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BCA-104

B.C.A. (First Year) EXAMINATION, 2018

Paper-IV

BASIC PHYSICS

Time allowed : Three Hours

Maximum Marks : 100

Part A (खण्ड 'अ') [Marks : 20]

Answer all questions (50 words each).

All questions carry equal marks.

सभी प्रश्न अनिवार्य हैं । प्रत्येक प्रश्न का उत्तर 50 शब्दों से अधिक न हो । सभी प्रश्नों के अंक समान हैं ।

Part B (खण्ड 'ब') [Marks : 50]

Answer five questions (250 words each),

selecting one question from each Unit.

All questions carry equal marks.

प्रत्येक इकाई से एक प्रश्न चुनते हुए, कुल पाँच प्रश्न कीजिए । प्रत्येक प्रश्न का उत्तर 250 शब्दों से अधिक न हो । सभी प्रश्नों के अंक समान हैं ।

Part C (खण्ड 'स') [Marks : 30]

Answer any two questions (300 words each).

All questions carry equal marks.

कोई दो प्रश्न कीजिए । प्रत्येक प्रश्न का उत्तर 300 शब्दों से अधिक न हो । सभी प्रश्नों के अंक समान हैं ।

P.T.O.

Part A

1.
 - (i) Give the unit and dimension of velocity.
 - (ii) Give the use of screw gauge.
 - (iii) State Kirchhoff's law.
 - (iv) Define Gauss law.
 - (v) Give the full form of LDR.
 - (vi) Write *two* differences between primary and secondary cells.
 - (vii) Give any *two* importances of good earthing.
 - (viii) What is a solar cell ?
 - (ix) Write the full form of UPS.
 - (x) Write the full form of LCD.

Part B

Unit I

2. Define least count. Describe Vernier callipers with the help of suitable diagram. Give its uses. 10

Or

3. (a) Give the types of forces existing in nature.
- (b) Define scalar and vector quantities. Explain vector addition of two vectors. 5+5

Unit II

4. Explain the different types of capacitances used in electronic devices. 10

Or

5. State and explain Thevenin and maximum power transfer theorem. 5+5

Unit III

6. (a) Define and explain thermoelectric effect with the help of suitable diagram.
- (b) Write a short note on thermistor. 6+4

Or

7. Give the principle, construction and working of moving coil galvanometer. 10

Unit IV

8. (a) Describe the working of half wave rectifier.
(b) What do you mean by semiconductor ? Define with examples intrinsic and extrinsic semiconductors.

6+4

Or

9. Explain the principle, construction and working of a transformer. How is it useful for transmission of electrical energy ?

10

Unit V

10. Write the principle, construction, working of He-Ne Laser.

10

Or

11. (a) Write a short note on UPS.
(b) What are *p-n-p* and *n-p-n* transistors ? Explain the working of any one.

4+6

Part C

12. Explain the formation of an image by Human eye with the help of diagram. Give the different types of defects of vision.

8+7

13. Write short notes on any *three* :

5+5+5

- (a) Ohm's law
- (b) Potentiometer
- (c) Energy stored in a condenser
- (d) Colour coding of resistances

14. Write short notes on any *three* :

5+5+5

- (a) Speaker and microphone
- (b) Piezoelectric effect
- (c) Conversion of Galvanometer into Voltmeter
- (d) Force on current carrying conductor

15. Explain $p-n$ junction diode. Describe the working of $p-n$ junction diode under forward and reverse biasing with characteristic curve. 15

16. Explain the construction, working of a transistor in the CC configuration and give its characteristic curve. 15

