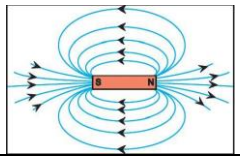
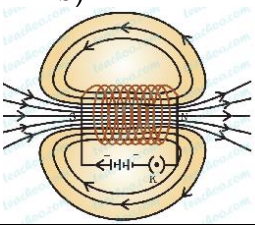
Roll Number		

SET A

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.C b.B c.D d.A Each one carries ½ mark.	(1+1)
	2	a. Atomic No:15 Electronic Configuration:2,8,5 (1/2 + ½) b. P (½) c. N- ½ Mark.	(1+1)
	3	Regeneration Diagram	(1/2 mark) (11/2 mark)
	4	(a) 40J (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. Empty paper box of sweets is a biodegradable waste.	(1 mark) (1mark) (1 mark) (1/2+1/2)
	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) Testis- produce sperms and testosterone hormone (b) This is because sperm formation requires a lower temperature than the normal body temperature.	(1+1) (1mark) (1/2+1/2)
	6	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) 	1 1

		OR a) A solenoid is a circular coil of insulated copper wire wound in the form of a cylinder. b) 	1
	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 onverted into seed	(1/2+1/2) (1/2+1/2)
	8.	(i)F(9) (1) (ii)X $(NO_3)_2$, $X_3(PO_4)_2$. (½ + ½) Form ionic compound. (1)	(1+2)
	9	Each structure carries 1 mark (or) (i)Each type (½ + ½ + ½) (ii)Each property(½ + ½ + ½)	(1+1+1) (or) (1½ + 1 ½)
	10	Let purple trait be represented by: PP, White trait be : pp Parental cross PP X pp F1 progeny Pp All purple flowers F1 cross Gametes P p x P p F2 progeny PP Pp Pp pp Phenotypic ratio is 3: 1 - 3 are purple flowers and 1 white flower Genotypic ratio is – 1: 2: 1	(2 marks) (1 mark)
	11	a) The potential difference, *V*, across the ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it, provided its temperature remains the same. This is called Ohm's law. b) $H = I^2 Rt$ = (5x5) x 20 x 30 = 25 x 600 = 15000J	1 ½ ½ 1
	12	a) Tungsten has a very high melting point and high resistivity so it is used for making filament in an electric lamp	½ + ½

b) E=P x t

Total energy E =2 x 50 x 5 +1400 x 2

=500 + 2800

=3300

= 3.3kWh 1+ 1

Cost of electricity bill = E x n x unit price

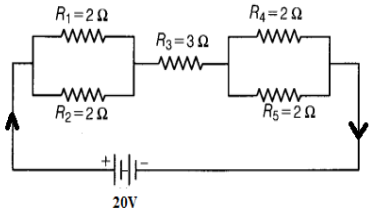
= 3.3 x 30 x 4

= Rs. 396/-

OR

a) In Series circuit, If one electrical appliances stops working due to some defect, then all appliances will stop working.
In series circuit, The volatge[220V] will be divided across all electrical appliances . (½ + ½)

b)



$$\frac{1}{R'} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$= \frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1 \qquad \textbf{(1/2)}$$

$$\Rightarrow \qquad R' = 1\,\Omega$$

Similarly, equivalent resistance R'' of R_4 and R_5 is given by

$$\frac{1}{R''} = \frac{1}{R_4} + \frac{1}{R_5}$$

$$= \frac{1}{2} + \frac{1}{2} = \frac{2}{2}$$

$$\Rightarrow \qquad R'' = 1\,\Omega \qquad \textbf{(1/2)}$$

Now, all the resistances are connected in series.

So, equivalent resistance of the circuit

$$R = R' + R_3 + R'' = 1 + 3 + 1 = 5\ \Omega$$

Total current I = V/R = 20/5 = 4A (1)

	13	(a) Decomposers replenish the soil – 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/ They are cleansing agents of environment – 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. They act on waste material and break them into non –poisonous/ harmless substances. (any 1 point) (b) Chlorofluorocarbon, depletion of ozone layer (c) Hawk; Biomagnification	(1 mark) (1/2+1/2) (1/2+1/2)
	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 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.	(1mark) (1mark) (2 marks) (1/2 mark) (1/2 mark) (1mark)
	15	a) The displacement of the rod in the above activity suggests that a force is exerted on the current-carrying aluminium rod when it is placed in a magnetic field. It also suggests that the direction of force is also reversed when the direction of current through the conductor is reversed. (Any two) b) Fleming's left hand rule Fleming's left hand rule states that if we stretch the thumb, middle finger and the fore finger of the left hand in such a way that they are perpendicular to each other, then middle finger represents the direction of the current, fore finger represents the direction of the magnetic field and the thumb	½ ½ 1

		points towards the direction of force. c) An electric motor works on the principle that when a rectangular coil is placed in a magnetic field and a current is passed through it, a force acts on the coil which rotates it continuously. OR Split rings acts as a commutator in an electric motor	1