

2018

M.Sc. 2nd Semester Examination

PHYSICS

PAPER—PHS-204

Subject Code—33

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(CBCS)

Answer Q. No. 1 and any three from the rest.

1. Answer any five of the following :

5×2

- (a) How was the concept of gravitation of Newton modified by Einstein ?

(Turn Over)

- (b) When a material is called nano-material ?
 - (c) What do you mean by superconductivity ?
 - (d) What are the common applications of x-rays ?
 - (e) What is the difference between crystalline materials and glass ?
 - (f) Why is the sky blue ?
 - (g) Draw the block diagram of a monochrome TV transmitter.
 - (h) What is meant by TDMA, FDMA and CDMA ?
2. (a) Describe the concept of classical mechanics.
- (b) A body of mass 20g. If $\frac{1}{3}$ rd part of the body is immersed into water, it displaced 8 cm^3 of water. Determine the density of the body.
- (c) Write down the drawbacks of Dalton's atomic theory.
What is the modern theory of the atom ?

4+3(2+1)

3. (a) What is the essence of Quantum Mechanics ?
- (b) Write down the conditions for sustained interference of light.
- (c) Write down the radioactive decay laws.
- (d) Explain the Einstein's theory of photo-electric effect.

2+2+3+3

4. (a) Draw the circuit diagram of a tubelight.
- (b) How electron was discovered ?
- (c) Give the working principle of a microwave oven.

3+3+4

5. (a) How light is produced in a laser ?
- (b) What do you mean by modulation ?
- (c) Write notes on classical mechanics vs. quantum mechanics.

4+1+5

6. (a) State the laws of reflection of light.
- (b) Difference between Rayleigh's and Raman's scattering of light.
- (c) Write notes on principle of TV-functioning (transmission and reception). 3+2+5
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