

(FOR THE CANDIDATES ADMITTED
DURING THE ACADEMIC YEAR 2025-26 ONLY)

SUBJECT CODE

25 PPS 1E1

REG.NO. :

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI
END-OF-SEMESTER EXAMINATIONS : NOVEMBER – 2025
M.Sc. – PHYSICS
SEMESTER : I
MAXIMUM MARKS: 75
TIME : 3 HOURS

APPLIED ELECTRONICS

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS. (K1)

1. A JFET is a _____ controlled device.
(a) current (b) voltage (c) thermal (d) none
2. The frequency of Hartley oscillator depends on _____.
(a) Resistance (b) Inductance & Capacitance (c) Voltage (d) Current
3. Schmitt Trigger is mainly used for _____.
(a) Sine wave generation (b) Square wave shaping (c) Power amplification (d) None
4. Differential amplifier rejects _____ signal.
(a) Common mode (b) Differential mode (c) Noise (d) None
5. The unit of luminous flux is _____.
(a) candela (b) lumen (c) watt (d) lux

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

6. What is SCR used for?
7. What is a monostable multivibrator?
8. Write one application of constant current source.
9. Define frequency compensation.
10. Define luminous efficacy.

SECTION – B

(5 X 5 = 25 MARKS)

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

(K3)

11. a) Describe the input and output characteristics of CE transistor mode with circuit diagram. .

(OR)

- b) Discuss the principle and characteristics of a Class B push-pull amplifier with efficiency calculation.

12. a) Explain Barkhausen criterion for sustained oscillations.

(OR)

- b) Explain the generation of sinusoidal waves using a tuned LC circuit.

(CONTD 2)

13. a) With neat diagram, explain the working of a non-inverting Op Amp.
(OR)
b) Explain the function of a comparator.
14. a) State the characteristics of a non-ideal operational amplifier.
(OR)
b) Derive the expression for Common Mode Rejection Ratio (CMRR). Explain its significance.
15. a) Discuss the electrical and optical characteristics of an LED.
(OR)
b) Explain optical transfer function and numerical aperture.

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 frequency response of an RC coupled amplifier with appropriate circuit diagram.
(OR)
b) Describe the operation of a common source FET amplifier with biasing.
17. a) Explain with circuit the operation of Colpitts oscillator and derive frequency expression.
(OR)
b) Discuss different forms of negative feedback and their effects.
18. a) Describe the working of voltage-to-current converter using Op Amp.
(OR)
b) Explain the principle and working of Schmitt Trigger with transfer characteristics.
19. a) Explain the construction and working of a differential amplifier. Derive its differential gain.
(OR)
b) Describe frequency compensation techniques in operational amplifiers.
20. a) Describe the construction and operation of photoconductors.
(OR)
b) Discuss the functions of electroluminescent lighting panels and describe their display applications.