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

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

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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)   Peizoelectric 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

13. Write short notes on any three : 5+5+5

   (a) Ohm's law

   (b) Potentiometer

   (c) Energy stored in a capacitor

   (d) Colour coding of resistances

14. Write short notes on any 7A .. 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. 10

16. Explain the construction, working of a transistor in the CC configuration and give its characteristic curve. 10