

(6 Pages)

Reg. No. :

Code No. : 10310 E Sub. Code : ASPH 31

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Third Semester

Physics

Skill Based Subject — MAINTENANCE OF
ELECTRICAL APPLIANCES

(For those who joined in July 2020 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. A capacitor does not allow _____ to pass through to it.
(a) a.c. (b) d.c.
(c) a.c. and d.c. (d) none
2. Ammeter provides path for _____.
(a) maximum voltage (b) minimum voltage
(c) maximum current (d) minimum current

3. _____ transformer has multiple flux paths.
(a) Core type (b) Shell type
(c) Berry type (d) core and shell type
4. The emf equation of a transformer is _____.
(a) $4 f \phi_m$ (b) $1.11 f \phi_m$
(c) $4.44 f \phi_m$ (d) $4.44 n_2 f \phi_m$
5. _____ type of washing machine contains two tubs.
(a) Semi-automatic
(b) Automatic
(c) Automatic without timer
(d) Automatic with timer
6. Domestic appliances are connected in parallel across a.c mains because
(a) it is a simple arrangement
(b) all appliances have same current ratings
(c) operation of each appliance becomes independent of each other
(d) none of the above

7. In an a.c circuit, the magnitude of the current can be reduced using a _____

- (a) resistor (b) inductor
(c) capacitor (d) transformer

8. Delta connection is also known as _____

- (a) Y-connection
(b) Mesh connection
(c) Either Y-connection or mesh connection
(d) Neither Y-connection or mesh connection

9. _____ is used as a protective element against overload.

- (a) Resistor (b) Inductor
(c) Capacitor (d) Fuse

10. _____ is used to determine the direction of rotation of d.c. motor.

- (a) Columb's law
(b) Lenz's law
(c) Fleming's left hand rule
(d) Fleming's right hand rule

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain how to test a diode and measure voltage with a digital multimeter.

Or

(b) Discuss the consumption of power in electrical appliances.

12. (a) Explain the sources of power loss in transformer.

Or

(b) Describe testing of transformers.

13. (a) Write in detail the various parts of a wet grinder.

Or

(b) Explain the working of a domestic air conditioner.

14. (a) Derive the expression for RMS value of current.

Or

(b) Explain the electrical wiring color code in India.

15. (a) Describe the principle and function of an electrical fuse.

Or

- (b) Explain the various components in an UPS and their functions.

PART C — (5 × 8 = 40 marks)

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

16. (a) Describe the different types of capacitors.

Or

- (b) Explain the conversion of a galvanometer into an ammeter.

17. (a) Explain the different methods of cooling of the transformers.

Or

- (b) Describe the principle, construction and working of an auto transformer.

18. (a) Give the principle, construction and working of an electrical fan.

Or

- (b) Explain the principle and working of storage and instant type water heaters.

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19. (a) Give the purpose of doing earthing. Explain the different methods of earthing.

Or

- (b) Describe single phase and three phase connection.

20. (a) Explain a circuit breaker with neat diagram
• and give its use

Or

- (b) Describe the construction and working of a d.c. generator.
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