



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – January 2021
V Semester

Class : III UG
Major : Physics

Time : 3 Hours
Max. Marks : 100

18BPHC16 Electronics

PART A
Choose the Correct Answer

10 x 1 = 10

- The p-region has a greater concentration of _____ as compared to the n-region in a P-N junction.
a. Holes
b. phonons
c. electrons
d. both holes & electrons
- Tunnel diodes are made up of
a. ALGaAs
b. Germanium and silicon materials
c. AlGaInP
d. ZnTe
- In a pnp transistor, the current carriers are
a. acceptor ions
b. donor ions
c. holes
d. free electrons
- If output of transistor amplifier is 5 V and input of amplifier is 250 mV, the voltage gain is
a. 5
b. 50
c. 25
d. 0.05
- Negative feedback in amplifier
a. Increase the stability of gain
b. Decrease the distortion and noise level
c. Increase input impedance and decrease output impedance
d. All the above
- What is Barkhausen criterion for oscillation?
a. $A\beta > 1$
b. $A\beta < 1$
c. $A\beta = 1$
d. $A\beta \neq 1$
- Bistable circuits is also known as
a. Latch
b. Flip-flop
c. Gate
d. Bidirectional circuit
- With zero volts on both inputs, an op-amp ideally should have an output
a. equal to zero
b. equal to the negative supply voltage
c. equal to the positive supply voltage
d. equal to CMRR
- A JFET has _____ power gain.
a. small
b. very high
c. very small
d. high
- An SCR has _____ pn junctions.
a. two
b. four
c. three
d. none of the above

Part B

5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

- 11.a. State and prove Thevenin's theorem.
(or)
- 11 b. Explain the construction and working of tunnel diode.
- 12.a. Discuss the three modes of transistor connections.
(or)
- 12.b. Write an account of transistor biasing.
- 13.a. State the Barkhausen criterion for an oscillator.
(or)
- 13.b. What is the difference between open loop and closed loop gain of the circuit?
- 14.a. Draw the circuit diagram for monostablemultivibrator using IC 555.
(or)
- 14.b. Give the characteristics of an ideal op-amp.
- 15.a. Discuss briefly on FET parameters.
(or)
- 15.b. Explain the working of MOSFET.

Part C

5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

16. a. Describe the construction and working of full wave rectifier. Obtain an expression for its efficiency.
(or)
- 16.b. Describe the volt-ampere characteristics of Zener diode. Discuss how a Zener diode can be used as a voltage regulator.
- 17.a. Describe the construction and working of common emitter transistor amplifier.
(or)
- 17.b. Explain the construction and working of transformer coupled amplifier.
- 18.a. With a neat sketch describe the construction and working of Colpitt's oscillator.
(or)
18. b. With relevant theory and a neat sketch explain Hartley oscillator.
- 19.a. Explain the equivalent circuit of h parameters of a transistor.
(or)
- 19.b. Describe an inverting amplifier using an op. amp. with a neat sketch and obtain an expression for voltage gain
- 20.a. Explain the construction and working of FET.
(or)
- 20.b. Describe the operation and characteristics of UJT.
