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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2022-23 ONLY)

SUBJECT CODE 22PPS1E1

REG.NO. :

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

END-OF-SEMESTER EXAMINATIONS : DECEMBER – 2022

M.Sc.-PHYSICS **MAXIMUM MARKS: 50**

I SEMESTER **TIME : 3 HOURS**

CORE ELECTIVE 1– APPLIED ELECTRONICS

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.
(Objective Questions with four Multiple Choices) (K1)

1. A JFET is a ---------- terminal semiconductor device in which current conduction is by one type of carrier that is electrons or holes.
   (a) one (b) two (c) three (d) four
2. A positive feedback is seldom used in _____.
   (a) vectors (b) amplifiers (c) oscillators (d) multi vibrators
3. For an ideal OPAMP --------- is wrong.
   (a) $Z_i = \infty$ (b) $Z_0 = \infty$ (c) $Z_0 = 0$ (d) bandwidth = ∞
4. The common mode input signals produce _____ output voltage..
   . (a) no (b) composite (c) same (d) unity
5. An LED is a diode that gives off _____ light when forward biased.
   (a) UV (b) IR (c) visible (d) gamma

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES. (K2)

6. Why is SCR sometimes called Thyristor?
7. Write about tuned LC circuit.
8. What is Comparator?
9. Define: CMRR.
10. What is Efficacy?

SECTION – B (5 X 3 = 15 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.
(Qn. No. 11 to 15)Questions for Short Answers with internal choices) (K3)

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

(OR)

(b) What is an emitter follower? With a circuit diagram, explain its operation.

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

(OR)

(b) What are the various form of negative feedback? Explain any one..

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

(OR)

(b) Write a note on Window detector circuit.

14. (a) List the characteristics of non- ideal OPAMP.

(OR)

(b) Explain the common mode operation of a differential amplifier.

15. (a) Define : i) Radiometry ii) Photometry

iii) Radiometric energy (iv) Photometric energy

(OR)

(b) Write a note on Pyro electric detectors.

SECTION – C (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS.
(Qn. No. 16 to 20 Questions for Long Answers with internal choices) (K4 (Or) K5)

16. (a) Explain the functions of common emitter RC coupled amplifiers and discuss its frequency response of curve.

(OR)

(b) Give the construction, operation, advantages and disadvantages of Class B Push Pull amplifier.

17. (a) Discuss the effect of negative feedback on bandwidth, distortion, noise and stability.

(OR)

(b) What is an Astable Multivibrator? Explain the construction, operation and frequency calculation.

18. (a) Discuss the working of sample and hold circuit, with appropriate diagram.

(OR)

(b) Write a note on Schmitt Trigger.

19 (a) Discuss - (i) frequency compensation (ii) Practical OPAMP

(OR)

(b) Explain - (i) importance of CMRR

(ii) Differential mode operation of differential amplifiers

20. (a) Describe the common radiant profiles

(OR)

(b) Give the construction and working of a Photomultiplier

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ETHICAL PAPER