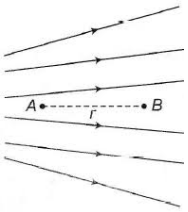
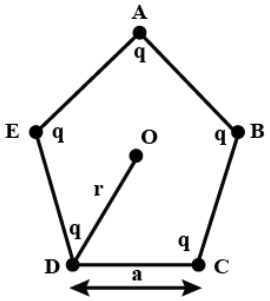
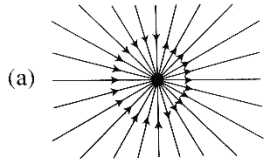
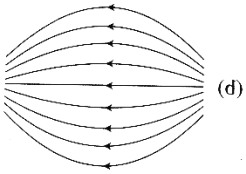
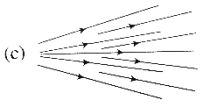
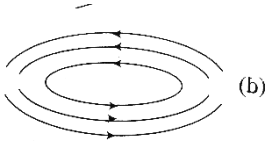
INDIAN SCHOOL NIZWA - WORKSHEET

	PHYSICS	
	CH: 1 Electric charges and fields	
Name:	Date:_____	Class:

1.	A piece of polythene rubbed with wood is found to have negative charges of 3.6×10^{-7}C. If an electron has a mass of 9.1×10^{-31}kg, find the mass transferred to polythene. A. 2.25×10^{10}kg B. 6.25×10^{-18} kg **C. 2.05×10^{-18} kg** D. 4.15×10^{-18} kg	1
2.	The number of electrons to be put on a spherical conductor of radius 0.1m to produce an electric field of 0.036N/C just above its surface is A. 2.7×10^{5} B. 2.6×10^{5} **C. 2.5×10^{5}** D. 2.4×10^{5}	1
3.	A uniformly charged conducting sphere of 4.4m diameter has a surface charge density of 60μCm^{-2}. The charge on the sphere is A. 7.3×10^{-3} C B. 3.7×10^{-6} C C. 7.3×10^{-6} C **D. 3.7×10^{-3} C**	1
4.	Three charges +Q, q, +Q are placed respectively at a distance 0, d/2 and d from the origin, on the x axis. If the net force experienced by +Q, placed at X = 0 is zero, then the value of q is A. +Q/4 B. -Q/2 C. +Q/2 **D. -Q/4**	1
5.	Two point charges placed at a distance r in air experience a certain force. Then the distance at which they will experience the same force in a medium of dielectric constant k is A. r/K B. Kr **C. r/√k** D. r +√K	1
6.	Figure shows the electric field lines emerging from a charged body. The electric field lines at A and B are E_A and E_B, respectively. If the distance between A and B is r, then 	1

	A. $E_A > E_B$ B. $E_A < E_B$ C. $E_A = E_B / r$ D. $E_A = E_B / r^2$	
7.	A circular plane sheet of radius 10cm is placed in a uniform electric field of 5 x 10^5N/C making an angle of 60^0 with the field. The electric flux through the sheet is A. 1.36 x 10^2 Nm^2/C **B. 1.36 x 10^4 Nm^2/C** C. 0.515 x 10^2 Nm^2/C D. 0.515 x 10^4 Nm^2/C	1
8.	Electric field at a point varies as r^0 for A. An electric dipole B. A point charge **C. A plane infinite sheet of charge** D. A line charge of infinite length	1
9.	If E_A be the electric field strength of a short dipole at a point on its axial line and E_e that on the equatorial line at the same distance, then A. $E_e = 2E_A$ B. $E_A = 2E_e$ C. $E_e = E_A$ **D. $E_e = E_A / 2$**	1
10.	Five equal charges each of value q are placed at the corners of a regular pentagon of side a. The electric field at the centre of the pentagon is  A. $\frac{q}{4\pi\varepsilon_0 r^2}$ B. $\frac{q^2}{4\pi\varepsilon_0 r^2}$ C. $\frac{2q}{4\pi\varepsilon_0 r^2}$ **D. zero**	1
11.	Point charges of +6μC and -4μC are placed on x axis at x = 8m and x = 16m respectively. The magnitude of charge that must be placed at x = -8m, so that any charge kept at the origin experience no electric force, is A. -2μC B. 2μC **C. -5μC** D. 5μC	1

12.	Consider four field patterns shown, assuming that there are no charges in the region shown, which of the patterns represent a possible electrostatic field? A.  B.  C.  D.  Ans: Only B	1
13.	In a region of space, the electric field is given by E = 8i +4j +3k. The electric flux through a surface of area 100 units in the x-y plane is A. 800 units **B. 300 units** C. 400 units D. 1500 units	1
14.	Two point charges +9e and +e are kept 16cm apart from each other. Where should a third charge q be placed between them so that the system is in equilibrium state? a. 24 cm from +9e **b. 12 cm from +9e** c. 24 cm from +e d. 12 cm from +e	1
15.	If the electric flux entering and leaving an enclosed surface respectively is Φ_1 and Φ_2, then the electric charge inside the surface will be A. $(\Phi_1 + \Phi_2)\ \varepsilon_0$ **B. $(\Phi_1 - \Phi_2)\ \varepsilon_0$** C. $(\Phi_1 + \Phi_2) / \varepsilon_0$ D. $(\Phi_1 - \Phi_2) / \varepsilon_0$	1