

F.Y.B.SC. SEM – I (2014 COURSE) : WINTER - 2017

SUBJECT: PHYSICS: MODERN PHYSICS (P-12)

Day : Monday
Date : 30/10/2017

Time: 12.00 NOON TO 02.00 PM
Max. Marks: 40.

W-2017-0587

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate full marks.
- 3) Draw neat labeled diagrams **WHEREVER** necessary.

Q.1 Attempt any **TWO** of the following: (10)

- a) Explain in brief Frank and Hertz experiment.
- b) Draw electromagnetic spectrum and explain it in detail.
- c) What is LASER? Explain different properties and applications of laser.

Q.2 Attempt any **TWO** of the following: (10)

- a) Define Binding energy and draw binding energy curve. Discuss its significance in determining the stability of nuclei.
- b) Write a short note on microwave Oven.
- c) Explain covalent bond with an example.

Q.3 Attempt any **TWO** of the following: (10)

- a) Discuss the postulates of Bohr's atomic model.
- b) Calculate the wavelength of 6 MeV energy gamma radiations.
- c) Define following terms (i) Spontaneous emission (ii) Stimulated emission (iii) Optical Pumping (iv) Population inversion

Q.4 Attempt any **FIVE** of the following: (10)

- a) What are the constituents of nucleus?
- b) What is RADAR?
- c) Explain different applications of X-Rays.
- d) Calculate the energy of the microwave having frequency 2.4 GHz.
- e) Define fill factor and efficiency of solar cell.
- f) Define ionic bond with suitable example.
- g) What are the different renewable energy sources?

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