Roll No..... Total No. of Printed Pages : 7

BCA-104

B.C.A. First Year Examination, 2017

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** from each Unit. All questions carry equal marks.

प्रत्येक इकाई में से **एक-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।

PART–A

1. Answer the following questions :

   (i) Define least count.

   (ii) Write down any two types of lens.

   (iii) Write the formula for equivalent series and parallel capacitance.

   (iv) State Ohm's law.

   (v) Define electro-chemical effect.

   (vi) How is ammeter connected in a circuit?

(vii) What does LED stand for?

(viii) What do you mean by RMS voltage?

(ix) Write the full form of UPS.

(x) What does LASER stand for?

PART–B

UNIT–I

2. (a) State law of conservation of energy and linear momentum with examples.

(b) Write short note on screw guage. Give diagrams. 4+6

3. (a) Give lens formula. Draw any two figure for image formed by convex lens.

(b) Describe the construction and working of telescope. 5+5

UNIT–II

4. (a) State Guass's law. Give the electric field in the centre and outside of a spherical conductor.

   (b) Explain series and parallel capacitances. 6+4

5. (a) Explain colour coding in resistance with an example.

   (b) State Thevenin's and Nortan theorem. 6+4

UNIT-III

6. Explain electro chemical effect. Write a short note on primary cell. 10

7. (a) How we can convert galvanometer into ammeter and voltmeter?

(b) Write a note on Peizo electric effect.

4+6

UNIT-IV

8. Explain C-R, L-C-R circuits with their phase diagrams. 10

9. How are energy bands formed? How do we classify metals, semiconductors and insulators? 10

UNIT-V

10. (a) What is transistor? Draw the symbol diagram of transistor.

(b) Explain the construction and working of CE configuration transistor with its characteristic curve. 3+7

11. Write the construction, working and uses of Cathode ray Oscilloscope. 10

PART-C

12. State Newton's three laws of motion. Explain it giving examples. 15

13. What is Capacitor? Explain capacitance and state its unit. Describe the energy stored in capacitor. 15

14. Write short note on any **three** of the following:

    (a) Thermocouples

    (b) LDR

    (c) Moving coil galvanometer

    (d) Multimeter. 5+5+5

15. Write a note on any **three** of the following :

    (a) Zener diode

    (b) LED

(c) Solar cell

(d) L-R circuit. 5+5+5

16. Explain the principle, construction and working of He-Ne laser. 15

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