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Vasavi school
Vasanthnagar

Subject :- 10th Science Part 1 & 2 Syllabus **Class :- 10**

- *Question Paper Preparation*
- *Blue Print*
- *Answer Sheet*
- *Question Analysation*

Subject Teacher :-	Principal :-

Vasavi school

Vasanthnagar

SSLC Preparatory Examination First Series

Blue Print

10	**: 10th Science Part 1 & 2 Syllabus**	**: KARNATAKA SCHOOL EDUCATION BORAD** **: 3 hours 15 minutes**

1. Unit Wise Marks Allocation

S.No	Lessons	Questions	Marks	Percentage
1	1 Chemical Reactions And Equations	2	4	5.00%
2	2 Acids, Bases And Salts	3	6	7.50%
3	3 Metals And Non Metals	4	7	8.75%
4	4 Carbon And Its Compounds	4	8	10.00%
5	5 Life Processes	4	8	10.00%
6	6 Control And Coordination	3	6	7.50%
7	7 How Do Organisms Reproduce ?	3	7	8.75%
8	8 Heredity	2	4	5.00%
9	9 Light Reflection And Refraction	3	8	10.00%
10	10 The Human Eye And The Colourful World	2	5	6.25%
11	11 Electricity	4	8	10.00%
12	12 Magnetic Effects Of Electric Current	3	6	7.50%
13	13 Our Environment	1	3	3.75%
Total		38	80	100%

2. According to objective Marks Allotment

S.No	Specific	Questions	Marks	Percentage
1	Knowledge	6	15	18.75%
2	Understanding	16	33	41.25%
3	Expression/skills	9	16	20.00%
4	Appreciation	7	16	20.00%
Total		38	80	100%

3. Questions Wise Marks Allocation

S.No	Type of question	Questions	Marks	Percentage
1	Objective Type	8	8	10.00%
2	Short Answer	16	24	30.00%
3	Long Answer	14	48	60.00%
Total		38	80	100%

4. According to difficulty marks allocation

S.No	Level of difficulty	Questions	Marks	Percentage
1	Easy	13	24	30%
2	Average	18	40	50%
3	Difficult	7	16	20%

S.No	Level of difficulty	Questions	Marks	Percentage
Total		**38**	**80**	**100%**

Time : 3 hours 15 minutes **Blue Print** **Marks :-80**

S.No	Target Units	Knowledge						Understanding						Expression/skills						Appreciation						Total Questions						Total Marks
		V	K		D			V	K		D			V	K		D			V	K		D			V	K		D			
			VSA	SA	LA1	LA2	LA3		VSA	SA	LA1	LA2	LA3		VSA	SA	LA1	LA2	LA3		VSA	SA	LA1	LA2	LA3		VSA	SA	LA1	LA2	LA3	
1	1 Chemical Reactions And Equations							1* (1)			1* (3)															1			1			4
2	2 Acids, Bases And Salts										1* (3)			1* (1)								1* (2)				1		1	1			6
3	3 Metals And Non Metals							1* (1)								1* (1)							1* (3)			1		2	1			7
4	4 Carbon And Its Compounds															1* (2)		1* (4)		1* (1)		1* (1)				1		2		1		8
5	5 Life Processes							1* (1)		1* (1)						1* (2)								1* (4)		1		2		1		8
6	6 Control And Coordination									1* (1)						1* (2)							1* (3)					2	1			6
7	7 How Do Organisms Reproduce ?											1* (5)		1* (1)		1* (1)										1		1		1		7
8	8 Heredity	1* (1)			1* (3)																					1			1			4
9	9 Light Reflection And Refraction									1* (1)	1* (3)																	1	2			8
10	10 The Human Eye And The Colourful World				1* (3)																	1* (2)						1	1			5
11	11 Electricity			1* (1)	1* (4)			1* (1)		1* (2)																1		2	1			8
12	12 Magnetic Effects Of Electric Current									1* (1)	1* (3)																	2	1			6
13	13 Our Environment				1* (3)																								1			3
	Total	1 (1)		1 (1)	4 (13)			4 (4)		6 (8)	5 (16)	1 (5)		2 (2)		6 (10)		1 (4)		1 (1)		3 (5)	2 (6)	1 (4)							38	80

Note:-

Vasavi school
Vasanthnagar
SSLC Preparatory Examination
First Series

Subject: 10th Science Part 1 & 2 Syllabus

Class: 10 **Medium: English** **Marks: 80** **Total Question: 38**

Time: 3 hours 15 minutes **Exam Date:**

Information to be filled by the Student

Name of the Student: _____

Student SATS No: ☐☐☐☐☐☐☐☐☐ Signature of the Student: _____

Information to be filled by the Room Invigilator

School IDSE Code: ☐☐☐☐☐☐☐☐☐☐☐

School Name: _____

Cluster: _____ Block: _____ District: _____

Govt. ☐ Aided ☐ Un-aided ☐

(Put ✓ mark for the applicable information)

Signature of the Room Invigilator: _____

Information to be filled by the evaluator at the time of evation

Question No	Obtained Marks	Question No	Obtained Marks	Question No	Obtained Marks		
1		11		21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		-	
10		20		30		-	
Total marks		**Total marks**		**Total marks**			
						Grand Total	

Total marks obtained (in words): _____

Signature of the evaluator: _____

Signature of the Evaluator2: _____

I. Four choices are given for each of the following questions / incomplete statements. Choose the correct answer and write the complete answer along with its letter of alphabet **8x1=8**

1. Which metal displaces copper from copper sulphate solution

a) Mercury b) Gold

c) Iron d) Silver

Ans: ☐

2. A process used to convert metal sulfide ores into their oxides.

a) Roasting b) Calcination

c) Reduction d) Electrolysis

Ans: ☐

3. The place where carbohydrates, proteins and fats are completely digested.

a) Stomach b) Large intestine

c) Small intestine d) Liver

Ans: ☐

4. The conversion of vegetable waste into compost is an example for

a) Reduction reaction b) Exothermic reaction

c) Redox reaction. d) Endothermic reaction

Ans: ☐

5. The plant used by Mendel for his experiment

a) Rose b) Pea

c) Hibiscus d) Sunflower

Ans: ☐

6. A compound that reacts with both acids as well as bases to produce salts and water is

a) Aluminium Oxide b) Copper Oxide

c) Iron Oxide d) Sodium Oxide

Ans: ☐

7. Blood vessels that carry blood from all parts of the human body to the heart

a) Arteries b) Capillaries

c) Pulmonary arteries d) Veins

Ans: ☐

8. The ratio of hydrogen and oxygen gases released in the electrolysis of water is

a) Hydrogen : Oxygen:: 1 : 2

b) Oxygen : Hydrogen:: 2 : 3

c) Hydrogen : Oxygen :: 2 : 1

d) Oxygen : Hydrogen:: 3 : 2

Ans: ☐

II. Answer the following questions:

8x1=8

9.Write the balanced equation for the chemical reaction of aluminum oxide reacting with acid and base.

Ans:

10. What are the tropism movements necessary for growth in the roots and shoots of plants?

Ans:

11. What is ductility?

Ans:

12. Name the products of anaerobic respiration.

Ans:

13. Write the electron dot structure of methane.

Ans:

14. Hydrocarbon compounds are usually used as fuels. Why?

Ans:

15. Why do magnetic lines of force not intersect each other?

Ans:

16. Why does menstruation occur?

Ans:

III. Answer the following questions: **8x2=16**

17. How does the movement of the leaves of the sensitive plant when touched?

OR

What causes mouth watering at the sight of delicious food? Which part of the brain controls this?

Ans:

18. The focal distance of a concave lens is 30 cm. How far should the object be placed from the lens so that the image is formed at a distance of 20 cm from the lens? Find the magnification produced by the lens.

Ans:

19. Describe newton's experiment to show the recombination of white light.

Ans:

20. Draw the diagram of the image formed when an object is placed at the following positions of a
convex lens.
i) Between F_1 and $2F_1$ ii) When placed at $2F_1$

Ans:

21. Generally large number of compounds are obtained due to interlinking of carbon atoms to each
other in environment if so,
a) This property of carbon is called as?
b) Give reason why this property is seen to the extent in carbon atoms?
c) Name the arrangements of carbon atoms these compounds may have.

OR

a) What are saturated carbon compounds?
b) Define the following:
i) Homologous series
ii) Esters

Ans:

22. State the properties of bases.

Ans:

23. State two properties of magnetic lines of force.

Ans:

24. Give reason:

a) The melting point and boiling point of covalent compounds are low

b) Covalent compounds are generally poor conductors of electricity

OR

Write the two important factors that can be observed in carbon?

Ans:

IV. Answer the following questions:

9x3=27

25. Explain with an example each for the decomposition reactions that take place when energy is supplied in the form of heat, light and electricity.

Ans:

26. Functioning of Reflex arc is more effective than thinking process of the brain. Clarify this statemen twith scientific reason

Ans:

27. Give reason:

a) Food chains generally consist of only three or four steps.

b) Decomposers play an important role in an ecosystem.
c) Protecting of ozone layer is necessary.

Ans:

28. Draw a diagram showing the behaviour of steam on a metal and label the parts

Ans:

29.a) A student clearly reads letters in a textbook only after a distance of 50 cm from the eyes without
difficulty. Then
i) Identify this defect of the eye and mention its cause.
ii) Suggest a remedy for this defect.
b) When sunlight passes through the trees of a dense forest on a foggy morning then the path of
the beam of light appears between the trees.
i) What is this phenomenon called?

Ans:

30. Explain “Chromosomes inherited from the father determine the sex of a child”

Ans:

31. List the magnetic lines of force and the characteristics of the magnetic field inside a solenoid.

Ans:

32. Draw a diagram of the image formed when an object is placed between C and F in front of concave mirror. Find out the position and nature of the image with the help of the diagram.

Ans:

33. Draw a diagram of the structure of the human brain and label the parts.

Ans:

V. Answer the following questions: **4x4=16**

34. a) Name any two devices that work on the application of Joule's law.
b) Why are the alloys like nichrome used in electrical heating devices?

35. If the magnification of the image formed by a convex mirror is 0.5 and the object is 15 cm awayfrom the mirror, find the focal length of the convex mirror and write the nature and size of the
image.

36. What are the elements required for photosynthesis? State the events that take place in this process.

37. Draw a diagram showing the schematic sectional view of the human heart. Label the parts.

OR

How is water transported to the higher parts of a plant? Explain.

VI. Answer the following questions: **1x5=5**

38.a) Explain the important function of each structure of the male reproductive system in humans

b)State the advantages of Vegetative reproduction. How it is favour for formers in agricultural field?

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Vasavi school, Vasanthnagar

SSLC Preparatory Examination First Series

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Class: 10 **Marks: 80**

Time: 3 hours 15 minutes

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SSLC Preparatory Examination First Series

10 10th Science Part 1 & 2 Syllabus

Question Analysis

Sl.No	Object Type	Chapter	Lesson	Question Type	Objective	Marks	Difficulty Level	Time
1	Knowledge	3 Metals And Non Metals	10th Science Chemistry	Objective type	O.T	1	Easy	2 minutes
2	Knowledge	3 Metals And Non Metals	10th Science Chemistry	Objective type	O.T	1	Easy	2 minutes
3	Understanding	5 Life Processes	10th Science Biology	Objective type	O.T	1	Easy	3 minutes
4	Knowledge	1 Chemical Reactions And Equations	10th Science Chemistry	Objective type	O.T	1	Easy	2 minutes
5	Knowledge	8 Heredity	10th Science Biology	Objective type	O.T	1	Easy	2 minutes
6	Understanding	2 Acids, Bases And Salts	10th Science Chemistry	Objective type	O.T	1	Easy	3 minutes
7	Knowledge	5 Life Processes	10th Science Biology	Objective type	O.T	1	Easy	2 minutes
8	Knowledge	1 Chemical Reactions And Equations	10th Science Chemistry	Objective type	O.T	1	Easy	2 minutes
9	Expression/skills	3 Metals And Non Metals	10th Science Chemistry	Short Answer	O.T	1	Difficult	4 minutes
10	Knowledge	6 Control And Coordination	10th Science Biology	Short Answer	O.T	1	Easy	2 minutes
11	Understanding	3 Metals And Non Metals	10th Science Chemistry	Short Answer	O.T	1	Difficult	2 minutes
12	Knowledge	5 Life Processes	10th Science Biology	Short Answer	O.T	1	Easy	2 minutes
13	Knowledge	4 Carbon And Its Compounds	10th Science Chemistry	Short Answer	O.T	1	Difficult	2 minutes
14	Knowledge	4 Carbon And Its Compounds	10th Science Chemistry	Short Answer	O.T	1	Difficult	2 minutes
15	Understanding	12 Magnetic Effects Of Electric Current	10th Science Physics	Short Answer	O.T	1	Easy	2 minutes
16	Expression/skills	7 How Do Organisms Reproduce ?	10th Science Biology	Short Answer	O.T	1	Average	2 minutes
17	Expression/skills	6 Control And Coordination	10th Science Biology	Short Answer	S.A	2	Easy	4 minutes
18	Understanding	9 Light Reflection And Refraction	10th Science Physics	Short Answer	S.A	2	Average	4 minutes

Sl.No	Object Type	Chapter	Lesson	Question Type	Objective	Marks	Difficulty Level	Time
19	Appreciation	10 The Human Eye And The Colourful World	10th Science Physics	Short Answer	S.A	2	Average	4 minutes
20	Understanding	9 Light Reflection And Refraction	10th Science Physics	Short Answer	S.A	2	Average	4 minutes
21	Expression/skills	4 Carbon And Its Compounds	10th Science Chemistry	Short Answer	S.A	2	Average	6 minutes
22	Understanding	2 Acids, Bases And Salts	10th Science Chemistry	Short Answer	S.A	2	Easy	4 minutes
23	Understanding	12 Magnetic Effects Of Electric Current	10th Science Physics	Short Answer	S.A	2	Easy	4 minutes
24	Expression/skills	4 Carbon And Its Compounds	10th Science Chemistry	Short Answer	S.A	2	Average	4 minutes
25	Understanding	1 Chemical Reactions And Equations	10th Science Chemistry	Short Answer	A	3	Average	6 minutes
26	Appreciation	6 Control And Coordination	10th Science Biology	Short Answer	A	3	Average	6 minutes
27	Knowledge	13 Our Environment	10th Science Biology	Short Answer	A	3	Average	6 minutes
28	Appreciation	3 Metals And Non Metals	10th Science Chemistry	Short Answer	A	3	Average	6 minutes
29	Expression/skills	10 The Human Eye And The Colourful World	10th Science Physics	Short Answer	A	3	Average	6 minutes
30	Understanding	8 Heredity	10th Science Biology	Short Answer	A	3	Average	6 minutes
31	Understanding	12 Magnetic Effects Of Electric Current	10th Science Physics	Short Answer	A	3	Average	6 minutes
32	Understanding	9 Light Reflection And Refraction	10th Science Physics	Short Answer	A	3	Easy	6 minutes
33	Appreciation	6 Control And Coordination	10th Science Biology	Short Answer	A	3	Average	6 minutes
34	Knowledge	11 Electricity	10th Science Physics	Large Answer	A	4	Easy	8 minutes
35	Expression/skills	9 Light Reflection And Refraction	10th Science Physics	Large Answer	A	4	Average	8 minutes
36	Expression/skills	5 Life Processes	10th Science Biology	Large Answer	A	4	Average	8 minutes
37	Expression/skills	5 Life Processes	10th Science Biology	Large Answer	A	4	Average	8 minutes
38	Appreciation	7 How Do Organisms Reproduce ?	10th Science Biology	Large Answer	A	5	Difficult	10 minutes

Note* O.T- Objective Type, S.A-Short Answer, L.A-Large Answer

Vasavi school Vasanthnagar

SSLC Preparatory Examination First Series

10th Science Part 1 & 2 Syllabus

Time :3 hours 15 minutes **Answer** **10** **Marks : 80**

I Four choices are given for each of the following questions / incomplete statements. 8x1=8
Choose the correct answer and write the complete answer along with its letter of alphabet

1 Iron 1

2 Roasting 1

3 Small intestine 1

4 Exothermic reaction 1

5 Pea 1

6 Aluminium Oxide 1

7 Veins 1

8 Hydrogen : Oxygen :: 2 : 1 1

II Answer the following questions: **8x1=8**

9. $Al_2O_3 + 6HCl \rightarrow 2AlCl_3 + 3H_2O$

$Al_2O_3 + NaOH \rightarrow NaAlO_2 + H_2O$ 1

10.Geotropism and phototropism. 1

11.The property of being able to be made into thin wires. 1

12.n anaerobic respiration (in yeast cells), a molecule of glucose is broken down to produce ethanol and carbon dioxide. 1

13.  1

14.Hydrocarbon compounds are usually used as fuels because in combustion reaction they release large amount of heat and light. 1

15.At the point of intersection, the needle of the compass should point in both directions but this is not possible. 1

16. 1

• If the egg is not fertilized, the lining slowly breaks down and is shed through the vagina in the form

• of blood and mucus.

• This cycle occurs approximately every month and is called menstruation.

III Answer the following questions: **8x2=16**

17.If touched, the sensitive plant moves its leaves in response to the touch.These plant cells change their shape by changing the amount of water inside them. As a result, they change their shape by bulging or folding. 2

OR

Since salivation is an involuntary action, the mouth waters as soon as the sight of delicious food appears. The part of the brain that controls this action is the medulla oblongata.

18. 2

$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ or, $\frac{1}{u} = \frac{1}{v} - \frac{1}{f}$

$\frac{1}{u} = \frac{1}{-20} - \frac{1}{(-30)} = -\frac{1}{20} + \frac{1}{30}$

$\frac{1}{u} = \frac{-3+2}{60}$

$\frac{1}{u} = \frac{1}{-60}$ or $u = -60$ cm

∴ Object distance 60 cm

Magnification : $m = \frac{V}{u}$

$= \frac{-20}{-60}$

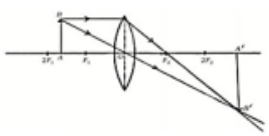
$= \frac{1}{3}$

$m = 0.33.$

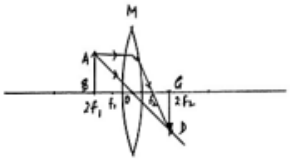
19.Isaac Newton was the first to use to obtain the spectrum of sunlight. He tried to split glass prism the colours of the spectrum of white light further by using another similar prism. However he could not get any more colours. He then placed a second identical prism in an inverted position with respect to the first prism. He allowed the colours of the spectrum to pass through the second prism. He found a beam of while light emerging from the other side of the second prism. This observation gave Newton the idea that sunlight is made up of 7 colours. 2

20. 2

i) Between F1 and 2F1



ii) In 2F1



21.a. Catenation 2

b. The carbon-carbon bond is very strong and stable hence catenation in carbon atoms is seen to the extent

c. i. Long chain

ii. Branched chain

iii. Ring chain

OR

a. The compounds of carbon having only single bond between the carbon atoms are known as saturated carbon compounds.

b. i. Series of carbon compounds having similar chemical properties but in between successive members molecular formulae one CH2unit difference is found these are generally known as homologous series.

ii. Esters are sweet-smelling compounds formed by the reaction of carboxylic acids and alcohol

22.Properties of Bases 2

- **Bases have a bitter taste**
- **Turns red litmus paper to blue**
- **Have hydroxide ions,**
- **These are insulators**

23.Properties of magnetic lines of force: 2

- **No two magnetic lines of force intersect each other.**
- **The density of magnetic lines of force is higher at the magnetic poles.**
- **Magnetic lines of force are emitted at the north pole and merge at the south pole.**
- **Inside the magnet, there are magnetic lines of force from the south pole of the magnet to the north pole.**
- **Magnetic lines of force are a closed network**

24.a. The inter molecular forces are low in covalently bonded molecules therefore they have low melting and boiling points 2

b. Covalently bonded molecules do not have charged particles therefore they are generally poor conductors of electricity.

OR

i. Carbon atoms form bonds with other atoms of carbon in catenation process to produce large molecules

ii. Carbon has a four valency therefore it is capable of bonding with four other atoms to form compounds with specific properties.

IV Answer the following questions: **9x3=27**

25.a. Chemical reaction that takes place using heat. calcium carbonate on heating gives calcium oxide and carbon dioxide. 3

$CaCO_3 \longrightarrow CaO + CO_2$

b. Chemical reaction that takes place using light. Silver chloride is split into silver and chlorine. $2AgCl \longrightarrow 2Ag + Cl_2$

c. Chemical reaction that takes place using electricity.

$2H_2 + O_2 \longrightarrow 2H_2O$.

26.“Immediate response to the stimuli is called reflex action. This process is controlled by spinal cord. 3

• Thinking is a complex activity, and reflexive arcs have naturally evolved by spinal cord in animals because the brain's thinking process is not fast enough.

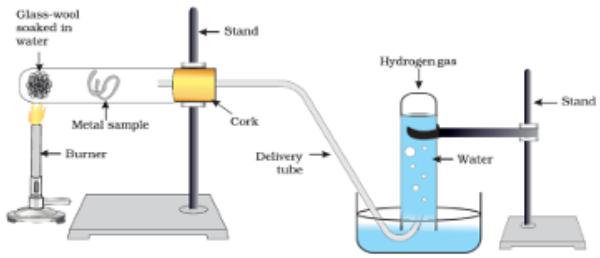
• Therefore, they arise spontaneously in the spinal cord. So, the performance is very fast, and the responses are quick. It helps organisms to respond quickly to environmental changes.

27.a) • Very little energy is available (10%) for the next level of consumers. Or the loss of energy at each step is so great that very little usable energy remains after four trophic levels. 3

b) • Decomposers breakdown the dead remains and waste products of organisms / Decomposers breakdown the complex organic substances into simple inorganic substances. • These substances are used up once more by the plants / Decomposers help in the natural replenishment of the soil.

c) • Ozone layer shields the surface of the earth from ultraviolet radiation from the sun. This radiation is highly damaging to organisms.

28. 3



29.a) i) The student has myopia (near-sightedness). 3

This is caused by the eye's lens having too much converging power or the eyeball being too long.

ii) The defect can be corrected by using a concave lens.

b) i) This phenomenon is called the Tyndall effect.

ii) The Tyndall effect is not normally visible in clean, clear air because the air is a true solution, not a colloid.

30.In humans, females have two X chromosomes and males have one X and one Y chromosome. 3

During meiosis, the chromosomes are halved.

The female produces an X and the male produces an X or Y, so sex is determined by the male chromosomes.

If the male's X combines with the female's X, the child will be a girl.

If the male's Y combines with the female's X, the child will be a boy

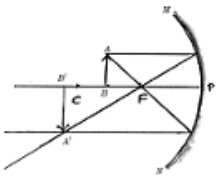
31.• At the ends/poles of a solenoid, the magnetic field lines appear as concentric circles. 3

• In the centre/inside of the solenoid, the magnetic field lines appear as parallel lines

• The magnetic lines of force inside the solenoid are parallel to each other.

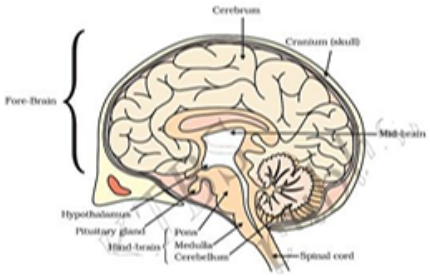
• This shows that the magnetic field is equal at each point inside the solenoid. (Uniform).

32. 3



Beyond C
Real, inverted and enlarged

33. 3



V Answer the following questions: **4x4=16**

34).a) The heat produced in a resistor is 4

i) directly proportional to the square of current for a given resistance

ii) directly proportional to the resistance for a given current

iii) directly proportional to the time for which the current flows through the resistor

H = I2Rt [1 mark can be allotted for formula]

The devices that work on this law are Electric Toaster, Electric Oven, Electric Kettle, Electric Bulb, Electric Fuse.

b) Resistivity of alloys are more than / higher than that of metals. Alloys do not oxidise (burn) readily at high temperature. Alloys have high melting point.

35).Magnification of image = m = -0.5 4

Object distance u= - 15 cm

Image distance v =?

F= ?

m=- v/u -v=m×u 1

= 0.5×-15 - v= -7.5 cm

v= 7.5 cm

Convergence distance

1/f=1/v+1/u

1/f =1/7.5-1/15

36).The elements required for photosynthesis are: 4

Carbon dioxide, water, minerals, sunlight, and (leaf) chlorophyll.

Events that occur in photosynthesis

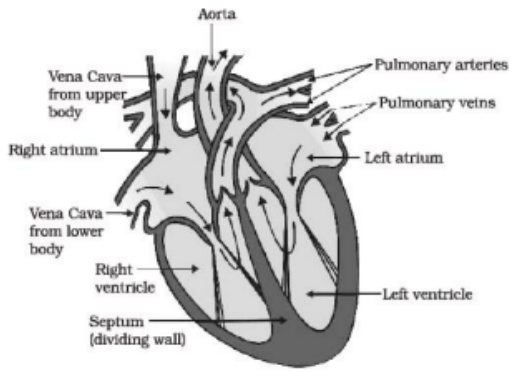
i) Absorption of light energy by chlorophyll.

ii) Light energy is converted into chemical energy

iii) Water molecules are split into hydrogen and oxygen molecules.

iv) Carbon dioxide is reduced to carbohydrates.

37). 4



OR

***Cells in contact with the soil or in the roots actively absorb ions. This creates a difference in the concentration of ions between the roots and the soil.**

***To overcome this difference, water moves from the soil to the roots. There, the constant movement of water within the xylem of the roots creates a column of water that continually pushes water upward.**

*** In transpiration, water molecules evaporating from the stomata of leaves cause absorption, which draws water from the xylem cells of the roots.**

VI Answer the following questions: **1x5=5**

38).a) • Testis : They produce sperms and testosterone hormone which is responsible for male characters. 5

• Scrotum : They regulate temperature necessary for production of sperms.

• Urethra and vas deferens: Transport sperm from testis.

• Prostate gland and seminal vesicle : They add their secretion to make the sperm transport easier

and provide nutrition.

• Penis : Delivers the sperms to the site of fertilization.

b) • They produce flower and fruit quickly.

• This method is useful in plants that do not produce seeds.

• They are genetically similar to the parent plant.

• They produce high-yielding, disease-free plants.

• A large number of plants can be grown in less time and at lower cost.

OR

a)

• Very little energy is available (10%) for the next level of consumers. Or the loss of energy at each step is so great that very little usable energy remains after four trophic levels.

b)

• Decomposers breakdown the dead remains and waste products of organisms / Decomposersbreakdown the complex organic substances into simple inorganic substances.

• These substances are used up once more by the plants / Decomposers help in the natural replenishment of the soil.

c)

• Ozone layer shields the surface of the earth from ultraviolet radiation from the sun. This radiation is highly damaging to organisms.