GIRLS' HIGH SCHOOL AND COLLEGE, PRAYAGRAJ

2020- 2021

CLASS – 12 A & B

PHYSICS

ASSIGNMENT – 01

Chapter : GAUSS' THEOREM

Topic : APPLICATIONS OF GAUSS' THEOREM

INSTRUCTIONS : Parents please ensure that your ward/child carefully watches the video related to the above topic by clicking on the link https://youtu.be/dz445gB0GeA . The students are also expected to go through the chapter in the prescribed book, learn it properly and then answer the questions that follow.

The completed assignment has to be sent to this Email- amitraproject2020@gmail.com

Students who have already completed this assignment need not do it again.

Answer the following questions :

Q1) Define the following and give their units -

a) Electric Field b) Electric Flux

Q2) State Gauss' Theorem.

Q3) What do you mean by 'net charge'?

Q4) If a surface encloses $+1.6 \times 10^{-19}$ C, -4.8×10^{-19} C and $+3.2 \times 10^{-19}$ C charge within it, what is the Electric Flux linked to it?

Q5) The net outward Electric Flux through the surface of a box is 8.0×10^{3} $Nm^{2}C^{-1}$. What is the net charge inside the box?

Take $\varepsilon_0 = 8.85 \times 10^{-12}$ $N^{-1}m^{-2}C^{2}$.

Q6) How can we use Gauss' Theorem to find Electric Field?

Q7) What are the important properties of a Gaussian Surface?

Q8) Suggest a suitable Gaussian Surface for –

a) A point charge b) A line charge

Q9) Show that for any cylinder with radial Electric Field, total Flux linked to it is due to its curved surface alone.

Q10) The intensity of Electric Field at a distance of 0.5 m from a long charged wire is 3.6×10^{3} NC^{-1}. Find its Linear Charge Density λ.

END