

(6 pages)

Reg. No. : .....

Code No. : 20451 E      Sub. Code : CSPH 31

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

Third Semester

Physics – Skill Based Subject

MAINTANANCE OF ELECTRONICS APPLIANCES

(For those who joined in July 2021-2022)

Time : Three hours

Maximum : 75 marks

PART A — ( $10 \times 1 = 10$  marks)

Answer ALL questions.

Choose the correct answer:

1. The S.I. unit of electrical energy is \_\_\_\_\_.  
(a) Joule                      (b) Kilojoule  
(c) Watt                      (d) Kilowatt
2. A galvanometer of internal resistance  $5\Omega$  has range 2 amps. In order to convert it into an ammeter of range 10 amps, how much shunt resistance is required?  
(a)  $5\Omega$                       (b)  $2.5\Omega$   
(c)  $1.25\Omega$                       (d)  $1\Omega$
3. A transformer oil must be free from \_\_\_\_\_.  
(a) Gases                      (b) Odour  
(c) Sludge                      (d) Moisture
4. Transformer core lamination is made up of  
(a) Silicon steel                      (b) Cast steel  
(c) Cast iron                      (d) Aluminium
5. Freon group of refrigerants are \_\_\_\_\_.  
(a) Inflammable  
(b) Toxic  
(c) Non inflammable and toxic  
(d) Non inflammable and non toxic
6. The spacing between the highways lamps are \_\_\_\_\_.  
(a) 20 m                      (b) 30 m  
(c) 40 m                      (d) 50 m

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7. In a three phase AC circuit, the sum of all the three generated voltages is \_\_\_\_\_.

- (a) Zero (b) One  
(c) Infinite (d) None of them

8. What is the colour code for the insulation on the earth wire?

- (a) Brown (b) Blue  
(c) Yellow or green (d) Red

9. A switch is used to \_\_\_\_\_ the electric circuit.

- (a) Make (b) Break  
(c) Make or break (d) None

10. In electrical relay, which contact tip material has highest electrical conductivity?

- (a) Silver  
(b) Alloy of silver and copper  
(c) Alloy of silver and tungsten  
(d) Alloy of silver and nickel

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PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Explain the consumption of power in electrical appliances.

Or

(b) Define resistance, conductance and inductance write their units.

12. (a) Describe testing of transformers.

Or

(b) Explain the different losses occurring in transformers.

13. (a) Giving neat sketch, explain the function of an electrical bulb.

Or

(b) Write the principle of an electrical water heater. Draw the parts of a storage type water heater and explain them.

14. (a) Give the difference between A.C. and D.C.

Or

(b) Explain the types of house wiring.

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15. (a) Why we need electrical protection? Write the requirements of a protection system.

Or

- (b) Explain about overload devices.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) (i) Define electric potential at a point.  
(ii) State and explain Ohm's law.  
(iii) The potential difference across 24 ohm resistor is 12 volt. What is the current through the resistor?

Or

- (b) Describe the conversion of multimeter into ammeter and voltmeter.

17. (a) Give the principle of a transformer and explain its working.

Or

- (b) Describe the construction and function of an auto transformer. Write their uses also.

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18. (a) Explain an electrical fan connection and its working.

Or

- (b) Describe the construction and working of an air conditioner.

19. (a) Define RMS and peak values of AC. Derive an expression for RMS value of sine wave current.

Or

- (b) Explain (i) overloading (ii) earthing.

20. (a) Describe the different types of switches and their uses.

Or

- (b) Cite the circuit diagram of an inverter and explain its working.

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