

“Dissemination of Education for Knowledge, Science and Culture”

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Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur

(Autonomous)

Department of Physics

ICT based CIE

on

M.Sc. I: Internal Examination of Electrodynamics

Conducted by

Mr. A. V. Shinde

on

Date: 13-08-2021, Time: 11.00 am to 11.30 am

(2020 – 21)

Electrodynamics

Vivekanand College, Kolhapur (Autonomous)

Department of Physics

M. Sc. I (Internal examination)

Paper code – CP-1108B

Name of the course - Electrodynamics

Date – 13-08-2021

Time – 11.00 am to 11.30 am

Instructions:

- 1) All questions are compulsory.
- 2) Each question carry two mark.
- 3) Total mark = 20

* Indicates required question

1. Name of the student *

2. Roll No *

3. Email ID *

4.

The total electric flux through a closed surface is equal to ratio of total charge enclosed by the surface to the permittivity in which surface is placed. This islaw.

- a) Coulomb's
- b) Gauss's
- c) Biot-Savart
- d) Amperes

Mark only one oval.

- a)
- b)
- c)
- d)

5.

According to Ampere's law, the line integral of \vec{B} around a closed path is equal to

- a) μ_0 times current enclosed by the path
- b) $2\mu_0$ times current enclosed by the path
- c) ε_0 times current enclosed by the path
- d) $2\varepsilon_0$ times current enclosed by the path

Mark only one oval.

- a)
- b)
- c)
- d)

6.

Displacement density 'D' of a medium with permittivity ' ϵ ' and electric field 'E' is given by

D =

- a) ϵE
- b) ϵ / E
- c) $2 \epsilon E$
- d) $2 \epsilon / E$

Mark only one oval.

- a)
- b)
- c)
- d)

7.

If $\vec{F} = \hat{i} f_1 + \hat{j} f_2 + \hat{k} f_3$ be a vector with $\vec{\nabla} \cdot \vec{F} = 0$, then \vec{F} is

- a) solenoidal vector
- b) irrotational vector
- c) straight vector
- d) Normal vector

Mark only one oval.

- a)
- b)
- c)
- d)

8.

The statement “magnetic free poles do not exist” is justified by Maxwell’s equation

a) $\nabla \cdot \bar{D} = \rho$

b) $\nabla \cdot \bar{B} = 0$

c) $\nabla \times \bar{E} = -\frac{\partial \bar{B}}{\partial t}$

d) $\nabla \times \bar{H} = \bar{J} + \frac{\partial \bar{D}}{\partial t}$

Mark only one oval.

 a) b) c) d)

9.

The electromagnetic energy crossing unit area in unit time is called

a) Poynting’s vector

b) irrotational vector

c) straight vector

d) Normal vector

Mark only one oval.

 a) b) c) d)

10.

Velocity of electromagnetic wave in dielectric medium is given by

a) $v = \sqrt{\mu\epsilon}$

b) $v = \sqrt{\mu_0\epsilon_0}$

c) $v = 1 / \sqrt{\mu\epsilon}$

d) $v = 1 / \sqrt{\mu_0\epsilon_0}$

Mark only one oval.

 a) b) c) d)

11.

Velocity of electromagnetic wave in vacuum is given by

a) $v = \sqrt{\mu\epsilon}$

b) $v = \sqrt{\mu_0\epsilon_0}$

c) $v = 1 / \sqrt{\mu\epsilon}$

d) $v = 1 / \sqrt{\mu_0\epsilon_0}$

Mark only one oval.

 a) b) c) d)

12.

The mathematical formula for Poynting's vector is given as.....

a) $\vec{E} = \vec{B} \times \vec{H}$

b) $\vec{N} = \vec{E} \times \vec{H}$

c) $\vec{N} = \vec{E} \times \vec{B}$

d) $\vec{E} = \vec{N} \times \vec{H}$

Mark only one oval.

 a) b) c) d)

13.

1st Maxwell equation for free space is

a) $\vec{\nabla} \cdot \vec{D} = 0$

b) $\vec{\nabla} \cdot \vec{B} = \rho$

c) $\vec{\nabla} \cdot \vec{D} = \rho$

d) $\vec{\nabla} \cdot \vec{E} = \frac{\rho}{\epsilon}$

Mark only one oval.

 a) b) c) d)

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Electrodynamics

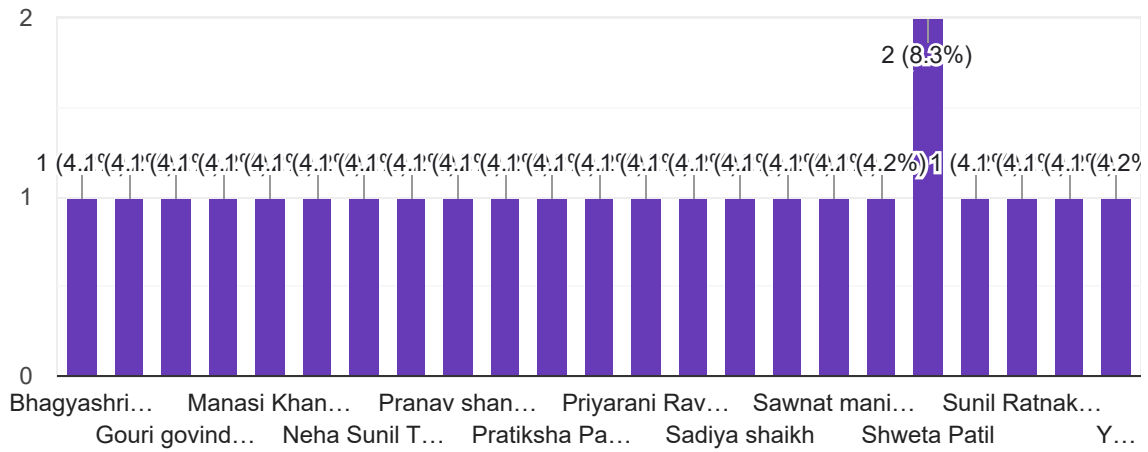
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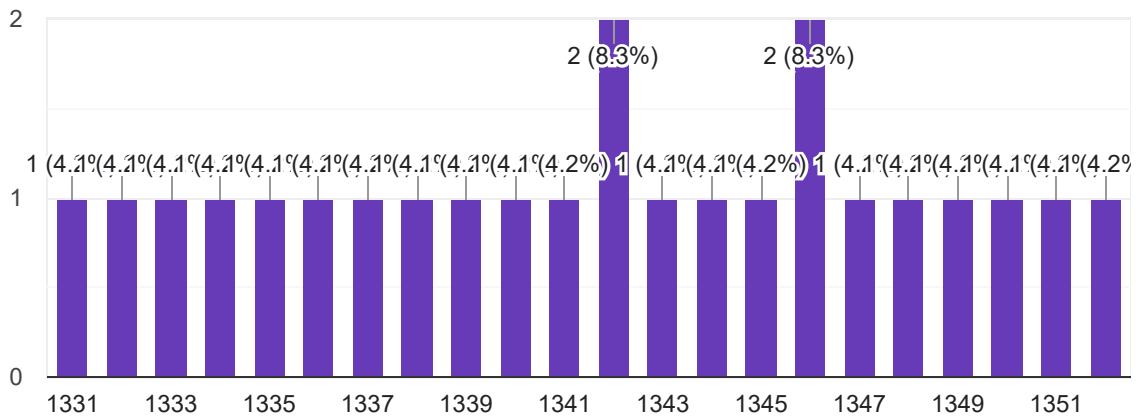
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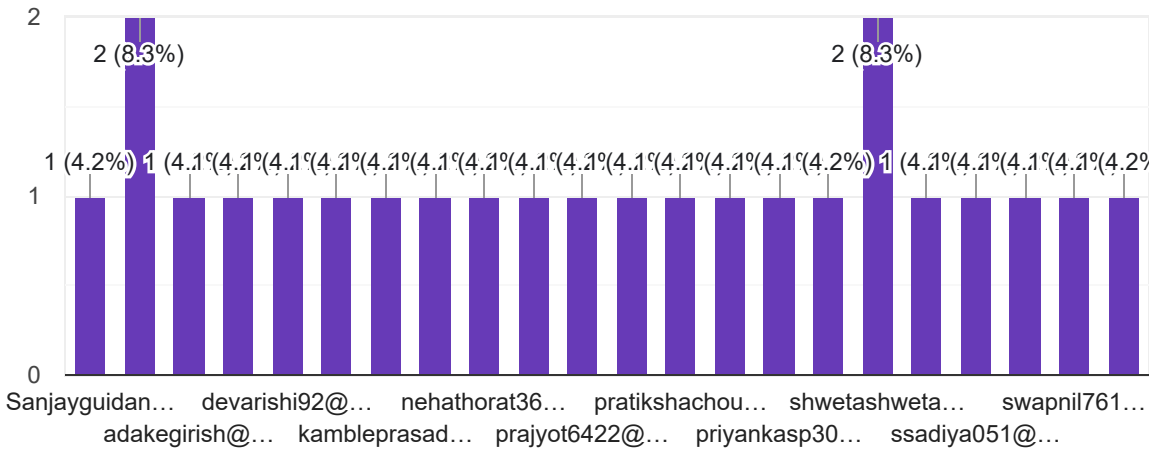
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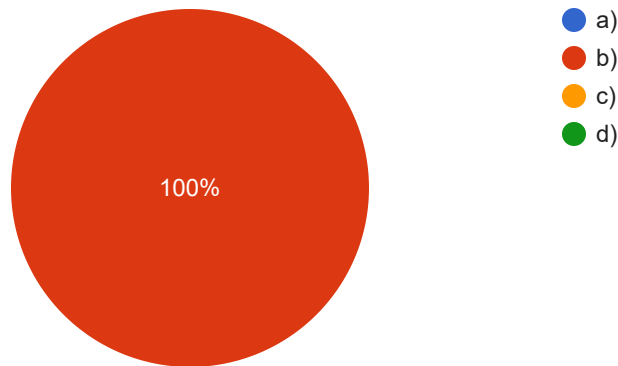
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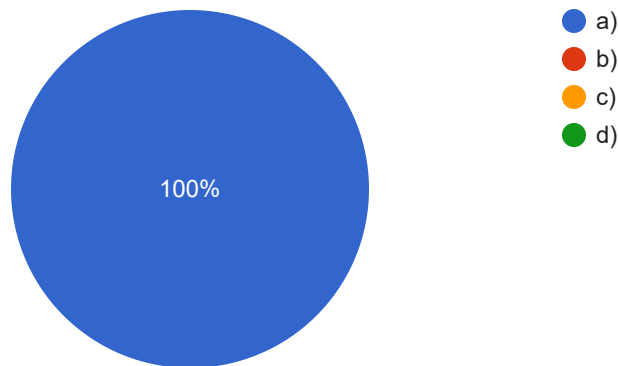
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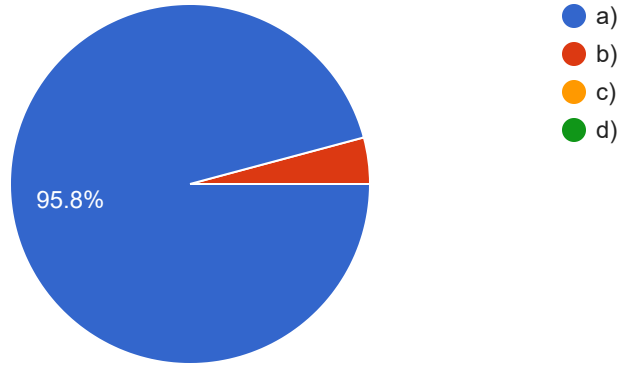
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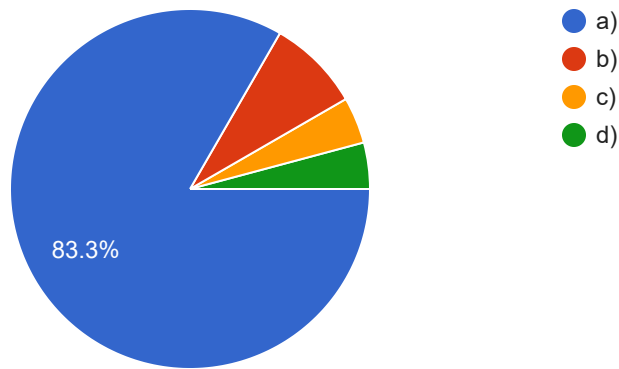
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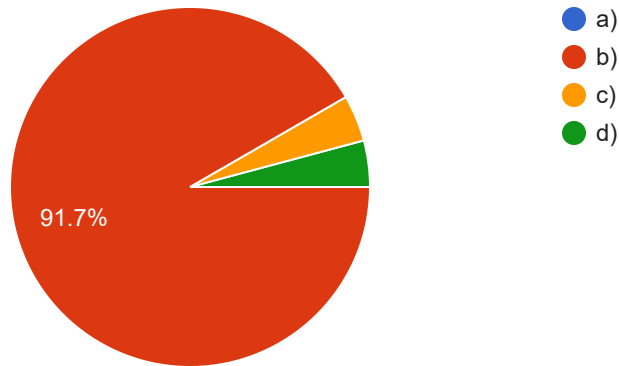
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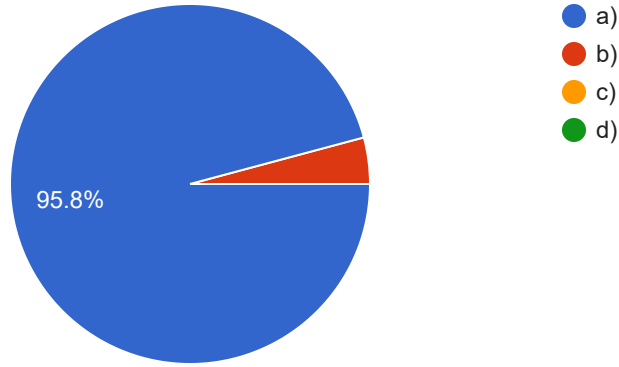
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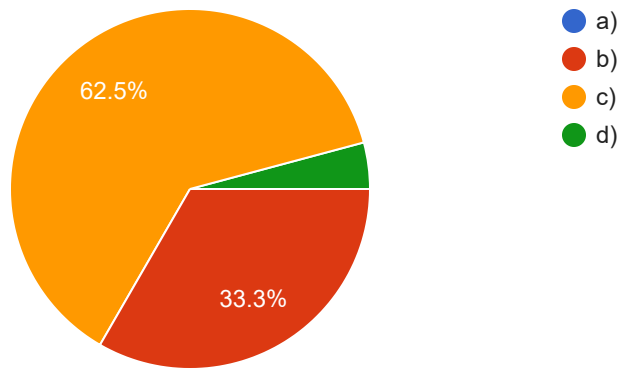
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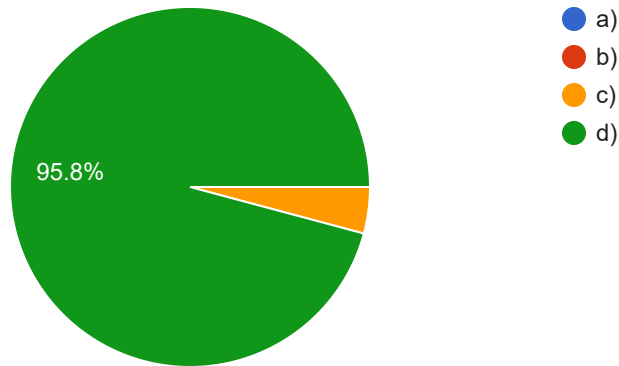
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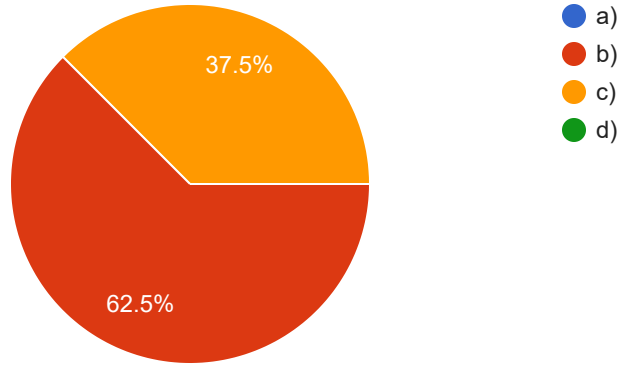
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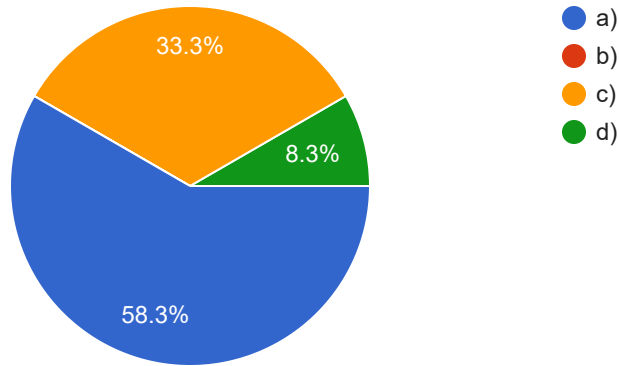
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