

Directorate of Education, GNCT, Delhi

SUGGESTIVE ANSWERS OF PRACTICE PAPER-II

Term 2 (2021-22)

CLASS X

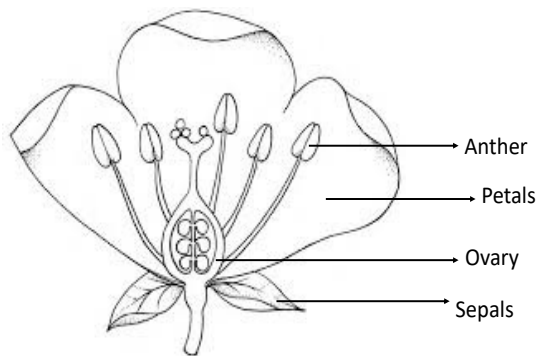
Science (विज्ञान) (086)

Max. Marks: 40

Time : 2 hours

In this Marking scheme suggestive answers are given. Alternative correct answers can also be considered.

Q.No.	SECTION – A	Marks						
1.	<div>i. Electronic configuration of R is:<table><tr><td>K</td><td>L</td><td>M</td></tr><tr><td>2</td><td>8</td><td>3</td></tr></table></div> <div>Thus, there are 3 valence electrons in element R.</div> <div>ii. Q has 1 electron and S has 7 electrons in the valence shell.</div> <div>Therefore ,formula of the compound will be QS.</div>	K	L	M	2	8	3	<div>$\frac{1}{2}$</div> <div>$\frac{1}{2}$</div> <div>$\frac{1}{2}$</div> <div>$\frac{1}{2}$</div>
K	L	M						
2	8	3						
2.	<div>Two properties are :</div> <div>i. Catenation : the ability to form bonds with other atoms of carbon.</div> <div>ii. Tetravalency of carbon</div> <div>OR</div> <div>Second member of the alkene series:</div> <div>General formula – C_nH_{2n}</div> <div>As the formula CH_2 does not exist C_2H_4 is the first member of alkene series</div> <div>So second member- C_3H_6</div> <div>(Propene)</div> <div>Structure of the first member:</div> <div><div><div>H</div><div>C</div><div>H</div></div><div><div>H</div><div>C</div><div>H</div></div><div><div></div><div>=</div><div></div></div></div> <div>$\frac{1}{2} + \frac{1}{2}$</div> <div>1</div> <div>$\frac{1}{2}$</div> <div>1</div> <div>$\frac{1}{2}$</div>							
3.	<div>i.</div> <div><table><tr><th>Binary fission</th><th>Multiple fission</th></tr><tr><td><ul style="list-style-type: none">The organism splits into two nuclei (daughter cells). e.g. Amoeba</td><td><ul style="list-style-type: none">The organism splits into many nuclei (daughter cells). e.g. Plasmodium</td></tr></table></div> <div>ii. -Sperm formation requires a lower temperature than normal body temperature.</div> <div>- This temperature is $1-3^0$ C lower than the body temperature.</div> <div>OR</div>	Binary fission	Multiple fission	<ul style="list-style-type: none">The organism splits into two nuclei (daughter cells). e.g. Amoeba	<ul style="list-style-type: none">The organism splits into many nuclei (daughter cells). e.g. Plasmodium	<div>$\frac{1}{2} + \frac{1}{2}$</div> <div>$\frac{1}{2}$</div> <div>$\frac{1}{2}$</div>		
Binary fission	Multiple fission							
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A	Anther
B	Petals
C	Ovary
D	Sepals

correct labels

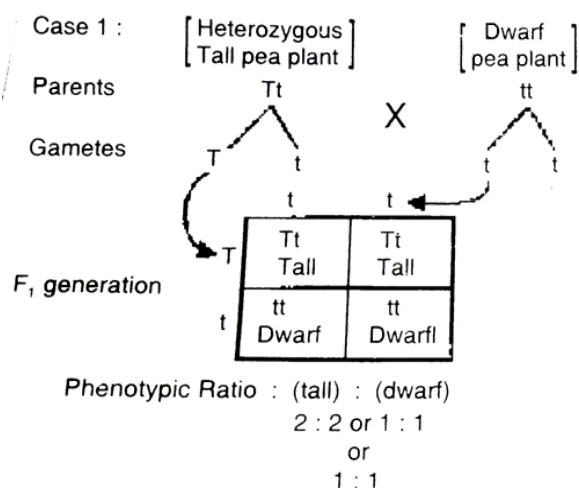
4 x ½

For Visually Impaired students:

Pollination is the transfer of pollen grains from the anther to the stigma Of a flower whereas fertilization is the fusion Of male gamete with female gamete (egg).

1+1

4.



½

½

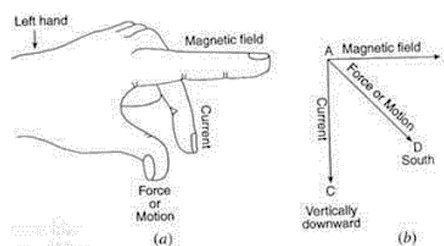
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5.

- i. Principle of electric motor: a current-carrying conductor experiences a force when placed in a magnetic field. If the direction of magnetic field and that of current are mutually perpendicular then the direction of force is given by Fleming's left hand rule.

(Can also express through diagram)



1

- ii. In north – south direction
Because it behaves as a bar magnet.

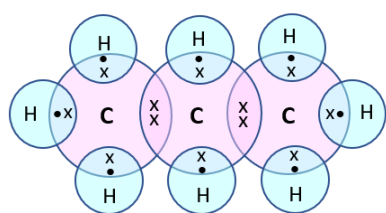
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6.

- If we kill all the herbivores of a food chain,
- the number of individuals in the next trophic level (secondary consumers) will decrease due to nonavailability of food.

1

	<ul style="list-style-type: none">Also, the number of individuals in the first trophic level (producers) will increase because there is no one to eat them. (Imbalance in the ecosystem) <p style="text-align: center;">OR</p> <ul style="list-style-type: none">They would serve as breeding ground for flies and mosquitoes which are carriers of diseases like Cholera , typhoid and malaria.It will produce foul smell, thus causing air pollution. if thrown to water , it would cause water pollution.	1 1 1																												
7.	<table border="1"><tr><td>i.</td><td>Production of egg</td><td>B</td><td>Ovary</td></tr><tr><td>ii.</td><td>Site of fertilization</td><td>A</td><td>Fallopian tube</td></tr><tr><td>iii.</td><td>Site of implantation</td><td>C</td><td>Uterus</td></tr><tr><td>iv.</td><td>Site of entry of sperm</td><td>D</td><td>Vagina</td></tr></table> <p style="text-align: center;">For Visually Impaired students:</p> <table border="1"><tr><td>i.</td><td>Production of egg</td><td>Ovary</td></tr><tr><td>ii.</td><td>Site of fertilization</td><td>Fallopian tube</td></tr><tr><td>iii.</td><td>Site of implantation</td><td>Uterus</td></tr><tr><td>iv.</td><td>Site of entry of sperm</td><td>Vagina</td></tr></table>	i.	Production of egg	B	Ovary	ii.	Site of fertilization	A	Fallopian tube	iii.	Site of implantation	C	Uterus	iv.	Site of entry of sperm	D	Vagina	i.	Production of egg	Ovary	ii.	Site of fertilization	Fallopian tube	iii.	Site of implantation	Uterus	iv.	Site of entry of sperm	Vagina	$\frac{1}{2} \times 4$ $\frac{1}{2} \times 4$
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SECTION -B																														
8.	<p style="text-align: right;">Formula of Cyclopentane : C_5H_{10}</p> <p style="text-align: right;">Formula of Propane is C_3H_8</p> <p style="text-align: center;">Electron dot structure of Propane (C_3H_8) is-</p> <div style="text-align: center;"><p style="text-align: center;">Electron dot structure</p></div>	$\frac{1}{2}$ $\frac{1}{2}$ 2																												
9.	<p>i. No ,because all these elements do not have similar properties although the atomic mass of Silicon is average of the atomic masses of Sodium (Na) and Chlorine(Cl) .</p> <p>ii. Yes, because these elements have similar properties and the atomic mass of Magnesium(Mg) is approximately average of the atomic masses of Be and Ca.</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">There are 18 groups and 7 periods in the modern periodic table.</p> <p>i. On moving down a group , the atomic size increases and metallic character also increases .</p> <p>ii. On moving from left to right in a period ,the atomic size decreases and metallic character also decreases.</p>	$\frac{1}{2} + 1$ $\frac{1}{2} + 1$ $\frac{1}{2} + \frac{1}{2}$ 1 1																												
10.	<p>i. -Pollen grows the pollen tube so as to reach the female gamete in the ovary. -The pollen tube carries two male gametes in it, -one male gamete fuses with egg cell and forms zygote , -the other male gamete fuses with secondary nucleus to form endosperm nuclei.</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$																												

	<div>ii.</div> <div><div><u>Budding in Hydra</u><ul style="list-style-type: none">• Buds produced are multicellular.• Buds get detached from parent body soon.</div><div><u>Budding in Yeast</u><ul style="list-style-type: none">• Buds produced are unicellular• Buds may remain attached to the parent body.</div></div> <div>(any one difference)</div>	1
11.	<div><div>i. Current flowing through 4 Ω resistor:<div>$\frac{1}{R_p} = \frac{1}{8} + \frac{1}{8}$$= \frac{1+1}{8}$$= \frac{2}{8} = \frac{1}{4} \Omega$$R_s = 4 \Omega + R_p = 4 \Omega + 4 \Omega = 8 \Omega$</div></div><div>So Current Flowing through 4Ω = V/I</div><div>$8V/ 8 \Omega = 1 A$</div><div>ii. Potential difference across 4Ω:<div>$V = R I$$V = 4 \times 1$$4V$</div></div><div>For Visually impaired students:<div>i. Voltmeter is always connected in parallel.</div><div>ii. The resistance of a conductor depends on<ul style="list-style-type: none">• Its length• Its area of cross -section• Nature of the material of the conductor• Temperature of the conductor</div></div></div> <div><div>1/2</div><div>1/2</div><div>1/2</div><div>1/2</div><div>1/2</div><div>1/2</div><div>1</div><div>1/2 x 4</div></div>	
12.	<div>The process of increase of concentration of harmful chemicals like pesticides from first trophic level to the last trophic level in a food chain is called Biological magnification.</div> <div><ul style="list-style-type: none">• The concentration of the DDT will be maximum in Big fish as accumulation of non-biodegradable substance is maximum at highest trophic level . Algae-----> Zooplanktons-----> Small fish-----> Big fish• DDT is metabolized and excreted much more slowly than the nutrients that are passed from one trophic level to the next. So DDT accumulates in the bodies of animals.</div>	<div>1</div> <div>1</div> <div>1</div>
13.	<div>i. Resistance is a property of conductor due to which it resists the flow of electric current through it. Its SI unit is Ohm (Ω).</div> <div>ii. Heat produced in a resistor is-<ul style="list-style-type: none">• directly proportional to square of current flowing through it.• directly proportional to resistance.</div>	<div>1</div> <div>1/2</div> <div>1/2</div> <div>1/2</div> <div>1/2</div>

- Directly proportional to time

$$H = I^2 R t = V I t = V^2 t / R$$

(any one of the formula)

OR

- Tungsten is used for filament of electric lamps because its melting point is extremely high.
- Resistance (R) of a wire is inversely proportional to its cross-section area(A).

iii. series arrangements can not be used for domestic circuits because

- In series arrangement, same current will flow through all the appliances, which is not required.
 - We cannot use independent on/off switches with individual appliances.
 - Total resistance of domestic circuit will be the sum of the resistances of all the appliances and so current drawn by the circuit will be less.
- (any one of these or any other correct answer)

SECTION –C

14.

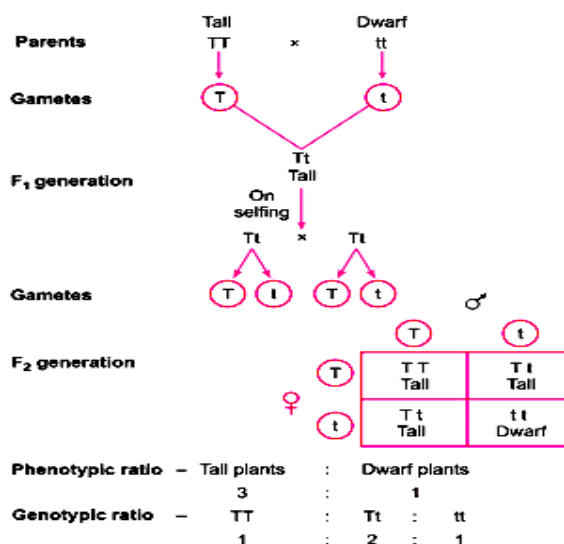
i. Dominant trait

Recessive trait

ii. 3:1

1:2:1

iii. 1part Homozygous Tall : 2 parts heterozygous Tall : 1part homozygous dwarf



OR

Observations noticed by Mendel in his experiments with Monohybrid and Dihybrid crosses were :

- In Monohybrid crosses the dominant allele of a trait are seen (law of dominance)
- In Dihybrid crosses segregation of traits in the offspring were seen. (Law of Independent Assortment)

15.	<p>i. The iron fillings experiences force due to the magnetic field and thus align themselves along the magnetic field lines.</p> <p>ii. The lines along which the iron fillings align ,represent the magnetic field lines.</p> <p>iii. --The crowding of the iron fillings at the ends of the magnet indicate position of two magnetic poles of N and S of bar magnet.</p> <p>---It also indicates that the strength of magnet is maximum at poles (where it is crowded)</p> <p>OR</p> <ul style="list-style-type: none"> • A magnetic field line always points in the direction of magnetic field. • No two magnetic field lines intersect each other. 	<p>1</p> <p>1</p> <p>1+1</p> <p>1 + 1</p>
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