

Yashwantrao Chavan College of Science, Karad

Question Bank

B.Sc-I, Sem.- II, Electronics Question Bank of Paper- III

MCQ

Q1. A transistor has

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

Q2. The number of depletion layers in a transistor is

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

Answer : 4

Q3. The base of a transistor isdoped

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

Answer :

3

Q4. The element that has the biggest size in a transistor is

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

Answer : 1

Q5. The collector of a transistor is.....doped

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

Answer : 2

Q6. The emitter of a transistor isdoped

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

above Answer : 2

Q7. The relation between β and α is

1. $\beta = 1 / (1 - \alpha)$
2. $\beta = (1 - \alpha) / \alpha$

3. $\beta = \alpha / (1 - \alpha)$
4. $\beta = \alpha / (1 + \alpha)$

Answer : 3

Q8. The most commonly used transistor arrangement is....arrangement

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

above Answer : 1

Q9. 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

Q10. If the value of α is 0.9, then value of β is

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

Answer : 4

Q11. The most commonly used semiconductor in the manufacture of a transistor is

.....

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

above Answer : 2

Q12. The collector-base junction in a transistor has

1. forward bias at all times
2. reverse bias at all times
3. low resistance
4. none of the

above Answer : 2

Q13. In a CE configuration, an emitter resistor is used for

1. stabilization
2. ac signal bypass
3. collector bias
4. higher gain

Answer : 1

Q14. Voltage-divider bias provides

1. an unstable Q point
2. a stable Q point

3. a Q point that easily varies with changes in the transistor's current gain
4. a Q point that is stable and easily varies with changes in

the transistor's current gain Answer : 2

Q15. Beta's current ratio is

1. I_C/I_B
2. I_C/I_E
3. I_B/I_E
4. I_E/I_B

Answer: 1

Q16. Total emitter current is

1. $I_E - I_C$
2. $I_C + I_E$
3. $I_B + I_C$
4. $I_B - I_C$

Answer: 3

Q17. Which is the higher gain provided by a CE configuration?

1. voltage
2. current
3. resistance
4. power

Answer: 4

Q18. What is the collector current for a CE configuration with a beta of 100 and a base current of $30 \mu A$?

1. $30 \mu A$
2. $0.3 \mu A$
3. 3 mA
4. 3 MA

Answer: 3

Q19. Transistor biasing represents..... conditions

1. a.c.
2. d.c.
3. both a.c. and d.c.
4. none of the

above Answer : 2

Q20. 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

Q21. 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

Q22. 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

Q23. Transistor biasing is generally provided by a

1. Biasing circuit
2. Bias battery
3. Diode
4. None of the

above Answer : 1

Q24. 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. between 0 V and 0.1 V

Answer : 3

Q25. 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

Q26. The operating point is also called the

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

Answer : 2

Q27. 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

Q28. 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

Q29. 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

Q30. 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

Q31. The maximum efficiency of resistance loaded class A power amplifier is

1. 5%
2. 50%
3. 30%
4. 25%

Answer : 4

Q32. Class..... power amplifier has the highest collector efficiency

1. C
2. A
3. B
4. AB

Answer : 1

Q33. Power amplifiers handle signals compare to voltage amplifiers

1. Small
2. Very small
3. Large
4. N

one

of the

above

Answ

er : 3

Q34. In class A operation, the operating point is generally located of the d.c. load line.

1. At cut off point
2. At the middle
3. At saturation point
4. N

one

of the

above

Answ

er : 2

Q35. If a transistor is operated in such a way that output current flows for 60 % of the input signal, then it is operation

1. Class A
2. Class B
3. Class C
4. None of the above

Answer : 3

Q36. When negative voltage feedback is applied to an amplifier, its voltage gain

1. Is increased
2. Is reduced
3. Remains the same
4. None of the above

Answer : 2

Q37. A feedback circuit usually employs network

1. Resistive
2. Capacitive
3. Inductive
4. None of the above

Answer : 1

Q38. The gain of an amplifier with feedback is known as .gain

1. Resonant
2. Open loop
3. Closed loop
4. None of the above

Answer : 3

Q39. When voltage feedback (negative) is applied to an amplifier, its input impedance

1. Is decreased
2. Is increased
3. Remains the same
4. None of the above

Answer : 2

Q40. When current feedback (negative) is applied to an amplifier, its input impedance

1. Is decreased
2. Is increased
5. Remains the same
6. None of the above

Answer : 1

Q41. Negative feedback is employed in

1. Oscillators
2. Rectifiers
3. Amplifiers
4. None of the above

Answer : 3

Q42. When a negative voltage feedback is applied to an amplifier, its bandwidth.....

1. Is increased
2. Is decreased
3. Remains the same
4. Insufficient data

Answer : 1

Q43. An oscillator converts

1. c. power into d.c. power
2. c. power into a.c. power
3. mechanical power into a.c. power
4. none of the above Answer : 2

Q44. In an LC oscillator, the frequency of oscillator is.....L or C.

1. Proportional to square of
2. Directly proportional to
3. Independent of the values of
5. Inversely proportional to square root of Answer : 4

Q45. An oscillator employsfeedback

1. Positive
2. Negative
3. Neither positive nor negative
4. Data insufficient

Answer : 1

Q46. In a phase shift oscillator, we useRC sections

1. Two
2. Three
3. Four
4. None of the above Answer : 2

Q47. The crystal oscillator frequency is very stable due to.....of the crystal

1. Rigidity
2. Vibrations
3. Low Q
4. High Q

Answer : 4

Q48. An oscillator differs from an amplifier because it

1. Has more gain
2. Requires no input signal
3. Requires no d.c. supply
5. Always has the same input Answer : 2

Q49 is a fixed frequency oscillator

1. Phase-shift oscillator
2. Hartely-oscillator
3. Colpitt's oscillator
4. Crystal oscillator

Answer : 4

Q50. In an LC oscillator, if the value of L is increased four times, the frequency of oscillations is

1. Increased 2 times
2. Decreased 4 times

3. Increased 4 times
4. Decreased 2 times

Answer : 4

Q51. An important limitation of a crystal oscillator is

1. Its low output
2. Its high Q
3. Less availability of quartz crystal
4. Its high output

Answer : 1

Q52. Which of the following is a unipolar device?

- (A) PN diode
- (B) FET
- (C) Zener diode
- (D) Ordinary transistor

Q 53. Transconductance is measured in

- a. Ohms
- b. Amperes
- c. Volts
- d. Mhos or Siemens

Q54. A UJT has

1. Two pn junctions
2. One pn junction
3. Three pn junctions
4. None of the above

Answer : 2

Q55. In a UJT, the p-type emitter isdoped

1. Lightly
2. Heavily
3. Moderately
4. None of the above

Answer : 2

Q56. The UJT may be used as

1. An amplifier
2. A sawtooth generator
3. A rectifier
4. None of the above

Answer : 2

Q57. After peak point, the UJT operates in the region

1. Cut-off
2. Saturation
3. Negative resistance
4. None of the above

Answer : 3

Q58. Which of the following is not a characteristic of UJT?

1. Intrinsic stand off ratio
2. Negative resistance
3. Peak-point voltage
4. Bilateral conduction

Answer : 4

Q59 Biasing is stable.

- a) Base bias
- b) voltage divider**
- c) both a & b
- d) none of these

Q60. In order to act transistor as an amplifier the Q-point must be on _____ region.

- a) Active**
- b) saturation
- c) cut-off
- d) none of these

Q61. Gain of RC coupled amplifier falls at higher frequencies due to

- a) Inter electrode capacitance
- b) Inter electrode inductance**
- c) Resonance
- d) loading effect

Q62. The only disadvantage of negative feedback is

- a) Increase of input resistance
- b) decrease of output resistance
- c) decrease of voltage gain**
- d) increase of bandwidth

Q63. In which of the following device have negative resistance.

- a) Diode
- b) Transistor
- c) JFET
- d) UJT**

Q64. Colpitt's oscillator is Oscillator.

- a) low frequency
- b) audio frequency
- c) radio frequency**
- d) mid frequency

Q65. The input impedance of JFET is ...that of an ordinary transistor.

- a) equal
- b) more than**
- c) less than
- d) none of these

Q66. The current gain of CB configuration is

- a) less than 1**
- b) greater than 1
- c) equal to 1
- d) none of these

Q67. The transistor is Control device.

- a) current**
- b) voltage
- c) power
- d) resistance

Q69. Phase shift oscillator is oscillator.

- a) low frequency
- b) audio frequency**
- c) radio frequency
- d) mid frequency

Q70) The oscillator circuit uses Feedback.

- a) negative
- b) positive**
- c) both negative and positive
- d) none of these

Q71. In class B amplifier, the operating point is generally located of DC load line.

- a) at cut-off point
- b) at the middle
- c) at saturation point**
- d) none of these

Q72. FET is control device.

- a) current
- b) voltage**
- c) both a & b
- d) none of these

Q73. When transistor are used as a switch, in which region transistor operate in ON condition?

- a) saturation**
- b) cutoff
- c) active
- d) none of these

Q74. The efficiency of class B amplifier is %.

- a) 50**
- b) 75
- c) 90
- d) 100

Q75. In phase shift oscillator, RC feedback network produces phase shift of

- a) 180°**
- b) 360°
- c) 90°
- d) 270°

Q76. When base to emitter junction is reverse biased and collector to base junction is forward biased, the transistor operates in

..... mode.

- a) forward active**
- b) saturation
- c) reverse active
- d) cut-off

Q77. In JFET, $\mu = \dots\dots\dots$

- a) $g_m \times r_d$**

- b) $g_m + r_d$
- c) $g_m - r_d$
- d) none of these

Long Answer Questions

- 1) Explain construction and working of NPN transistor.
- 2) With neat diagram explain input and output characteristics of CE configuration.
- 3) Explain DC analysis of CE amplifier with small signal equivalent circuit.
- 4) Explain different classes of amplifiers. (any two)
- 5) Explain two stage RC coupled amplifier with its frequency response.
- 6) What are the advantages of negative feedback? Explain any two.
- 7) Give the construction and working of N- Channel JFET.
- 8) Give the construction and working of UJT.
- 9) Explain output characteristics of JFET with circuit arrangement diagram.

Short Answer questions

- 1) Define α and β , derive relation between them.
- 2) Distinguish between CE and CB configuration.
- 3) Explain Class A amplifier.
- 4) Explain voltage divider bias.
- 5) Explain the types of Feedback.
- 6) Explain effect of negative feedback on input and output impedance.
- 7) Give the general theory of feedback and explain the concept of positive and negative feedback.
- 8) Explain the Barkhausen conditions to obtain sustained oscillations.
- 9) Draw neat circuit diagram of phase shift oscillator. Explain its working, obtain expression for its frequency.
- 10) Draw neat circuit diagram of Colpitt's oscillator. Explain its working.
- 11) Explain tank circuit.
- 12) Draw and explain the characteristics of UJT.
- 13) Explain the operation of UJT.
- 14) Describe the construction of JFET.
- 15) Explain working of NPN transistor.
- 16) Explain class C amplifier.
- 17) Explain effect of negative feedback on Bandwidth.