Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University) Coimbatore-641 043
Bachelor's Degree Examination – November-2018
V Semester

Class : III UG **Time :3 hours**
Major : Physics **Max. Marks: 100**

15BPHC16 Electronics

Part-A **10 x 1=10**

Choose the correct answer

1. A semiconductor is formed by --------- bonds.
   a. covalent b. electrovalent c. coordinate d. none of the above

2. With forward bias to a pn junction, the width of depletion layer
   a. decreases b. increases c. remains the same d. infinity

3. Transistor biasing is done to keep ------- in the circuit.
   a. proper direct current b. proper alternating current
   c. the base current small d. collector current small

4. In RC coupling, the value of coupling capacitor is about
   a. 100pF b. 0.1μF c. 0.01μF d. 10μF

5. The value of negative feedback fraction is always
   a. less than 1 b. more than one c. equal to 1 d. zero

6. An oscillator is
   a. a converter of dc to ac energy b. a converter of ac to dc energy
   c. nothing but an amplifier d. an amplifier without feedback

7. An astable multivibrator has
   a. one stable state b. two stable states c. no stable state d. none of the above

8. The OP-amp can amplify
   a. ac signals only b. dc signals only c. both ac and dc signals
   d. neither dc nor ac signals

9. A JFET is similar in operation to ------- valve.
   a. diode b. pentode c. triode d. tetrode

10. The control element in an SCR is
    a. cathode b. anode c. anode supply d. gate

Part B **5 X 6=30**

Answer the following

Answer should not exceed 400 words or two pages

11.a. State and explain Thevenin's theorem.

(or)

11.b.Explain with necessary circuit, how zener diode can be used as a voltage regulator.

12.a. What is called Q-point? Explain.

(or)

12.b. Derive an expression for stability factor.

13.a. Explain the types of feedback.

(or)

13.b. Explain the operation of an oscillatory circuit with neat diagrams.

14.a. Explain the physical meaning of h parameters.

(or)

14.b. Explain the important parameters of an operational amplifier.

15.a. Distinguish between FET and BJT.

(or)

15. b. Discuss about characteristics of UJT.

Part C **5 x 12=60**

Answer the following

Answer should not exceed 800 words or four pages

16. a. With a neat sketch, explain the working of full wave bridge rectifier.

(or)

16. b. Describe the working and V-I characteristics of a tunnel diode.

17.a. With a neat circuit diagram, explain the working of transformer-coupled transistor amplifier. Give its merits.

(or)

17. b. Explain an experiment to determine the characteristics of a transistor in CE configuration.

18.a. Sketch the circuit of Colpitt's oscillator. Explain its working.

(or)

18.b. Discuss the principles of negative voltage feedback in amplifiers with a neat diagram. Give its merits.

19.a. Discuss the operation of an OP-amp as adder and integrator.

(or)

19. b. What is a multivibrator? With a neat sketch, explain the working of bistable multivibrator.

20. a. Describe the circuit operation of D-MOSFET.

(or)

20. b. Explain in detail about FET operation and characteristics.

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