B.Sc (II) Physics IInd Sem

Date 19/04/2024

Test Paper

Electricity and Magnetism

Q.1 Suppose the electric field in some region is found to be $\vec{E} = kr^3 \hat{r}$. where k is constt. (3)

(a) find the charge density?

(b) find the total charge contain in the sphere of radius R centered at the origin?

Q.2 from differential form of Gauss's law develop the Poisson's and Laplace's equation? (2)

Q.3 (a) Explain the method of electrical images? (3)

(b) A point charge $+q$ is placed at a distance d from the centre of an earthed conducting sphere of radius R. Apply the method of image calculate the strength of the image charge and its position in the sphere?

Q.4 Define and explain the three electric vectors $\vec{P}$ $\vec{E}$ and $\vec{D}$ show that $\vec{D} = \epsilon_0 \vec{E} + \vec{P}$ (2)

Q.5 Using Gauss's law in dielectric medium, show that $\vec{\nabla} \cdot \vec{D} = \rho_{free}$ and $\vec{\nabla} \cdot \vec{P} = -\rho_{bound}$ (2)

OR

Q.6. obtain the differential form of Ampere's Law;

Dr. Nidhi Tyagi

19/04/24

Attendence

Test - Electricity & Magnetism

B.Sc (H) Physics - II[nd] Sem

S.No.	Name	Roll. No.	Sign.
1	Anshuraj	23/19006	Anshuraj
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3.	Ashutosh Aggarwal	23/19008	Ashutosh
4.	Avinash ojha	23/19009	Avinash ojha
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6.	Nikhil	23/19024	Nikhil
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8.	Saloni	23/19033	Saloni
9.	Sampurnaa Tripathy	23/19034	Sampurnaa
10.	Shivam Mishra	23/19037	Shivam
11	Abhishek Kumar	23/19046	Abhishek
12	Vivek Raj.	23/19045	Vivek
13	Shobham	23/19038	
14	Siddhant Rawat	23/19039	
15	Aditya Hasija	23/19049	
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17)	Abhishek Rai	23/19060	
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19)	Nitesh Dhaker	23/19057	Nitesh
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29.	Nitin	23/19071	
30.	Nitin Kumar	23/19072	
31	Parth Pandey	23/19073	
32.	Keshav Mishra	23/19079	
33.	Sameer	23/19077	
34.	Palak	23/19081	
35.	Parth Dixit	23/19082	
36	Rinku Gaur	23/19084	
37	Sumeet Barnwal	23/19087	
38.	Rahul Raj	23/19085	
39.	Durgesh Kr.	23/19086	
40.	Rohit Negi	23/19092	
41.	Pranav Pal	23/19088	
42.	Tejasv Sharma	23/19090	
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45	Priyanshu yadav	23/19083	
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