

**B A, BSC, BCOM DEGREE END SEMESTER EXAMINATION – MARCH 2026****UGP (HONS.) SEMESTER – 4: – DISCIPLINE SPECIFIC ELECTIVE****COURSE CODE - : 24UPHYDSE205 : BASIC ELECTRONICS AND ELECTRCITY***(For Regular 2024 Admission)*

Time: 1.5 Hours

Max. Marks: 50

**PART A*****(Short Answers) 2 marks each - Answer any 10 questions***

1. Define resistance and state its SI unit.
2. What is meant by electric potential difference?
3. Define the temperature coefficient of resistance.
4. What is meant by equivalent resistance?
5. Briefly explain Lenz's law.
6. Define rectification.
7. What is ripple factor?
8. How does a Zener diode differ from a normal pn junction diode?
9. Explain the structure of a bipolar junction transistor?
10. Define current gain  $\beta$  of a transistor.
11. What are the terminals of an operational amplifier?
12. What is a non-inverting amplifier?

**(2 x 10 = 20)****PART B*****Short Essays or Problems (5 marks each). Answer any 6 questions***

13. Explain the voltage divider and derive the output voltage expression.
14. Explain the behaviour of current and voltage in a capacitive AC circuit.
15. Compare series and parallel resonance in LCR circuits.
16. Explain the working of a half-wave rectifier with circuit diagram.

17. Derive the expression for efficiency of a full-wave rectifier.
18. Explain the working of Zener diode as voltage regulator.
19. Explain input and output characteristics of CE transistor configuration.
20. Explain op-amp as a buffer amplifier.

**(5 x 6 = 30)**