SCIENCE (086)
Term 2 Class 10
Science paper (Theory)

Time: 2 hours Maximum Marks 40

General Instructions:

i) All questions are compulsory.
ii) The question paper has three sections and 15 questions. All questions are compulsory.
iii) Section–A has 7 questions of 2 marks each; Section–B has 6 questions of 3 marks each; and Section–C has 2 case based questions of 4 marks each.
iv) Internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions
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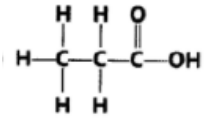
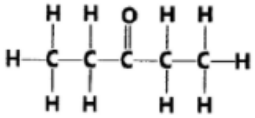
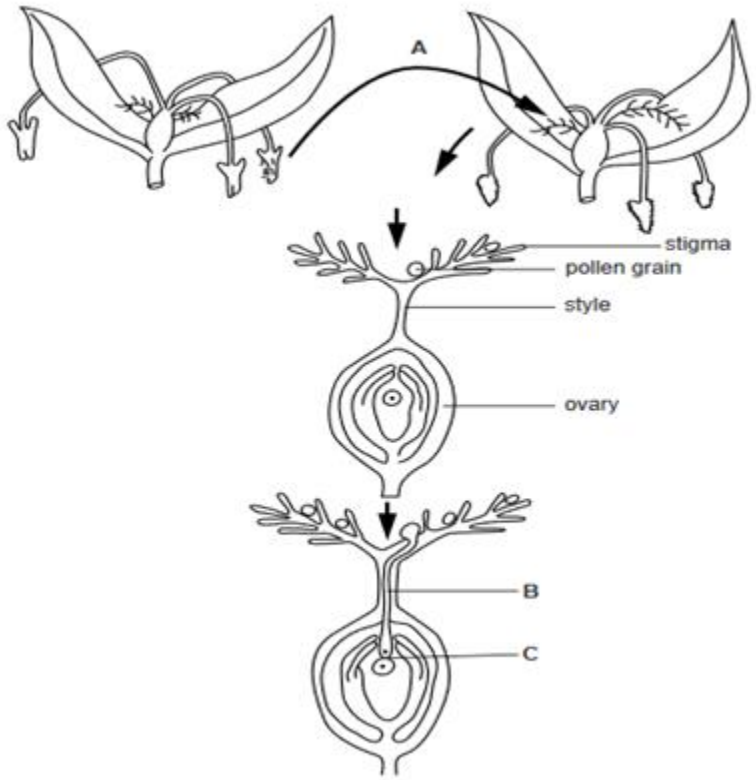
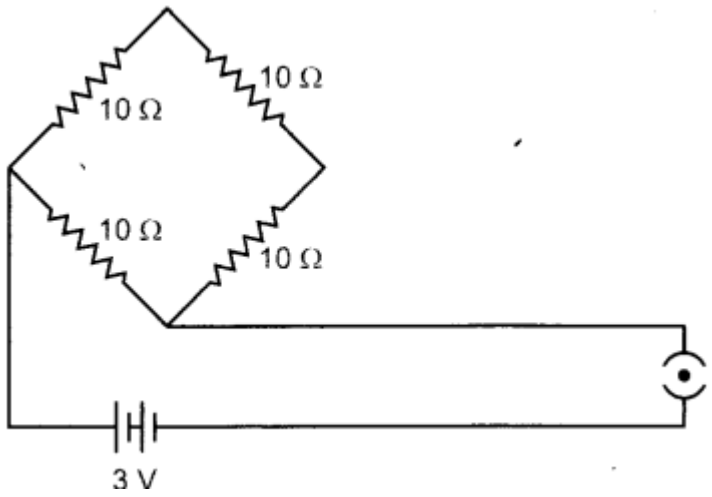
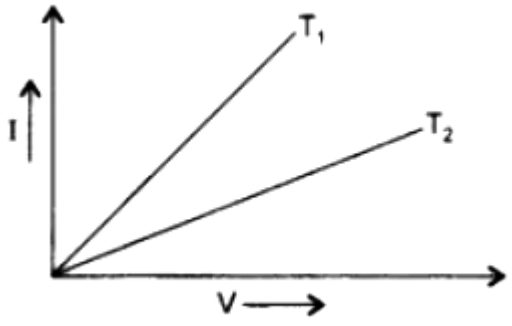
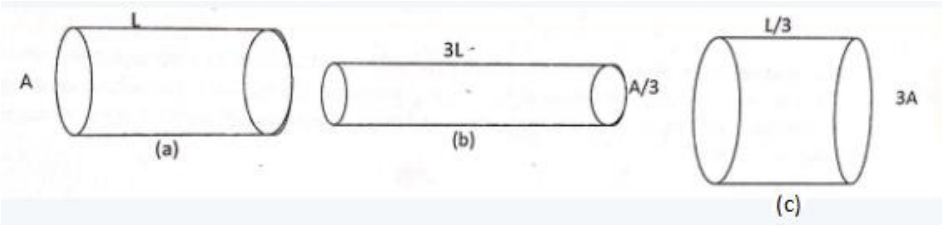
	SECTION - A	
1.	Write the significance of homologous series Identify the homologues in the following given organic compound CH_4, C_2H_6O, C_2H_4O, C_3H_6O, CH_4O, CH_2O_2	[2]
2.	Identify and name the functional groups present in the following compounds a)  b) 	[2]
3.	Give reasons: i) Testes are located outside the abdominal cavity ii) Not all watermelon flowers turn into fruits.	[2]
4.	The following diagram shows the events from pollination to fertilisation .	[2]

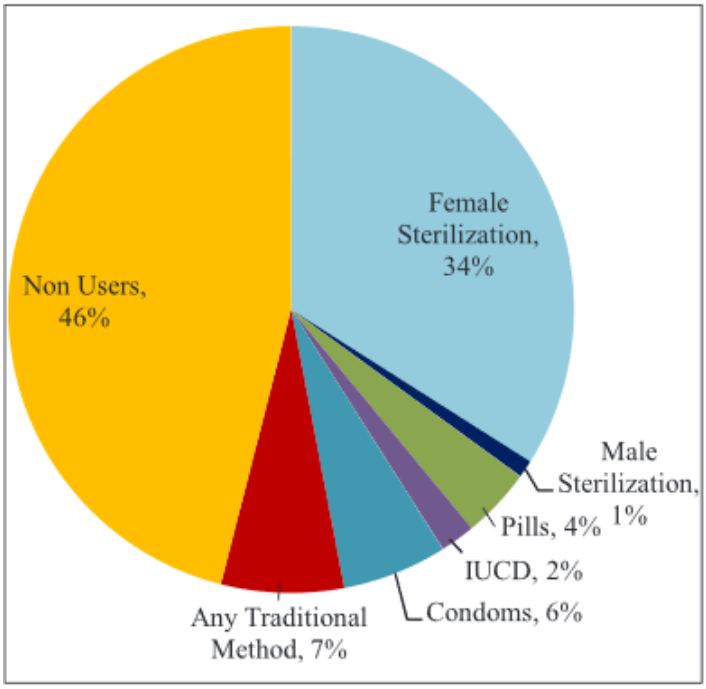
	 a) Name the structure B and write its function. b) Name the parts of the flower that develop into seed and fruit	
5.	'The human males are responsible for determining the sex of the unborn child'. Do you agree with the statement? Justify with the help of a cross. OR A man with blood group B marries a woman with blood group O. The allele for blood group O is recessive. Predict the percentages of the blood group O and B of the child if the man has heterozygous alleles for blood group B.	[2]
6.	A wire of resistance 5 ohm is bent in the form of a closed circle. What is the resistance between any two points at the ends of any diameter of a circle? **OR** Find the current drawn from the battery by the network of four resistors shown in the figure.	[2]

		
7.	Define biomagnification using an example. OR Look at the food chain given below and answer the questions that follow: Grass—---> Mouse—---> Snake—----->Eagle a. If the producer has 10,000 Joules of energy, calculate the energy at the secondary consumer level? b. On which trophic level will you place decomposers in this food chain?	[2]
	SECTION - B	
8.	Make the structural isomers of an organic compound with molecular formula C_5H_{12} and write their IUPAC names	[3]
9.	Draw electron dot structure of the following: (a) $CHCl_3$ (b) S_8 (c) CH=CH OR a) Most carbon compounds are poor conductors of electricity. Explain b) Carbon compounds have low melting and boiling points as compared to ionic compounds. c) Which element exhibits the property of Catenation to maximum extent and	[3]

	why?	
10.	(i) When a pea plant with purple flowers is crossed with a pea plant with white flowers, the F1 generation had plants with purple flowers and white flowers. What will be the ratio of plants with purple and white flowers? With the help of a l punnett square explain the results. . (ii) Study the given data and choose a plant to conduct experiments on Heredity. Give an appropriate reason for your choice.	[3]
11.	a. I-V graph for a metallic wire at two different temperatures, T1 and T2 is as shown in the figure. Which of the two temperatures is lower and why?  b. How is an ammeter and a voltmeter connected with respect to the resistor in an electric circuit? Why	[3]

Name of the plant	Life span
Banyan tree	500 years
Sweet Pea	3 months
Rose	35 years
Rice	6 months

12.	a. The figure below shows three cylindrical copper conductors along with their face areas and lengths. Discuss in which geometrical shape the resistance will be highest.  b. What do you mean by resistivity of a substance? OR a. Derive the relation between SI unit and commercial unit of energy. b. 4 electric bulbs of 100 W are used for 5 hrs a day and one AC of 1.5 kWh is used for 4 hrs a day. Calculate electricity bill for a month if each unit cost Rs.5.	[3]
13.	a) Draw the diagram of the female reproductive system and name and label the following parts- i. site of egg production ii. site of fertilization b) What is Placenta? Mention its role during pregnancy?	[3]
	SECTION – C This section has 02 case-based questions (14 and 15). Each case is followed by 03 sub-questions (a, b and c). Parts a and b are compulsory. However, an internal choice has been provided in part c.	
14.	The given data is provided by ministry of health and family welfare. Study it carefully and answer the following questions	[4]



a. What is the overall percentage of people in India who use birth control measures?

b. Out of the methods listed, which one acts by changing the hormonal balance of the body so that the eggs are not released, and fertilization does not occur?

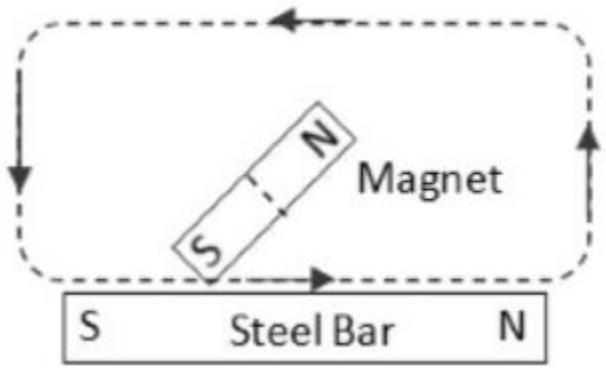
c. State two reasons for the need of using birth control measures?

OR

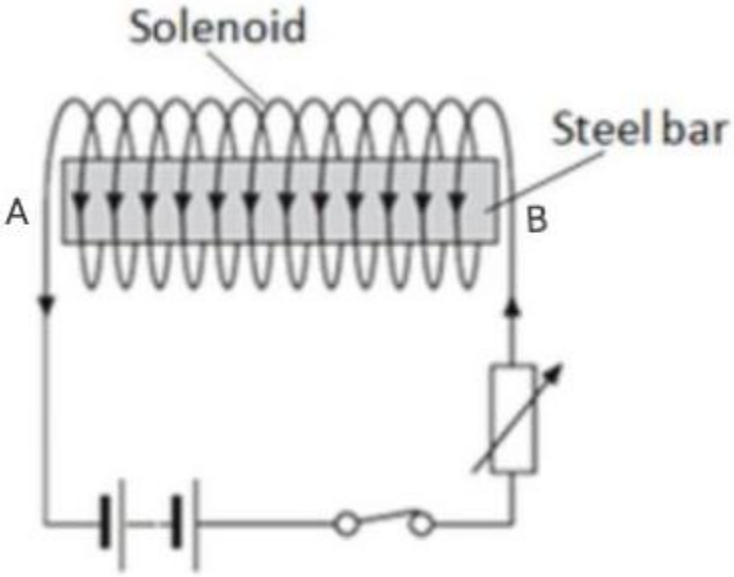
Name and explain the process of birth control which involves male and

female sterilisation

15. Students of class X were asked to magnetise a steel bar provided to them. A group of students stroked the steel bar with the same pole of a permanent magnet from one end to the other end in one direction to magnetise the bar. [1+ 1+2 =4]



Another group used the electrical method instead. They placed the steel bar inside a solenoid and switched on the d.c supply to magnetise it.



When current flows through the solenoid, a strong magnetic field is produced which magnetised the steel bar. According to the student group, theirs is a more effective method of magnetisation and is much quicker than stroking method that can also produce stronger magnets. (i) What is a solenoid?

(ii) Which of the ends of the steel bar (A or B) will be the north pole?

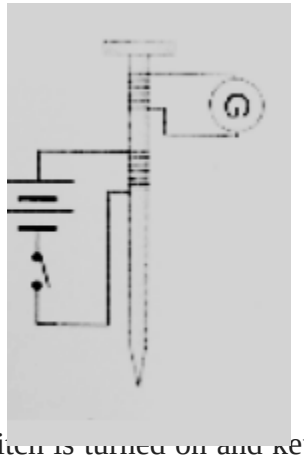
(iii) Draw the pattern of the magnetic field inside the long solenoid.

(iv) The second group claimed that stronger magnets could be created. State two ways in which that can be achieved.

OR

(a) An electron beam is coming towards you horizontally through a magnetic field and gets deflected towards your right. What is the direction of the magnetic field that bends the beam? State the rule used to determine the direction.

(b) Two coils are wound up side by side over a long iron nail as shown in the figure.One coil is connected to the battery and the other by a galvanometer.



(i) When the switch is turned on and kept on for sometime, how will the deflection in the galvanometer change? Why?
(ii) When the switch is turned off, what would happen to the reading in the galvanometer? Why?
(c) What will be the effect of moving the wire parallel to the magnetic field between the two magnets? Why?