(6 pages) **Reg. No. :**.....

Code No. : 20446 E **Sub. Code : CMPH 51**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2023.

Fifth Semester

Physics – Core

BASIC ELECTRONICS

(For those who joined in July 2021-2022)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. An electronic component used to store electric charge is ————

(a) Inductor (b) Resistor

(c) Capacitor (d) None of these

2. Rectifier is a device used to

(a) Convert DC to AC (b) Convert AC to DC

(c) Both (d) None of the above

3. Hartley oscillator is a

(a) Phase shift oscillator

(b) RC oscillator

(c) Crystal oscillator

(d) LC oscillator

4. An oscillator employs

(a) Positive feedback

(b) Negative feedback

(c) No feedback

(d) Either positive or negative feedback

5. Multi-vibrators can be used to produce which type of signals

(a) Triangular wave (b) Impulse

(c) Sine wave (d) Square wave

6. Which among the following multivibrators is unstable in any state?

(a) Astable multivibrator

(b) Bistable multivibrator

(c) Monostable multivibrator

(d) Both astable and bistable multivibrator

7. If a capacitor is placed in the feedback path of an op-amp circuit, then the circuit can act as ———

(a) Integrator (b) Multiplier

(c) Substractor (d) None of the above

8. An op-amp as a voltage follower has a voltage gain of

(a) Infinity (b) Zero

(c) Unity (d) Negative value

9. An identical OP-AMP is supposed to have

(a) Infinite input impedance

(b) Zero output impedance

(c) Infinite band width

(d) All the above

10. What is the output of a class B amplifier for sinusoidal input?

(a) Sinusoidal amplifier

(b) Half-sinusoidal

(c) Sinusoidal with higher frequency

(d) Square wave

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain in Thevenin's theorem with examples.

Or

(b) Explain in Norton's theorem.

12. (a) What are the V-I characteristics of PN junction diode?

Or

(b) Discuss about the Tunnel diode and its applications.

13. (a) Explain the frequency response of RC coupled amplifier.

Or

(b) Describe the Push pull amplifier.

14. (a) Define an integrated circuit. Mention any three advantages of integrated circuits.

Or

(b) Describe the Differentiating circuit.

15. (a) What are the characteristics of ideal operational amplifier?

Or

(b) Explain the input and output impedance of inverting amplifier.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain the conversion of voltage source into current source.

Or

(b) Define the *h* parameter and explain the *h* parameters of a transistor.

17. (a) Discuss the construction and working on Half wave rectifier.

Or

(b) Comparison between the zener diode as voltage stabilizer.

18. (a) Discuss about the class A and class B power amplifier.

Or

(b) Explain the construction and working function of common emitter and common collector transistor.

19. (a) Discuss about the phase shift oscillator using transistor.

Or

(b) Explain the Astable multivibrator using transistor.

20. (a) Explain the low pass and high pass filters.

Or

(b) What are the applications of negative feedback?

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