

MFANLOG – QUIZ No. 2

Name : _____

ID # : _____ Score : _____

A. Multiple Choice.

- ___ 1. The 3rd stage or block in a power supply ckt.
a. Regulator c. Transformer
b. Rectifier d. Filter
- ___ 2. PIV rating of CT is _____ to that of BT.
a. less c. equal
b. greater d. negative in value
- ___ 3. No. of diodes in a half-wave rectifier circuit.
a. 1 c. 3
b. 2 d. 4
- ___ 4. A transformer converts _____ to _____ signal.
a. ac & DC c. DC & ac
b. DC & DC d. ac & ac
- ___ 5. A transformer with 10:1 turns ratio has 2 A primary current. Find the secondary current?
a. 20 mA c. 2 A
b. 0.2 A d. 20 A
- ___ 6. Barrier potential increases _____ of the input.
a. Peak value c. PIV rating
b. Average value d. None of the above
- ___ 7. Which of the following statements is TRUE?
a. $I_C < I_B$ c. $I_C > I_B$
b. $I_C = I_E$ d. $I_C > I_E$
- ___ 8. In a pnp transistor, the current carriers are _____.
a. acceptor ions c. free electrons
b. donor ions d. holes
- ___ 9. The base of the transistor is _____ doped.
a. heavily c. moderately
b. lightly d. uwu
- ___ 10. The minority carriers in an npn transistor.
a. acceptor ions c. free electrons
b. donor ions d. holes
- ___ 11. The base current is about _____% of emitter current.
a. 20 c. 10
b. 25 d. 5
- ___ 12. What is the transistor current equation?
a. $I_C = I_B + I_E$ c. $I_B = I_E - I_C$
b. $I_B = I_C + I_E$ d. $I_B = I_C - I_E$
- ___ 13. If $\beta = 100$ and $I_C = 10 \text{ mA}$, then I_E is?
a. 100 mA c. 110 mA
b. 100.1 mA d. 90 mA
- ___ 14. If $I_C = 100 \text{ mA}$ and $I_E = 102 \text{ mA}$, β is?
a. 50 c. 500
b. 100 d. 200

- ___ 15. Majority carriers from the emitter _____.
a. recombine in the base
b. recombine in the emitter
c. pass through the base region to the collector
d. none of the above
- ___ 16. The relationship of β and α is?
a. $\beta = 1 / (1 - \alpha)$ c. $\beta = \alpha / (1 - \alpha)$
b. $\beta = (1 - \alpha) / \alpha$ d. complicated :(
- ___ 17. BJT operates both in saturation and cut-off.
a. True c. only in saturation
b. depends on freq. d. only in cut-off
- ___ 18. To operate properly, the BE junction must be FB with RB applied to which junction?
a. CE c. BE
b. BC d. CB
- ___ 19. What is the current gain for a CB configuration where $I_E = 4.2 \text{ mA}$ and $I_C = 4.0 \text{ mA}$?
a. 16.8 c. 0.2
b. 1.05 d. 0.95
- ___ 20. Solve for α in #14.
a. 0.96 c. 0.98
b. 0.97 d. 0.99

B. Problem Solving. Box your final answer.

1. Determine β and I_E for a transistor where $I_C = 100 \text{ mA}$ and $I_B = 4 \text{ mA}$.
2. A certain transistor has a β of 150. If $I_E = 50 \text{ mA}$, find I_B and I_C .

C. Essay

1. Provide the specifications of your CPU (PC/laptop brand and model, base clock speed, max turbo speed, overclocking, core count, multi threading, TDP rating, fabrication process, socket type, graphics chipset)
2. Give 5 examples of amplification devices or equipment. Explain their amplification.
3. If you will be an electronic device, what would it be and why (at least 5 sentences).