

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : NOVEMBER – 2023

M.Sc. – PHYSICS

MAXIMUM MARKS: 75

SEMESTER - I

TIME : 3 HOURS

APPLIED ELECTRONICS

SECTION – A

(10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS

(k1)

1. The SCR combines the features of a rectifier and -----.
(a) diode (b) transistor (c) FET (d) photodiode
2. One important use of positive feedback is in -----.
(a) oscillators (b) generators (c) rectifiers (d) multi vibrators
3. In Non-Inverting amplifier using an OPAMP, the Phase difference between the Input and Output voltage is-----.
(a) 0 (b) infinity (c) 180 (d) 90
4. The unit of CMRR is-----.
(a) no unit (b) decibels (c) volts (d) watts
5. Photometry is a measurement of light in relation to the -----.
(a) colour (b) brightness (c) wavelength (d) frequency

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES

(K2)

6. Define: Hybrid Parameters.
7. Write the relation for Barkhausen Criterion.
8. What is called Window Detector Circuit?
9. Distinguish between the common mode and Differential Mode.
10. What is known as Thermocouple?

(CONTD 2)

SECTION – B

(5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. (a) Write a note on UJT as relaxation oscillator..

(OR)

- (b) Describe the construction and working of Class B Push Pull Amplifier.

12. (a) Explain the construction and working of Colpitt's oscillator

.(OR)

- (b) Discuss about effect of negative feedback on Bandwidth, Distortion, and Stability.

13. (a) With a circuit diagram, explain the voltage to current converter circuit.

(OR)

- (b) Write a note on Comparators.

14. (a) Discuss about the Frequency Compensation in OPAMPs.

(OR)

- (b) Write a note on the Characteristics of Non-ideal OPAMP.

15. (a) (i) Define : Radiometric and Photometric intensity

- (ii) Give a brief note on Efficacy.

(OR)

- (b) Write a note on Photomultipliers.

SECTION – C

(5 X 8 = 40 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.**(K4 (Or) K5)**

16. (a) Explain the function of common emitter RC coupled amplifier with a circuit diagram and give a note on frequency response of it.

(OR)

- (b) Write a note on (i) Biasing of FET
(ii) Common Source FET amplifier.

17. (a) Discuss the construction and working of Hartley Oscillator. Give frequency calculation also.

(OR)

- (b) (i) What is a bi-stable Multivibrator?
(ii) Explain the construction, operation and frequency calculation of it.

18. (a) Explain with a circuit diagram, discuss about Logarithmic amplifier.

(OR)

- (b) Write a note on Schmitt Trigger.

19. (a) Discuss about the working of Differential amplifier in both common mode and differential modes.

(OR)

- (b) Explain about ; (i) importance of CMRR (ii) Practical OPAMP.

20. (a) Write a note on optical transfer function and Numerical aperture.

(OR)

- (b) Give the Construction ,Working and Characteristics of LED.