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

Code No. : 20045 E **Sub. Code : CSPH 31**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2025.

Third Semester

Physics

Skill Enhancement Course – MAINTENANCE OF ELECTRICAL APPLIANCES

(For those who joined in July 2021 and 2022 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The type of electrical charge carried by electrons is _____.
   (a) positive charge
   (b) negative charge
   (c) neutral charge
   (d) zero charge

2. The galvanometer used for measuring ac current is
   (a) moving coil galvanometer
   (b) moving magnet galvanometer
   (c) electrodynamic galvanometer
   (d) hotwire galvanometer

3. The principle of operation of a transformer is
   (a) electromagnetic induction
   (b) electromagnetic conduction
   (c) electrostatic induction
   (d) electrostatic conduction

4. The main cause of copper losses in transformer is _____.
   (a) high voltage (b) high current
   (c) high frequency (d) high temperature

5. The purpose of the filament in an incandescent bulb is _____.
   (a) to product light
   (b) to produce heat
   (c) to regulate the flow of electrical current
   (d) to increase the life span of the bulb

6. The function of the feedback circuit in a stabilizer is _____.
   (a) to monitor the output voltage
   (b) to monitor the input voltage
   (c) to regulate the output voltage
   (d) to regulate the input voltage

7. The neutral wire in a single phase connection is used to _____.
   (a) carry the live current
   (b) provide a path a ground
   (c) complete the circuit
   (d) reduce electromagnetic interference

8. What type of circuit is commonly used for lighting in a house?
   (a) service circuit
   (b) parallel circuit
   (c) combination circuit
   (d) closed circuit

9. The primary function of a relay is _____.
   (a) to amplify a signal
   (b) to switch a circuit on or off
   (c) to regulate voltage
   (d) to filter noise

10. The generate commonly used in backup power system is
   (a) diesel generator
   (b) gas turbine generator
   (c) steam turbine generator
   (d) solar generator

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Define resistance, capacitance, inductance and write their units.

Or

(b) State and explain Ohm's law.

12. (a) Explain with neat sketch berry type transformer.

Or

(b) Describe different methods of cooling of transformers.

13. (a) Explain a street light system.

Or

(b) Describe the construction and working of an electric iron box.

14. (a) Define RMS and peak value of ac. Derive an expression for RMS value of sine wave current.

Or

(b) Give the advantages of ac over dc.

15. (a) Write about different types of fuses.

Or

(b) Explain the function of an UPS.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Explain how a galvanometer can be converted into ammeter.

Or

(b) Explain how a multimeter can be used to measure resistance and voltage.

17. (a) Explain the classification of transformers based on their function.

Or

(b) Explain core type and shell type transformer.

18. (a) Describe a wet grinder with its functions.

Or

(b) Explain the principle and working of a washing machine.

19. (a) Explain a three phase connection.

Or

(b) Explain the different types of earthing and give the need of earthing.

20. (a) Describe the construction and working of an earth leak circuit breaker.

Or

(b) Explain a electric motor.

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