BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS

SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

ANNUAL EXAMINATION 2024-25

SCIENCE

Class: VII **Duration: 3 Hrs**

Date: 10/03/'25 **Max. Marks: 80**

Name: **Exam no: _____**

Marking scheme

Section-A

Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

1.(b) Positive 1

2. (c) Hg 1

3. (b) Displacement reaction 1

4.(c) Galvanisation 1

5. (c) 100^0C 1

6. (a) Desalination 1

7. (b) Polyvinyl chloride 1

8. (b) Speedometer 1

9. (a)Tornado 1

10. (b) Sericulture 1

11. (a) Chemical energy 1

12.(a) Haemoglobin 1

13. (c) Phloem 1

14. (c) Transfer of pollen anther to stigma 1

15. (b) Angora 1

16. (c) Reforestation 1

Direction: The question below consists of an Assertion (A) and a Reason (R). Use the following key to choose the appropriate answer.

(a) If both assertion and reason are correct and reason is correct explanation of the assertion.

(b) If both assertion and reason are correct, but the reason is not the correct explanation of the assertion.

(c) If assertion is correct, but reason is incorrect.

(d) If assertion is incorrect, but reason is correct.

17. (d) If assertion is incorrect, but reason is correct. 1

18. (b) If both assertion and reason are correct, but the reason is not the correct explanation of the assertion. 1

19. (a) Assertion and reason are correct and reason is correct explanation of the assertion. 1

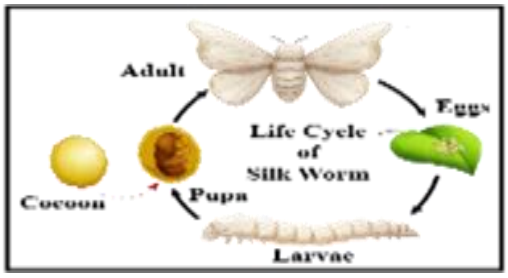
20. (a) Assertion and reason are correct and reason is the correct explanation of the assertion. 1

Section-B

Question No. 21 to 26 are very short answer questions

21. Proton (p) , Neutron (n) and Electron (e) 2

22.



1

Ans: 1.The life cycle of the silkworm can be studied in four stages which lasts about 6-8 weeks.

2. Egg: female silkworm lays eggs
3. Larva: The larva comes out from the hatched egg. The larva feeds on the leaves of mulberry and maximum growth is observed during this stage.
4. Cocoon/ Pupa: caterpillar spins a protective covering around itself, which is known as a cocoon. A cocoon is composed of a single silk thread. This stage lasts for 2 days.
5. Within cocoon, Pupa transforms into a silk moth ,completing its life cycle. 1

23. (a) A food chain is a linear sequence of organisms in which energy and nutrients pass from one organism to another. 1

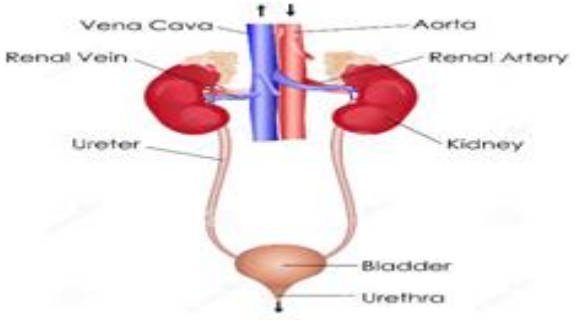
(b) Producers : Plants are the producers which are autotrophic and prepare food . Decomposers feed on this dead, decaying matter and convert it into dark coloured, nutrient - rich substance called humus. Decomposers: They feed on dead, decaying matter and convert it into dark coloured, nutrient - rich substance called humus. 1

24. Human heart consists of four chambers. namely:

- Right atrium / auricle
- Left atrium / auricle
- Right ventricle
- Left ventricle
- Blood vessels : Superior venacava ,inferior venacava,Pulmonary Artery, Pulmonary Vein,
- Impure →Right Auricle → Right Ventricle → Pulmonary Artery →Lungs →Pulmonary Vein →Left Auricle →Left Ventricle → Aorta → to all parts of the body. 1+1

OR

Human excretory system



1

The human excretory system is a biological system that removes Nitrogenous waste products from the body in the form of Urine to maintain homeostasis .Urine is formed in kidneys .it passes through ureters and collects in urinary bladder,then it is excreted out through urethra. 1

25.

f = 10/30 = 1/3

t = 1/f = 3 sec 1+1

26. A cyclone is a powerful storm that forms due to differences in air pressure. It's characterized by strong winds, heavy rain, and flooding. Factors that cause cyclones:

- **Warm water**: Warm water is the most important factor in the development of a cyclone.
- **Low pressure**: Cyclones form over low-pressure areas in the tropics.
- **Wind**: Winds moving in a circular motion close in toward the low-pressure area. 1+1

OR

A tornado "sucks" everything near it because of the extremely low air pressure at its center, which creates a significant pressure difference compared to the surrounding area, causing air and objects to be drawn inwards due to the basic principle that air moves from high pressure to low pressure 1+1

Section-C

Question No. 27 to 33 are short answer questions

27. (a) Sodium -1 and sulphur-2 3

(b) (i) KCl

(ii) MgO

28. A more reactive element displaces a less reactive element from a compound.

$Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

In the above reaction iron displaces copper from its compound copper sulphate as iron is more reactive. 3

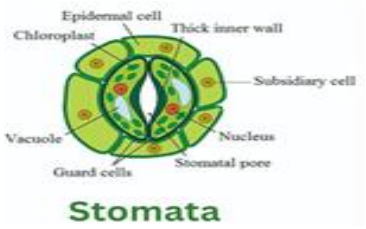
OR

Rusting is a chemical process that occurs when iron is exposed to oxygen and moisture in the air.

- Rusting of Iron can be Prevented by Applying Grease or Oil.
- Rusting of Iron can be Prevented by Painting.
- Rusting of Iron can be Prevented by Alloying.
- Tinning , enameling, Galvanisation, Electroplating.

29. (a) Photosynthesis is the process by which Plants prepare their food using CO2 and H2O in the presence of sunlight and chlorophyll 1

(b)



Stomata 1

(c) Stomata are microscopic pores in the leaves that regulate the exchange of gases between the plant and the atmosphere. 1

30. Ans: The process of obtaining wool is as follows:

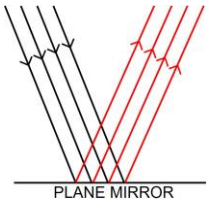
1. Shearing - It is the removal of the fleece/hairs . Shearing is done with the help of mechanical shears and is usually done by hand.one sheep gives 1-3 kgs of wool
2. Scouring – It is the process of washing the sheared hair to remove dirt and unwanted substances.
3. Sorting - Sorting is done with separate hair of different textures and types. This is to separate the low and good quality fibres.
4. Carding and Dyeing – Carding is to to clean and straighten to form continuous fibres.Since the natural fibres are mostly black, brown or white in colour they can be dyed in various colours. 1+1+1

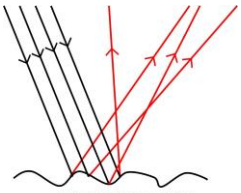
31. Uniform motion refers to an object moving at a constant speed in a straight line, covering equal distances in equal time intervals, while non-uniform motion means an object changes its speed or direction over time, covering unequal distances in equal time intervals

Examples of uniform motion:

A car traveling at a steady speed on a straight highway
Examples of non-uniform motion:
A car accelerating to reach a higher speed 1+1+1

32. Regular reflection occurs when light rays hit a smooth surface and reflect in parallel directions, creating a clear image, while irregular reflection happens when light rays hit a rough surface and scatter in different directions, resulting in a diffused or blurry image; essentially, regular reflection happens on surfaces like mirrors, while irregular reflection occurs on surfaces like rough walls or paper.

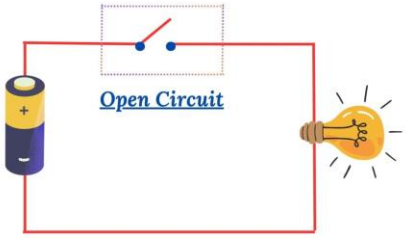




3

33. Components :

A cell , Bulb ,Switch & connecting wires



1+2

Section-D

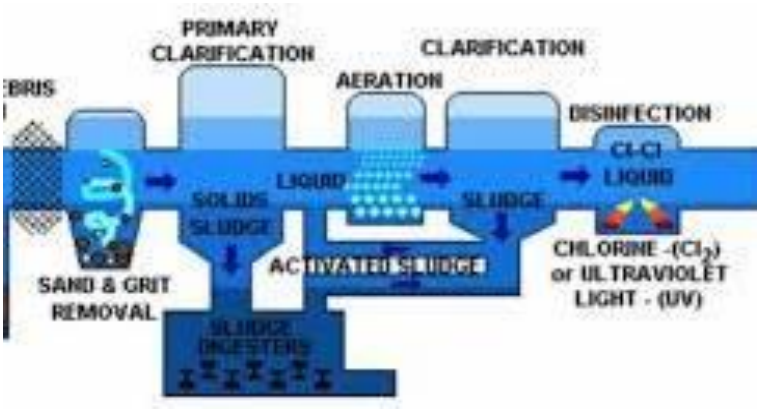
Question No. 34 to 36 are long answer questions.

34. (a) Steps in wastewater treatment 2

- **Primary treatment**: Screening: Large screens remove floating trash and other pollutants
- Grit removal: A grit chamber removes coarse solids like rock, metal, and bone
- Primary settling: Sedimentation causes matter to settle out
- Aeration: Air is introduced to the water
- **Secondary treatment**: Bacteria break down pollutants
- Filtration: Filters remove particles from the water
- Disinfection: Chemicals like chlorine or ultraviolet light kill bacteria and pathogens
- Sludge treatment: Sludge is treated

Tertiary treatment

· Tertiary treatment, also known as effluent polishing, is used to further clean water Tertiary treatment methods include sand filtration, UV disinfection, and chemical disinfection



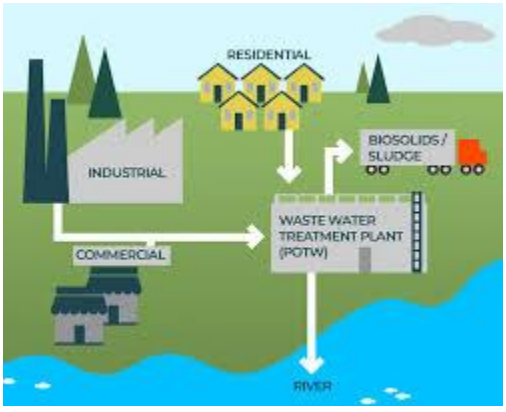
1

(b) Industrial waste, mining activities, accidental oil leakage, Domestic waste. 2

OR

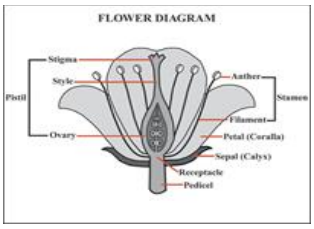
(a)

1. Collection: Wastewater is collected from homes, industries, and other users.
2. Transportation: Wastewater is carried through underground pipes called sewers.
3. Treatment: Wastewater is treated at a treatment plant.
4. Release: Treated water is released into the environment



(b) Septic tank, Vermicomposting, Landfill, Incineration. 2

35. (a)



2

(b) Fertilization in flowers is the process by which a male gamete from pollen fuses with a female gamete in an ovule to create a zygote:
Pollination. The transfer of pollen from anther of one flower to stigma of another flower is called Pollination. 2

(c) **unisexual flowers**
A flower which has either male parts, stamen or female parts, carpel is called unisexual flower.
ex: Papaya, coconut
Bisexual flowers : A flower which has both male parts, stamen as well as female parts , carpel is called Bisexual flower.Ex: lily, 1

OR

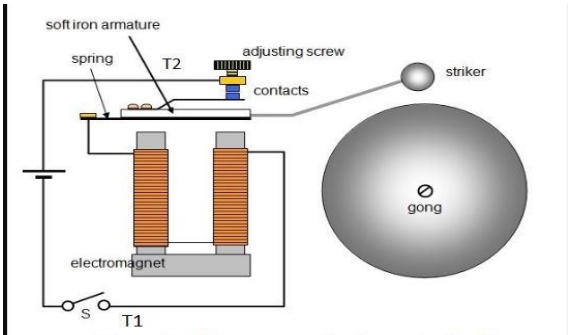
(a)The process by which some plant can reproduce asexually by their vegetative parts like roots, stems and leaves is called vegetative propagation.
1 .By Roots : Carrot tip when cut and put in soil will grow into new plant.
2. By stems :Potato eyes when sowed in soil new plant will grow.
3.By Leaves:In bryophyllum leaves small saplings grow in notches 5

(b)Self-pollination	cross pollination
The transfer of pollen from anther to stigma of same flower on same plant is called Self Pollination	The transfer of pollen from anther of one flower to stigma of another flower on different plant is called Cross Pollination.
Transfer of pollen takes place within bud or through wind or insects	Transfer of pollen takes place through vectors like wind, water , birds or insects.

(c) **Sl.no**	Sexual Reproduction	Asexual Reproduction
1	It involves the formation of special reproductive cells called gametes.	• It does not involve the formation of gametes.

2	• Male and female gametes fuse to form the zygote which develops into a new individual.	• New organisms are formed either by the division of the parent body **or** by the differentiation of the parent body.

36. The diagram of an electric bell and its working.



Circuit diagram of electric bell

1. When the switch (bell push) is pressed, current flows through the coil of electromagnet.
2. The electromagnet gets magnetized and attracts the armature. As the armature moves the hammer attached to it moves and strikes the gong so the bell rings.
3. During this process the contact between the metallic springy strip and adjusting screw breaks so the circuit becomes incomplete.
4. The current stops flowing through the coil of electromagnet and it gets demagnetized.
5. As the electromagnet gets demagnetized, the armature comes back to its original position due to spring action of the metallic springy strip and comes in contact with the adjusting screw.
6. The circuit becomes complete, if the bell push is pressed again, current will flows through the coils of electromagnet and it gets magnetized.
7. It attracts the armature and hammer attached with it strikes the gong again and the bell rings 3+2

OR

(a).An electrical fuse is a safety device that operates to provide protection against the overflow of current in an electrical circuit. An important component of an electrical fuse is a metal wire or strip that melts when excess current flows through it. 2+1

(b).Miniature Circuit Breaker (MCB) is better than electric fuse.
A Miniature Circuit Breaker (MCB) is considered better than an electric fuse because it is reusable, can be easily reset after tripping due to an overload or short circuit, while a fuse needs to be replaced entirely once it blows, 1+1

Section-E

Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.
(1+1+2=4)

37. **Read the passage carefully and answer the following questions**.

(a) The villagers depend on the forest for firewood, medicinal plants, and grazing land for their cattle. 1

(b) Sustainable practices like selective logging, reforestation, and rotational grazing can help manage the forest while meeting the community's needs. 1

(c) Joint Forest Management allows villagers to actively participate in forest management, providing them with a stake in its preservation. 2

OR

(c) Community can organize with help of local government educational workshops, community meetings, and use local media to spread information about the benefits of forests and the dangers of deforestation. 2

38. **Read the passage carefully and answer the following questions.**

(a) Solid, liquid, gas 1

(b) Water vapour 1

(c) Liquid water is present in oceans, seas, lakes, rivers, ponds, wells and underground water reservoirs. 2

OR

(c) The continuous cycle of water between its three forms i.e. solid, liquid and gas by the process of water cycle is the reason for unlimited availability of water on earth.

39. **Read the passage carefully and answer the following questions.**

In the seventeenth century, Sir Isaac Newton first observed that a thin beam of light after passing through a prism, forms a band of seven colours that include red, orange, yellow, green, blue, indigo and violet. Sometimes, after it rains, the Sun starts shining, and we can see a rainbow in the sky. The rainbow consists of seven colours and is formed by the dispersion of white light of the Sun through transparent water droplets present in the air. The band of seven colours is called spectrum. The colours of the spectrum are denoted by VIBGYOR. (1+1+2 or 2)

(a).Dispersion of light is the splitting of white light into its component colors. This happens when white light passes through a transparent medium, like a glass prism. 1

(b) The set of seven colours into which white light can be separated 1

(c) Formation of the Rainbow.
The rainbow consists of seven colours and is formed by the dispersion of white light of the Sun through transparent water droplets present in the air. 2

OR

(c) Light bends as it passes through a prism. The various colors that make up light become separated as a result. This is due to the fact that each color has its own wavelength. 2

*****Best of Luck*****