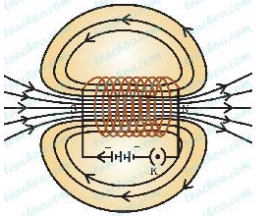
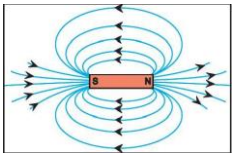
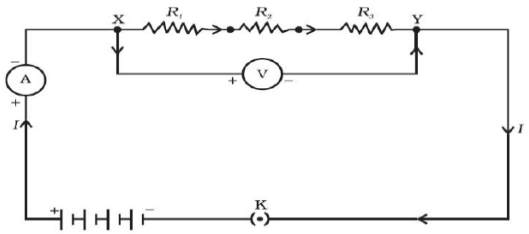
Roll Number		

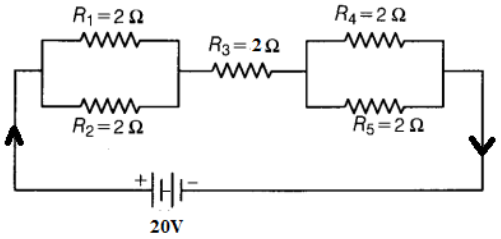
SET **C**

INDIAN SCHOOL MUSCAT
SECOND PRE - BOARD EXAMINATION
SCIENCE 086

CLASS: X TERM 2 Max.Marks: 40

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
	1.	a. N, Sodium(Na) (½ + ½) b.TM_3, PM_2 (½ + ½)	(1+1)
	2.	a. 3rd member of Alkane→Propane(½) 4th member of Alkene →Pentene(½) b.C_3H_8O→Propanol(½) C_4H_6 →Butane(½)	(1+1)
	3	(a) 10J (b) Ten percent law of energy flow - According to Ten percent law only 10 % of the energy entering a particular trophic level is available for the transfer to the next higher trophic level. OR Substances that do not break down by biological processes are non-biodegradable wastes.; Wooden table, fruits and vegetable peels	(1mark) (1mark) (1 mark) (1/2+1/2)
	4	Binary fission Diagram	(1/2 mark) (11/2 mark)
	5	(a) Placenta – The embryo gets nutrition from the mother's blood with the help of placenta. (b) This is because oral pills change the hormonal balance in the body. OR (a) Testes- produce sperms and testosterone hormone (b) This is because sperm formation requires a lower temperature than the normal body temperature.	(1mark) (1mark) (1mark) (1mark)
	6	a) A solenoid is a circular coil of insulated copper wire wound in the form of a cylinder. b)  OR	

		a) The magnetic field lines never intersect each other because if two or more lines intersect each other than it means that at that point of intersection, the magnetic field has two directions at the same point, which is not possible. b)  	
	7	(a) pollen grain (b) pollination by agents like wind, water or animals.(c) pollen tube carries male germ cell to ovule female germ cell in ovary.(d) ovule gets converted into seed	(1/2 mark each)
	8.	(i)Definition(1) Example (½) (ii)Eka-Aluminium (½) Eka-Boron (½) Eka-Silicon (½)	1 ½ + 1 ½
	9.	(i)Justification(2) (ii)Definition(1) (or) (i)Definition(1) (ii)each one (½)	(2+1) (or) (1+2)
	10	(a) <u>Decomposers replenish the soil</u> – they break-down the complex organic substances into simple inorganic substances that go into the soil and are used up once more by the plants/<u>They are cleansing agents of environment</u> – they act on dead bodies of plants, animals and break them into simple elements, puts them back into air, water and soil for re-use. (any 1 point) (b) Ultra violet radiations of sun, Chlorofluorocarbon. (c) Snake ; Biomagnification	(2 marks) (1/2+1/2) (1 mark)
	11	a) The resistivity of alloys is much more than the resistivity of pure metals. Also, Alloys do not burn readily even at high temperatures. b)  	½ ½ ½ ½ ½ ½

		As shown in the figure, consider three resistors R_1, R_2, R_3 connected in series. Suppose a current I flows through the circuit when a cell of V volt is connected across the combination. By Ohm's law, the potential differences across the three resistors will be, $V_1 = IR_1, V_2 = IR_2, V_3 = IR_3$ If R_s be the equivalent resistance of the series combination, then on applying a potential difference V across it, the same current I must flow through it. Therefore, $V = IR_s$ But $V = V_1 + V_2 + V_3$ $\therefore IR_s = IR_1 + IR_2 + IR_3$ $\Longrightarrow IR_s = I(R_1 + R_2 + R_3)$ $\Longrightarrow R_s = R_1 + R_2 + R_3$	
	12	a) Watt. 1W is defined as the amount of electrical energy consumed per unit time. b) E=P x t Total energy E =500 x 5 +350 x 10 = 2500 + 3500 = 6000/1000=6 kWh Cost of electricity bill = E x n x unit price = 6 x 30 x 3.00 = Rs. 540/- OR a) Copper and aluminium are **good conductors of electricity**. They have very low resistance and allow the current to flow through them easily without power loss. (½+ ½) b)  	½ + ½ 1+1

		$\frac{1}{R'} = \frac{1}{R_1} + \frac{1}{R_2}$ $= \frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$ (1/2) $\Rightarrow \quad R' = 1\,\Omega$ Similarly, equivalent resistance R'' of R_4 and R_5 is given by $\frac{1}{R''} = \frac{1}{R_4} + \frac{1}{R_5}$ $= \frac{1}{2} + \frac{1}{2} = \frac{2}{2}$ $\Rightarrow \quad R'' = 1\,\Omega$ (1/2) Now, all the resistances are connected in series. So, equivalent resistance of the circuit $R = R' + R_3 + R'' = 1 + 2 + 1 = 4\,\Omega$ Total current I= V/R = 20/4 = 5A (1)	
	13	Let round shape trait be represented by: RR, wrinkle shape : rr Parental cross RR X rr F1 progeny Rr All round seeds F1 cross Gametes R r x R r F2 progeny RR Rr Rr rr F2 phenotypic ratio is 3: 1 - 3 round seeds and 1 wrinkled seed Genotypic ratio 1:2:1	(2 marks) (1 mark)
	14	(a) 23 pairs (b) 22+X or 22+Y (c) Females produce only one type of ovum with an X-chromosome and males produce two types of sperms (carrying either X or Y chromosome) in equal proportions. So the sex of a child is a matter of chance depending upon the type of sperm fertilizing the ovum. Flow chart OR (i) 46 chromosomes (ii) Sex chromosomes. (iii) Justification There is 50% probability of the birth of a boy	(1mark) (1mark) (1 mark) (1 mark)

		when fertilisation of the ovum is with the sperm carrying Y chromosome. Because in Human males 50 per cent of the total sperm produced carry the X-chromosome and the rest 50 per cent has Y-chromosome.	(1/2 mark) (1/2 mark) (1mark)
	15	a) a) Fleming's right hand rule According to the Fleming's right hand rule, if we **hold our right-hand forefinger, middle finger and the thumb at right angle to each other**, then, if the forefinger represents the direction of the magnetic field, thumb represents the direction of motion of the conductor, then middle finger represents the direction of induced current. b) Electromagnetic induction Electromagnetic induction is the phenomenon by which a changing magnetic field induces current in the neighbouring coil. c) Two circular coils A and B are placed closed to each other. When the current in coil A is changed, the magnetic field associated with it also changes. As a result, the magnetic field around coil B also changes. This change in magnetic field lines around coil B induces an electric current in it. OR Galvanometer is an instrument that shows the presence of electric current	1+1 1 1 1 1