

QUESTION BANK FOR ELECTRONICS PAPER II
FIRST SEMESTER EXAMINATION

1. BJT stands for ____
 - a) Bi-Junction Transfer
 - b) Blue Junction Transistor
 - c) Bipolar Junction Transistor
 - d) Base Junction Transistor
2. Which region of the transistor is highly doped?
 - a) Emitter
 - b) Base
 - c) Collector
 - d) Both Emitter and Collector
3. Both the junctions in a transistor are forward biased.
 - a) True
 - b) False
4. In the active region the emitter-base junction is -----biased and base-collector junction is----- biased?
 - a)Reversed biased, Forward biased
 - b)Forward biased, Forward biased
 - c)Reversed biased, Reversed biased
 - d)Forward biased, Reverse biased
5. When the base region is common to both input and output circuits, the configuration is called-----?
 - a) Common Emitter.
 - b)Common Base.
 - c)Common Collector.
 - d)Open circuit.
6. In common base configuration, the region where both emitter and collector junctions are forward biased is known as----?
 - a) Saturation region
 - b)Active region.
 - c)Cut-off region.
 - d)None of the above.
- 7.Transistors are formed by the back-to-back connection of?
 - a)Two PN junction diodes.
 - b)Three PN junction diodes.
 - c)Two p-type regions.
 - d)Two n-type regions.
8. Commonly used transistor configuration is?
 - a)CE configuration.
 - b)CB configuration.
 - c)CC configuration.
 - d) Both b and c.
9. How many depletion layers are there in a transistor?
 - a) 2
 - b) 3
 - c) 4

d) 5

10. The large size of the terminal in a transistor is...?

- a) Base
- b) Emitter
- c) Collector
- d) CE junction

11. Which of the following is correct in a transistor?

- a) $I_C = I_B + I_E$
- b) $I_B = I_C + I_E$
- c) $I_E = I_C + I_B$
- d) $I_E = I_C - I_B$

12. The signal in a transistor is transferred from ...resistance to ...?

- a) Low to high
- b) High to low
- c) High to high
- d) Low to Low

13. The current ratio of a beta is...?

- a) I_C/I_E
- b) I_B/I_C
- c) I_E/I_B
- d) I_C/I_B

14. For a transistor, $\beta = 100$. The value of α is

- a) 1.01
- b) 0.99
- c) 100
- d) 0.01

15. In a transistor the _____ is very thin and lightly doped.

- a) emitter
- b) base
- c) junction
- d) collector

16. The collector current in a transistor circuit is 2.9mA. If the base current is $100\mu\text{A}$. α of the transistor is:

- a) 0.066
- b) 0.77
- c) 0.97
- d) 0.87

Answer the following (for 3 or 4 marks)

1. What are the advantages of transistors over vacuum tubes?
2. Explain the structure of transistors.
3. What are the various modes in which transistors can be operated?
4. Write in brief the saturated, cut off and inverted mode of operation.
5. What is amplification?
6. Explain the common base and common emitter configuration of the transistor.
7. Derive the relation between ∞ and beta.

8. Define input and output characteristics of a transistor.
9. Explain the output characteristics of a transistor.
10. Draw the output CE characteristics of the transistor and write in short about the active and saturation region.
11. Explain the working of transistors as switch.
12. What is a switching transistor?
13. Draw the symbols of PNP and NPN transistors.
14. Define α and β for a transistor. Derive relation between them.
15. In a CE transistor circuit if $\beta=100$ and $I_B=50\mu\text{A}$. Compute the values of α , I_E and I_C .
16. Explain the DC load line.
17. In a common base connection, $I_E = 1\text{mA}$, $I_C = 0.95\text{mA}$. Calculate the value of I_B .
18. In a common base connection, current amplification factor is 0.9. If the emitter current is 1mA, determine the value of base current.
19. In a common base connection, $I_C = 0.95 \text{ mA}$ and $I_B = 0.05 \text{ mA}$. Find the value of α .
20. Draw the circuit diagram for studying the characteristics of a transistor.
21. Write in brief about the emitter region of the transistor.
22. Explain the collector region of the transistor.
23. Explain the working of the transistor.

Kindly note that questions from the first unit test question bank also will be asked in the first semester exam.