

**NAVODAYA VIDYALAYA SAMITI
PRE- BOARD TERM-II EXAMINATION**

CLASS- X

SUBJECT-SCIENCE

ANSWER KEY SET 1

SECTION - A

1	<p>Soft Iron. (1 + 1 Mark)</p> <p>Zero, it is because the beam is moving parallel to the magnetic field.</p> <p>Or</p> <p>Factors (any two)(1 + 1Mark)</p> <p>(i) The current through the conductor</p> <p>(ii) The strength of the magnetic field.</p> <p>(iii) The length of the conductor</p> <p>When the current in the conductor flows perpendicular to the direction of the magnetic field.</p>	2
2	<p>(a) For every correct structure</p> <p style="padding-left: 40px;">C_2H_6 is saturated</p> <p>(b) 5 and 7 covalent bonds respectively</p>	<p>$\frac{1}{2} + \frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>
3	<p>(a). X and Z</p> <p>Because they have same number of valance electrons.</p> <p>(b). $Y < X < Z$</p> <p style="text-align: center;">OR</p> <p>(c). No of valence electrons in Y = 7</p> <p style="padding-left: 40px;">No of valence electrons in Z= 1</p> <p>(d) X and Z</p> <p>Because both can lose one electron easily.</p>	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>
4	<p>a) Bio magnification/Bio amplification</p> <p>b) Egg shell become thin as a result there is decrease in population</p>	<p>1</p> <p>1</p>
5	<p>Spirogyra. Because many multi-cellular organisms, as we have seen, are not simply a random collection of cells. Specialised cells are organised as tissues, and tissues are organised into organs, which then have to be placed at definite positions in the body. In such a carefully organised situation, cell-by-cell division would be impractical.</p> <p style="text-align: center;">Or</p> <p>a. Ovary</p> <p>b. Fallopian tube</p>	<p>1+1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p>

	c. Uterus /Womb d. Vagina	½
6	a. Ovule b. Radicle and plumule	1 ½ + ½
7	Error in DNA copying mechanism. Formation of gametes with half the amount of DNA as compared to the non reproductive body cells.	2
SECTION - B		
8	The closed path traced by the unit north pole in a magnetic field are called magnetic field lines. $(\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2})$ They are closed continuous curves because they diverge from the north pole of a magnet and converge its south pole. (i) Maximum at A and C (ii) Minimum at B	3
9	(i) Standard Ohm's law circuit diagram with four cells. $(1+1 + 1)$ (ii) Draw the relevant graph with these values and calculate R. $R = \frac{\text{Change of } V}{\text{Change of } I}$ $R = 3.314 \Omega$ Or $R_s = R_1 + R_2 + R_3$ $(\frac{1}{2} + \frac{1}{2} + 1 + 1)$ $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ $R = 30/4 = 7.5 \Omega$ $I = V/R = 3/7.5$ $= 0.4 \text{ A}$	3
10	(a) Three isomer For all the correct structure (b) C_6H_{14}	½ ½ + ½ + ½ 1
11	(a). No. of valence electrons in the atom of B = 1 (b). The formula of compound would be BCl ©. Configuration of B = 2,8,1 Configuration of E = 2,8,2	1 1 ½ ½
12	a) CO_2, CH_4 b) They trap infra-red waves/heat waves c) Outbreak of diseases, Melting of glaciers causing increase in sea level, Scarcity of food (Any other suitable answer)	1 1 ½ + ½

13	<p>a. $TT \times tt$</p> <p style="text-align: center;">$\swarrow \quad \searrow$</p> <p style="text-align: center;">Tt F_1</p> <p style="text-align: center;">\downarrow</p> <p style="text-align: center;">$TT \quad Tt \quad Tt \quad tt$ F_2</p>	1
	<p>b. Phenotypic ratio of F_2 3:1</p> <p>Genotypic ratio of F_2 1:2:1</p>	$\frac{1}{2}$ $\frac{1}{2}$

SECTION - C

14	<p>(i) a</p> <p>(ii) a</p> <p>(iii) b</p> <p>(iv) b</p>	4
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15	<p>I. 23 Pairs</p> <p>II. Role of X and Y Chromosomes explained</p>	1 1
	<p style="text-align: center;">Sex determination in Human beings</p> <p>PARENTS: FATHER MOTHER</p> <p style="text-align: center;">XY XX</p> <p>GAMETES (Reproductive cells)</p> <p style="text-align: center;"> X Y X X </p> <p>Zygote formed after fusion of gametes</p> <p style="text-align: center;"> XX XX XY XY FEMALE FEMALE MALE MALE </p> <p style="text-align: center;">offspring</p> <p style="text-align: center;"> 50% probability of a Female child 50% probability of a male child </p> <p style="text-align: center; font-size: 2em;">OR</p> <p>a) PPYY X ppyy</p> <p>b) PY and py</p> <p>c) PpYy, Purple Yellow</p> <p>d) PY, Py, pY, py</p>	2½
		$\frac{1}{2}$ $\frac{1}{2}$ $1\frac{1}{2}$ $1\frac{1}{2}$