

Test Paper

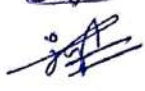
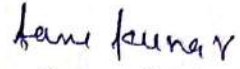
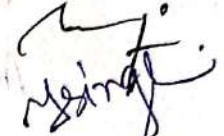
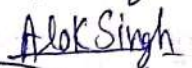
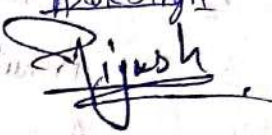
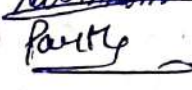
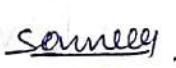
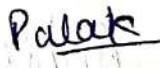
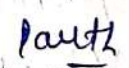
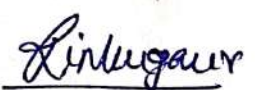
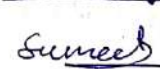
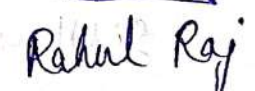
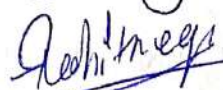
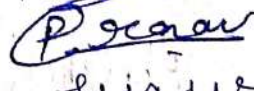
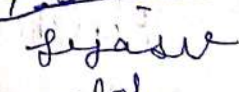
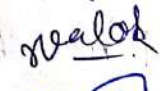
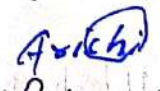
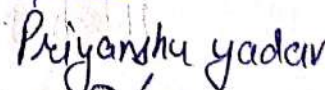
Electricity and Magnetism

- Q.1 Suppose the electric field in some region is found to be $\vec{E} = k r^3 \hat{r}$, 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 Explain the method of electrical images? (3)
- Q.4 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.5 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 $\vec{\nabla} \cdot \vec{D} = \rho_{\text{free}}$ and $\vec{\nabla} \cdot \vec{P} = -\rho_{\text{bound}}$ (2)
- or
- Q.6. obtain the differential form of Ampere's Law;


Dr. Nidhi Tyagi

Test - Electricity & Magnetism
B.Sc (H) Physics - IInd Sem

S.No.	Name	Roll. No.	Sign.
1	Anshuraj	23/19006	<u>Anshuraj</u>
2	Ashish Kumar Mehta	23/19007	<u>Ashish</u>
3.	Ashutosh Aggarwal	23/19008	<u>Ashutosh</u>
4.	Avinash Ojha	23/19009	<u>Avinash</u>
5.	Ayush	23/19010	<u>Ayush</u>
6.	Nikhil	23/19024	<u>Nikhil</u>
7.	Nehal Imam	23/19023	<u>Nehal</u>
8.	Saloni	23/19033	<u>Saloni</u>
9.	Sampurnaa Tripathy	23/19034	<u>Sampurnaa</u>
10.	Shivam Mishra	23/19037	<u>Shivam</u>
11	Abhishek Kumar	23/19046	<u>Abhishek</u>
12	Vineet Raj	23/19045	<u>Vineet</u>
13	Shobham	23/19038	<u>Shobham</u>
14	Siddhant Rawat	23/19039	<u>Siddhant</u>
15	Aditya Harna	23/19049	<u>Aditya</u>
16	Vikash K. Verma	23/19041	<u>Vikash</u>
17)	Abhishek Rai	23/19060	<u>Abhishek</u>
18)	Pintu Devanda	23/19074	<u>Pintu</u>
19)	Nitesh Dhaker	23/19057	<u>Nitesh</u>
20)	Pushkar Gupta	23/19059	<u>Pushkar</u>

S.No.	Name	Roll.No.	Sign.
21	Mayank Raj	23/19055	
22	Bhanu Batap Singh	23/19052	
23	Tanu Balwada	23/19064	
24	Shreyan Majumdar	23/19063	
25	Jaiambika Singh	23/19065	
26	Alok Singh	23/19067	
27	Piyush Maurya	23/19058	
28	Gourav Yadav	23/19070	
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	Sumit 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	
43	Naman Alok	23/19056	
44	AKshay Rishi	23/19050	
45	Priyanshu Yadav	23/19083	
46	Chandrashekhar Pandey	23/19069	
47	Arkaprabha Singha	23/19068	