



AD-3220
Third Year B. Sc. (Sem. VI) Examination
March/April – 2015
Physics : Generic Elective : Bio - Physics
(New Course)

Time : Hours]

[Total Marks : 50

Instructions :

(1)

<p style="text-align: center;">नीचे दर्शायेव निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : THIRD YEAR B. SC. (SEM. VI)</p> <p>Name of the Subject : PHYSICS : GENERIC ELECTIVE : BIO - PHYSICS (NEW)</p> <p>Subject Code No. : 3 2 2 0 Section No. (1, 2,...): Nil</p>	<p>Seat No. :</p> <table border="1" style="width: 100%; height: 20px;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> <div style="border: 1px solid black; border-radius: 15px; height: 60px; margin-top: 10px; display: flex; align-items: center; justify-content: center; padding: 10px;">Student's Signature</div>						

- (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 :

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- (1) What is Raman effect?
- (2) On what factors does resolving power for a microscope depend?
- (3) State the main advantages of an oil immersion lens.
- (4) State de – Broglie's hypothesis.
- (5) Why is a scanning tunneling electron microscope not proper in the study of biological samples?
- (6) What do you mean by fingerprinting regards to IR spectroscopy?
- (7) Define phosphorescence.
- (8) State the Beer – Lambert absorption law.

2 (A) Discuss in details the interaction of electromagnetic radiation with matter. **10**

OR

(A) Discuss in details the construction and working of a interference microscope. **10**

(B) Discuss applications of Infrared spectroscopy. **4**

OR

(B) Explain the construction of a compound microscope. **4**

3 (A) Discuss UV and visible spectroscopy and hence explain absorbance and transmittance. **10**

OR

(A) Explain in details the construction and working of a transmission electron microscope.(TEM) **10**

(B) Describe the working of a scanning electron microscope. (SEM). **4**

OR

(B) Differentiate between Raman spectra and Infrared spectra. **4**

4 Write short note on any **two** of the following in details **14**

(a) Phase contrast microscope.

(b) Resolving power and limit of resolution for microscopes.

(c) Ion probe analysis.

(d) Photoluminescence spectroscopy.
