



AC-3074

B. Sc. (Sem. - IV) Examination

April / May - 2015

Physics for Electronics - III

(Mathematical & Modern Physics)

Time : 2 Hours]

[Total Marks : 50

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. SC. (SEM. - IV)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="PHYSICS FOR ELECTRONICS - III"/>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="0"/> <input type="text" value="7"/> <input type="text" value="4"/>	<input type="text"/>
Section No. (1, 2,...): <input type="text" value="Nil"/>	<input type="text"/>
	Student's Signature

- (2) Question one is compulsory.
(3) Draw neat digram wherever necessary.
(4) Scientific calculator can be used.

1. Answer the following questions in short as directed. 8

- (i) Define curl.
(ii) Write statement of Green's theorem
(iii) What is isotop effect?
(iv) What is main difference between insulator and superconductor?
(v) What is plasma?
(vi) Write statement of Gauss' theorem
(vii) What is critical current?
(viii) Give two examples of vector quantity.

2 Answer any one

i(a) Explain Stoke's theorem 8

(b) Given $R = \sin t \mathbf{i} + \cos t \mathbf{j} + t\mathbf{k}$, find (a) $\frac{dR}{dt}$ 6

(b) $\frac{d^2R}{dt^2}$, (c) $|\frac{dR}{dt}|$

ii(a) Explain gradient divergence and curl. 8

(b) Prove: (a) $\nabla (A + B) = \nabla A + \nabla B$ 6

3 Answer any one

i(a) Explain in detail Meiser effect. 8

(b) Explain A.C. resistivity in superconductors. 6

- ii(a) Explain penetration depth in superconductor. 8**
(b) What are thermal properties of superconductors? 6
- 4 Write short notes on: (any two) 14**
- (i) Space Plasma.**
 - (ii) Potential applications of superconductivity.**
 - (iii) Divergence of a vector field..**
 - (iv) Properties of Plasma.**
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