DRR-3220
Third Year B. Sc. (Sem. VI) Examination
March / April - 2016
Physics : Generic Elective
(Bio-Physics)
(New Course)

Time : Hours ] [Total Marks : 50

Instructions :
(1) Fill up strictly the details of signs on your answer book.
Name of the Examination :
THIRD YEAR B. Sc. (SEM. 6)
Name of the Subject :
PHYSICS : GENERIC ELECTIVE - (BIO-PHYSICS) (NEW)

Subject Code No. : 3 2 2 0 Section No. (1, 2, ..., ) : NIL

(2) Draw neat diagrams wherever necessary.
(3) Symbols used in the paper have their usual meaning.
(4) Figures to the right indicate full marks of the question.
(5) Scientific non-programmable calculator may be used.

1 Answer the following questions in brief : 8

(1) On what factors does resolving power of a microscope depend?

(2) What is dark field microscopy?

(3) What do you mean by magnifying power of a lens? On what factors does it depend?

(4) What are the main advantages of an oil immersion lens?

(5) State the working principle of an electron microscope.

(6) How are Airy discs formed?

(7) Why is a scanning tunneling electron microscope not proper in the study of biological samples?

(8) Define fluorescence and phosphorescence.

[Contd...]
2 (a) Discuss the construction and working of a phase contrast microscope. 

OR

(a) Discuss in detail the construction and working of an interference microscope. 

(b) Explain working of a centrifuge microscopes. 

OR

(b) Explain illumination in microscopes. 

3 (a) Discuss in detail the interaction of electromagnetic radiation with matter. 

OR

(a) Discuss in detail the theory of infrared spectroscopy. 

(b) Discuss the application of IR spectroscopy. 

OR

(b) Explain the main advantages of an atomic force microscope. 

4 Write short note on any two of the following in detail: 

(a) Construction and working of X-ray microscope. 

(b) Ion probe analysis. 

(c) Photoluminescence spectroscopy. 

(d) Disadvantages of Raman Spectroscopy over Infrared spectroscopy.