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 $I_C = 10\ mA$, then I_E is?
a. 10.1 mA c. 110 mA
b. 101 mA d. 90 mA

___14. If $I_C = 100\ mA$ and $I_E = 102\ mA$, 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 $I_E = 4.2$ mA and $I_C = 4.0$ 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 $I_C = 100$ mA and $I_B = 4$ mA.
2. A certain transistor has a β of 150. If $I_E = 50$ 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).

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