_C = 100$ mA and $I_E = 100.2$ mA. The value of β is …………**

1. 100
2. 50
3. about 1
4. 200

**Answer : 4**

**Q101. In a transistor if β = 100 and collector current is 10 mA, then $I_E$ is …………**

1. 100 mA
2. 100.1 mA
3. 110 mA
4. none of the above

**Answer : 2**

**Q102. The relation between β and α is …………..**

1. $β = 1 / (1 - α)$
2. $β = (1 - α) / α$
3. $β = α / (1 - α)$
4. $β = α / (1 + α)$

**Answer : 3**

**Q103. The value of β for a transistor is generally ………………..**

1. 1
2. less than 1
3. between 20 and 500
4. above 500

**Answer : 3**

**Q103. The most commonly used transistor arrangement is …………… arrangement**

1. common emitter
2. common base
3. common collector
4. none of the above

**Answer : 1**

**Q104. The input impedance of a transistor connected in …………….. arrangement is the highest**

1. common emitter
2. common collector
3. common base
4. none of the above

**Answer : 2**

**Q105. The output impedance of a transistor connected in ……………. arrangement is the highest**

1. common emitter
2. common collector
3. common base
4. none of the above

**Answer : 3**

**Q106. The phase difference between the input and output voltages in a common base arrangement is …………….**

1. $180^o$

2. 90°
3. 270°
4. 0°

**Answer : 4**

**Q107. The power gain in a transistor connected in ……………. arrangement is the highest**
1. common emitter
2. common base
3. common collector
4. none of the above

**Answer : 1**

**Q108. The phase difference between the input and output voltages of a transistor connected in common emitter arrangement is ………………**
1. 0°
2. 180°
3. 90°
4. 270°

**Answer : 2**

**Q109. The voltage gain in a transistor connected in ………………. arrangement is the highest**
1. common base
2. common collector
3. common emitter
4. none of the above

**Answer : 3**

**Q110. As the temperature of a transistor goes up, the base-emitter resistance ……………**
1. decreases
2. increases
3. remains the same
4. none of the above

**Answer : 1**

**Q111. The voltage gain of a transistor connected in common collector arrangement is ………..**
1. equal to 1
2. more than 10
3. more than 100
4. less than 1

**Answer : 4**

**Q112. The phase difference between the input and output voltages of a transistor connected in common collector arrangement is ………………**
1. 180°
2. 0°
3. 90°
4. 270°

**Answer : 2**

**Q113. $I_C = \beta I_B + $ ………..**
1. $I_{CBO}$
2. $I_C$
3. $I_{CEO}$
4. $\alpha I_E$

**Answer : 3**

**Q114. $I_C = [\alpha / (1 - \alpha)] I_B + $ ………….**
1. $I_{CEO}$

2. $I_{CBO}$
3. $I_C$
4. $(1 - \alpha) I_B$

**Answer : 1**

**Q115.** $I_C = [\alpha / (1 - \alpha)] I_B + [........ / (1 - \alpha)]$

1. $I_{CBO}$
2. $I_{CEO}$
3. $I_C$
4. $I_E$

**Answer : 1**

**Q116. BC 147 transistor indicates that it is made of …………..**

1. germanium
2. silicon
3. carbon
4. none of the above

**Answer : 2**

**Q117.** $I_{CEO} = (.........) I_{CBO}$

1. $\beta$
2. $1 + \alpha$
3. $1 + \beta$
4. none of the above

**Answer : 3**

**Q118. A transistor is connected in CB mode. If it is not connected in CE mode with same bias voltages, the values of $I_E$, $I_B$ and $I_C$ will …………..**

1. remain the same
2. increase
3. decrease
4. none of the above

**Answer : 1**

**Q119. If the value of $\alpha$ is 0.9, then value of $\beta$ is ………..**

1. 9
2. 0.9
3. 900
4. 90

**Answer : 4**

**Q120. In a transistor, signal is transferred from a …………… circuit**

1. high resistance to low resistance
2. low resistance to high resistance
3. high resistance to high resistance
4. low resistance to low resistance

**Answer : 2**

**Q121. The arrow in the symbol of a transistor indicates the direction of ………….**

1. electron current in the emitter
2. electron current in the collector
3. hole current in the emitter
4. donor ion current

**Answer : 3**

**Q122. The leakage current in CE arrangement is ……………. that in CB arrangement**

1. more than
2. less than
3. the same as
4. none of the above

Answer : 1

**Q.123.Transistor biasing represents ……………. conditions**
  1. a.c.
  2. d.c.
  3. both a.c. and d.c.
  4. none of the above

Answer : 2

**Q.124.Transistor biasing is done to keep ………… in the circuit**
  1. Proper direct current
  2. Proper alternating current
  3. The base current small
  4. Collector current small

Answer : 1

**Q125. Operating point represents …………..**
  1. Values of $I_C$ and $V_{CE}$ when signal is applied
  2. The magnitude of signal
  3. Zero signal values of $I_C$ and $V_{CE}$
  4. None of the above

Answer : 3

**Q126. If biasing is not done in an amplifier circuit, it results in ……………**
  1. Decrease in the base current
  2. Unfaithful amplification
  3. Excessive collector bias
  4. None of the above

Answer : 2

**Q127. Transistor biasing is generally provided by a …………….**
  1. Biasing circuit
  2. Bias battery
  3. Diode
  4. None of the above

Answer : 1

**Q128. For faithful amplification by a transistor circuit, the value of $V_{BE}$ should ………. for a silicon transistor**
  1. Be zero
  2. Be 0.01 V
  3. Not fall below 0.7 V
  4. Be between 0 V and 0.1 V

Answer : 3

**Q129. For proper operation of the transistor, its collector should have …………**
  1. Proper forward bias
  2. Proper reverse bias
  3. Very small size
  4. None of the above

Answer : 2

**Q130. For faithful amplification by a transistor circuit, the value of $V_{CE}$ should ……….. for silicon transistor**
  1. Not fall below 1 V
  2. Be zero
  3. Be 0.2 V
  4. None of the above

Answer : 1

**Q131. The circuit that provides the best stabilization of operating point is …………**

1. Base resistor bias
2. Collector feedback bias
3. Potential divider bias
4. None of the above

**Answer : 3**

**Q132. The point of intersection of d.c. and a.c. load lines represents …………..**
1. Operating point
2. Current gain
3. Voltage gain
4. None of the above

**Answer : 1**

**Q133. An ideal value of stability factor is …………..**
1. 100
2. 200
3. More than 200
4. 1

**Answer : 4**

**Q134.  The zero signal $I_C$ is generally ……………… mA in the initial stages of a transistor amplifier**
1. 4
2. 1
3. 3
4. More than 10

**Answer : 2**

**Q135. If the maximum collector current due to signal alone is 3 mA, then zero signal collector current should be at least equal to ………..**
1. 6 mA
2. mA
3. 3 mA
4. 1 mA

**Answer : 3**

**Q136. The disadvantage of base resistor method of transistor biasing is that it …………**
1. Is complicated
2. Is sensitive to changes in ß
3. Provides high stability
4. None of the above

**Answer : 2**

**Q137. The biasing circuit has a stability factor of 50. If due to temperature change, ICBO changes by 1 μA, then $I_C$ will change by …………**
1. 100 μA
2. 25 μA
3. 20 μA
4. 50 μA

**Answer : 4**

**Q138. For good stabilsation in voltage divider bias, the current $I_1$ flowing through R1 and R2 should be equal to or greater than**
1. 10 $I_B$
2. 3 $I_B$
3. 2 $I_B$
4. 4 $I_B$

**Answer : 1**

**Q139. The leakage current in a silicon transistor is about ………… the leakage current in a germanium transistor**

1. One hundredth
2. One tenth
3. One thousandth
4. One millionth

**Answer : 3**

**Q140. The operating point is also called the …………**

1. Cut off point
2. Quiescent point
3. Saturation point
4. None of the above

**Answer : 2**

**Q141. For proper amplification by a transistor circuit, the operating point should be located at the ………….. of the d.c. load line**

1. The end point
2. Middle
3. The maximum current point
4. None of the above

**Answer : 2**

**Q142. The operating point ………………… on the a.c. load line**

1. Also line
2. Does not lie
3. May or may not lie
4. Data insufficient

**Answer : 1**

**Q143. The disadvantage of voltage divider bias is that it has ………….**

1. High stability factor
2. Low base current
3. Many resistors
4. None of the above

**Answer : 3**

**Q144. Thermal runaway occurs when ……….**

1. Collector is reverse biased
2. Transistor is not biased
3. Emitter is forward biased
4. Junction capacitance is high

**Answer : 2**

**Q145. The purpose of resistance in the emitter circuit of a transistor amplifier is to ………….**

1. Limit the maximum emitter current
2. Provide base-emitter bias
3. Limit the change in emitter current
4. None of the above

**Answer : 3**

**Q146. In a transistor amplifier circuit $V_{CE} = V_{CB} +$ ……………..**

1. $V_{BE}$
2. $2V_{BE}$
3. $5 V_{BE}$
4. None of the above

**Answer : 1**

**Q147. The base resistor method is generally used in ………**

1. Amplifier circuits
2. Switching circuits
3. Rectifier circuits
4. None of the above

**Answer : 2**

**Q148. For germanium transistor amplifier, $V_{CE}$ should ………….. for faithful amplification**
1. Be zero
2. Be 0.2 V
3. Not fall below 0.7 V
4. None of the above

**Answer : 3**

**Q149. In a base resistor method, if the value of β changes by 50, then collector current will change by a factor ………**
1. 25
2. 50
3. 100
4. 200

**Answer : 2**

**Q150.  The stability factor of a collector feedback bias circuit is ……….. that of base resistor bias.**
1. The same as
2. More than
3. Less than
4. None of the above

**Answer : 3**

**Q151. In the design of a biasing circuit, the value of collector load $R_C$ is determined by …………**
1. $V_{CE}$ consideration
2. $V_{BE}$ consideration
3. $I_B$ consideration
4. None of the above

**Answer : 1**

**Q152. If the value of collector current $I_C$ increases, then the value of $V_{CE}$ …………**
1. Remains the same
2. Decreases
3. Increases
4. None of the above

**Answer : 2**

**Q153. If the temperature increases, the value of $V_{CE}$ …………**
1. Remains the same
2. Is increased
3. Is decreased
4. None of the above

**Answer : 3**

**Q154. The stabilisation of operating point in potential divider method is provided by ……….**
1. $R_E$ consideration
2. $R_C$ consideration
3. $V_{CC}$ consideration
4. None of the above

**Answer: 1**

**Q155. The value of $V_{BE}$ …………….**

1. Depends upon $I_C$ to moderate extent
2. Is almost independent of $I_C$
3. Is strongly dependant on $I_C$
4. None of the above

**Answer : 2**

**Q156. When the temperature changes, the operating point is shifted due to …….**
1. Change in $I_{CBO}$
2. Change in $V_{CC}$
3. Change in the values of circuit resistance
4. None of the above

**Answer : 1**

**Q157. The value of stability factor for a base resistor bias is …………**
1. $R_B (\beta+1)$
2. $(\beta+1)R_C$
3. $(\beta+1)$
4. $1-\beta$

**Answer : 3**

**Q158. In a particular biasing circuit, the value of $R_E$ is about ………**
1. 10 kΩ
2. 1 MΩ
3. 100 kΩ
4. 800 Ω

**Answer : 4**

**Q159. A silicon transistor is biased with base resistor method. If β=100, $V_{BE}$ =0.7 V, zero signal collector current $I_C$ = 1 mA and $V_{CC}$ = 6V , what is the value of the base resistor $R_B$?**
1. 105 kΩ
2. 530 kΩ
3. 315 kΩ
4. None of the above

**Answer : 2**

**Q160. In voltage divider bias, $V_{CC}$ = 25 V; $R_1$ = 10 kΩ; $R_2$ = 2.2 V ; $R_C$ = 3.6 V and $R_E$ =1 kΩ. What is the emitter voltage?**
1. 6.7 V
2. 5.3 V
3. 4.9 V
4. 3.8 V

**Answer : 4**

**Q161. In the above question (Q38.) , what is the collector voltage?**
5. 3 V
6. 8 V
7. 6 V
8. 7 V

**Answer : 1**

**Q162. In voltage divider bias, operating point is 3 V, 2 mA. If $V_{CC}$ = 9 V, $R_C$ = 2.2 kΩ, what is the value of $R_E$ ?**
1. 2000 Ω
2. 1400 Ω
3. 800 Ω
4. 1600 Ω

**Answer : 3**