

Roll No. : ...351998.....

Total No. of Pages : 4

BCA-104

BCA FIRST YEAR EXAMINATION, 2023 BASIC PHYSICS (Paper - IV)

Time Allowed : Three Hours

Maximum Marks : 100

PART-A

[Marks : 20]

Note: Answer all questions (50 words each). All questions carry equal marks.

PART-B

[Marks : 50]

Note: Answer five questions (250 words each). Selecting one from each unit. All questions carry equal marks.

PART-C

[Marks : 30]

Note: Answer any two questions (300 words each). All questions carry equal marks.

PART-A

1. (i) Differentiate between scalars and vectors.
- (ii) Explain conservation of energy.
- (iii) State Gauss's law of electrostatics.

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- (iv) State Ohm's law.
- (v) What is thermocouple?
- (vi) How is voltmeter connected in a circuit?
- (vii) What is importance of good earthing?
- (viii) What is use of rectifier?
- (ix) What are integrated circuits?
- (x) What is LASER?

PART-B

UNIT-I

2. (i) Describe what is importance of Mathematics and Physics in ICT? [4]
- (ii) Explain Newton's laws of motion with suitable diagrams and example. [6]
3. (i) What is Telescope? Describe its working with suitable diagram. [6]
- (ii) What is electromagnetic spectrum? Categorize various constituents of e.m. spectrum according to frequency/wavelength. [4]

UNIT-II

4. (i) Describe series and parallel combinations of capacitances. [4]
- (ii) What is electric potential? Obtain expression of electric field due to an electric charge. [6]

5. (i) State and prove Norton's theorem with suitable diagram. [4]
- (ii) Explain color coding in resistances with suitable example. [6]

UNIT-III

6. (i) Discuss construction and working of LDR's. [4]
- (ii) How a galvanometer can be converted into ammeter and voltmeter? [6]
7. What is electrochemical effect? Differentiate between primary and secondary cells. [10]

UNIT-IV

8. What are AC and DC currents? How electric power distribution is done in offices and houses? [10]
9. Describe semiconductor p-n junction. Explain current voltage characteristics of p-n junction diode. [10]

UNIT-V

10. (i) What is transistor? Explain working of bipolar junction transistor. [6]
- (ii) Describe working of cascading amplifiers. [4]
11. Describe construction and working principle of LCD and Plasma devices. [10]

PART-C

12. (i) Describe in detail, How measurements of radius of a wire is done using a screw gauge. [7.5]
- (ii) Draw a schematic diagram of human eye and explain formation of image in human eye? [7.5]
13. What is magnetic effect of current? Obtain expression of magnetic field due to circular current loop. [15]
14. Discuss the principle, construction and working of a Moving Coil Galvanometer. [15]
15. How energy bands are formed in solids? Differentiate between metals, insulators and semiconductors based on band theory. [15]
16. Explain the construction and working of a He-Ne laser with suitable diagram. [15]

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