ANNEXURES
## Annexure I

### Sample Lesson Plan (Brain Based Instructions Strategies)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Transportation in Plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources</td>
<td>Text book</td>
</tr>
<tr>
<td></td>
<td>Flower, potato, water, ink, polythene bag, potted plant, etc.</td>
</tr>
<tr>
<td>Objectives/Teaching points</td>
<td>Students will be able to:</td>
</tr>
<tr>
<td></td>
<td>Explain transportation in plants</td>
</tr>
<tr>
<td></td>
<td>Define tissue and vascular bundles</td>
</tr>
<tr>
<td></td>
<td>Functions of xylem and phloem</td>
</tr>
<tr>
<td></td>
<td>Explain process of transpiration</td>
</tr>
<tr>
<td>Brain Based Principles</td>
<td>The brain/mind is social</td>
</tr>
<tr>
<td></td>
<td>The search for meaning is innate</td>
</tr>
<tr>
<td></td>
<td>The search for meaning occurs through patterning</td>
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<tr>
<td></td>
<td>Emotions are critical to patterning</td>
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<tr>
<td></td>
<td>The brain/mind processes parts and wholes simultaneously</td>
</tr>
<tr>
<td>Development</td>
<td>Teacher will ask like animals, do plants also need to transport material from one part to another. After getting the response teacher will ask the students to set up different activities to understand the process of transpiration in plants. Teacher will then ask the observation of students and explain about vascular bundles – xylem and phloem. Teacher will also explain the process of transpiration in plants.</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Different activities will be performed by the students</td>
</tr>
<tr>
<td></td>
<td>1. Putting flower in the coloured water</td>
</tr>
<tr>
<td></td>
<td>2. Osmosis in potato</td>
</tr>
<tr>
<td></td>
<td>3. Putting polythene bad around the plant</td>
</tr>
<tr>
<td>Accommodation</td>
<td>Students will show each other the experiment they set up and discuss about their observation.</td>
</tr>
<tr>
<td>Checking for Understanding</td>
<td>Teacher will randomly ask students about the vascular bundles and process of transpiration.</td>
</tr>
<tr>
<td>Closure</td>
<td>Teacher will close the topic by telling students like sweating regulate the temperature of human body, similarly transpiration help the plants to cool down.</td>
</tr>
<tr>
<td>Actual Procedure Followed</td>
<td>The topic needed prior preparation thus a day prior to teaching Transportation in Plants. The researcher oriented the students about the three experiments they needed to perform. Students were then asked to</td>
</tr>
</tbody>
</table>
form a group with 3 students in each group and choose an experiment they would like to perform. The next day class started with meditation for 10 minutes. The teacher then ask the students who performed the activity of keeping flower in coloured water to share their observation. Sharing of observation was followed by discussion and questioning to understand the concept how transportation occurs in plants. The observation of students who performed experiment of osmosis in potato shared their experiences and the classroom interaction followed. The researcher probed the students about what has happened during the experiment and how that relates with transportation. This helped the students to understand how the transportation occurs in plants. When the students were clear the students who performed the activity of putting polythene bag around plant were asked to share their observations. The students tried to explain the possible causes of their findings. The researcher then further elaborated about transpirational pull, how it creates the force for water to move through vascular bundles and help the plants to cool down. The students were then asked to move with students of different groups and each group had members from the other groups who performed the different experiments. In their new groups students discussed about the experiment they performed and how the three experiments relates with each other. The students were asked to pen down what they have understood. The researcher later told students how the sweating helps the human body to cool down, similar to what transpiration does in plans. The class ended with home assignment to find out why transpiration is called necessary evil in plants.

**Introspection**
The teacher observed the students enjoyed performing the experiment and understood the concepts taught in class. However researcher felt each student could have been provided the opportunity to perform all the experiments to have the first hand experience.

**Feedback**
Students enjoyed sharing their experiences about the observation of experiment.

**Home Assignment**
To find out how transpiration is a necessary evil in plants.
### Annexure II

#### Sample Lesson Plan (Conventional Teaching Strategy)

<table>
<thead>
<tr>
<th>Topic</th>
<th>Respiration in Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resources</td>
<td>Text book, chalkboard.</td>
</tr>
<tr>
<td>Objectives/Teaching points</td>
<td>To enable students:</td>
</tr>
<tr>
<td></td>
<td>To describe the process of respiration in humans</td>
</tr>
<tr>
<td></td>
<td>To explain working of respiration system in humans</td>
</tr>
<tr>
<td></td>
<td>To discuss role of different parts of respiratory system in humans</td>
</tr>
<tr>
<td></td>
<td>To describe different parts of human respiratory system</td>
</tr>
<tr>
<td>Development</td>
<td>Teacher will perform following activities to explain human respiratory system:</td>
</tr>
<tr>
<td></td>
<td>will explain process of respiration in humans through reading from the text book and explaining what they have read with the help of diagrams in the book and also drawing on the board.</td>
</tr>
<tr>
<td>Elaboration</td>
<td>Students utilised the text and diagram in the book to understand the role of various organs involved in respiration and how they work.</td>
</tr>
<tr>
<td>Practice</td>
<td>Students will draw the diagram of human respiratory system</td>
</tr>
<tr>
<td>Accommodation</td>
<td>Students will explain the role of different parts of human respiratory system</td>
</tr>
<tr>
<td>Checking for Understanding</td>
<td>Teacher will show diagram of human respiratory system and ask students to label it</td>
</tr>
<tr>
<td>Closure</td>
<td>Teacher will tell that all animals do not breathe with same organs.</td>
</tr>
<tr>
<td>Actual Procedure Followed</td>
<td>The chalk and talk method was primarily used in the class. The text material from the book was read aloud by the students and the same was then explained by the researcher with the help of diagrams in the book and also diagrams were drawn on the board to explain the different parts of human respiratory system. The working of respiratory system was also explained by researcher by drawing diagram on the board and by making use of questioning to ensure the students have understood. After explaining the structure and functioning of human respiratory system the teacher ended the session by sharing the fact that all organisms do not breathe with lungs like humans.</td>
</tr>
<tr>
<td>Home Assignment</td>
<td>Read from the text book to know how do other animals breathe.</td>
</tr>
</tbody>
</table>
Annexure IIIa
Achievement Test
Science

1. Mark the incorrect statement given about respiration process. (U)
   a) During inhalation ribs move up
   b) During inhalation diaphragm move up
   c) During exhalation size of chest cavity decreases
   d) During exhalation ribs move down
2. Observe carefully and answer. (K)

   Picture (a)

   Picture (b)

The above picture (a) and (b) are the best parts of ______________ system of your body.

3. Normal range of breathing rate per minutes in an average adult person at rest is (K)
   a) 9-12
   b) 15-18
   c) 21-24
   d) 30-33
4. Rearrange the following part of the respiratory system in order. (SYN)
   a) Nose
   b) Nasal cavity
   c) Trachea
   d) Bronchi
   e) Bronchiole
   f) Alveoli

5. Take three test tubes. Fill 3/4th of each with water label them A, B and C. Keep a snail in test tube A, a water plant in test tube B and in C keep snail and plant both. Which test tube would have the highest concentration of carbon dioxide? Tick on the tube. (A)
6. Match the items in Column I with those in Column II. (K)

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Yeast</td>
<td>(i) alveoli</td>
</tr>
<tr>
<td>b) Diaphragm</td>
<td>(ii) alcohol</td>
</tr>
<tr>
<td>c) Lungs</td>
<td>(iii) chest cavity</td>
</tr>
<tr>
<td></td>
<td>(iv) Skin</td>
</tr>
</tbody>
</table>

7. Find the odd one out (ANA)
   a) Nasal cavity
   b) Nostrils
   c) Pharynx
   d) Trachea

Solve the puzzle (A)

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<table>
<thead>
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<th>10</th>
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<td>8)</td>
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<td>R</td>
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<td>E</td>
<td>12)S</td>
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</tbody>
</table>
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Across
8. Butterfly respires through ___________
9. Birds respires through ___________

Down
10. Fish respire through ___________
11. Earthworm respire through ___________
12. Leaves have pores for respiration ___________
13. Yeast is an ____________ organism. (aerobic/anaerobic) (U)
14. Complete it (K)
   \[
   \text{Glucose} \quad \xrightarrow{\text{in the absence of oxygen}} \quad + \text{Energy}
   \]

   15. Organism which respires in absence of air is called ____________. (Anaerobic/ aerobic) (K)
16. When we exhale into lime water, it turns milky due to presence of ____________. (CO₂/ O₂/ H₂O) (U)

17. Smoking must be avoided as it may cause (K) A C
18. The process of breakdown of food in the cell with the release of energy is called ______________ respiration. (aerobic/ cellular/ anaerobic) (K)

19. Breathing rate is (K)
   a) One inhalation plus one exhalation
   b) Process of breakdown of food to release energy
   c) Number of times a person breathes in a minute
   d) Number of times a person breathes in an hour

20. Identify from figure and write whether it is inhalation or exhalation?

   ![Figure (A)](image)

21. In plants water is transported through _________. (xylem/phloem) (K)

   Name two transport systems present in human beings. (U)
   22. ______________ system
   23. ______________ system

24. Vein that carries oxygenated blood is called ____________ vein. (aortic/ pulmonary) (K)

25. The device used by doctors to amplify the sound of heart is called ____________. (Stethoscope/ amplifier). (K)

26. The human heart has ________ chambers. (four/ three) (K)

27. Identify major excretory product in .(K)
   a) Fishes (i) uric acid
   b) Lizards (ii) ammonia
   c) Humans (iii) urea
      (iv) nitrogenous waste

28. The process of filtering the blood periodically through artificial kidney is called ___________. (dialysis/ kinesis) (K)

29. Categorize blood cells and blood vessels (S)
   Veins, RBCs, WBCs, Arteries, Platelets, Capillaries

<table>
<thead>
<tr>
<th>Blood Cells</th>
<th>Blood Vessels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
30. Select the odd one out (ANA)
   a) Ureter
   b) Veins
   c) Arteries
   d) Capillaries
31. When white flowers are kept in blue color water they turned to blue due to uptake of blue color water through ______________. (xylem/ phloem) (A)
32. The fluid part of blood is called (K)
   a) Plasma
   b) Hemoglobin
   c) RBCs
   d) WBCs
33. Complete (A)
34. What is the heart rate of adult human? (K)
   a) 90-120 times per minute
   b) 40-50 times per minute
   c) 70-80 times per minute
   d) 10-20 times per minute
35. Write T for true and F for false statements.
   a) Human kidney consists of numerous neurons. (True/ False) (K)
   b) We sweat to maintain body temperature. (True/ False) (K)
36. Function of heart is (U)
   a) Pumping of blood
   b) Purification of blood
   c) Removal of nitrogenous wastes
   d) All of these.
37. Lungs help in ________________. (purification of blood / removal of nitrogenous wastes) (U)
38. Sweat contains water and ___________. (Salt/ Glucose) (K)
39. Hemoglobin is present in ___________. (Platelets/ RBCs/ WBCs) (U)
40. Chamber of heart that receives oxygenated blood.
   (a) Right Ventricle
   (b) Right Auricle
   (c) Left Ventricle
   (d) Left Auricle
41. Plant tissues that help in transportation.
   (a) Xylem
   (b) Phloem
   (c) Vascular bundles
   (d) None of these
42. Blood cells that help in blood clotting.
   (a) Plasma
   (b) Platelets
   (c) White blood cells
   (d) Red blood cells
Write T for true and F for false statements.
43. Throbbing of heart is called Pulse. (True/ False) (K)
44. Removal of waste from the body is called excretion. (True/ False) (K)
45. Provide the single word for the following. (A)
   a) The system that help to supply food, water, oxygen etc. to various parts of the body. ____________
   b) The evaporation of water in form of water vapor from the aerial parts of the body. ____________
   c) The vessels which carry blood towards the heart. ____________
   d) The network of very small vessels formed by two different kinds of blood vessels. ____________
46. Match the following Column A Column B (K)
   a) Kidney    i. food to different parts of plant
   b) Xylem     ii. Nitrogenous waste from blood
                iii. Water and mineral in plants
47. Rearrange the jumbled words to get word related to human circulatory system. (S)
   a) EAHTR    ________________
   b) NVENIS   ________________
   c) LPSAMA   ________________
   d) MOHEABINGLO ________________
   e) TEARRY   ________________
48. Stems and leaves are ________ part of plant (vegetative/ reproductive) (U)
49. Male reproductive part of a flower is called ___________. (Stamen/ pistil) (K)
50. Fusion of male and female gametes is called _________. (K)
   a) Fertilization
   b) Pollination
   c) Reproduction
   d) Seed formation

51. Which of the following is **NOT** an example of vegetative propagation (U)
   a) Stem cutting
   b) Budding
   c) Sprouting
   d) Seed dispersal

52. Draw a neat and clean diagram of budding in yeast. (SYN)

53. Cross pollination occur through (SYN)

54. Identify and label the reproductive parts of flower (SYN)

55. Hydra produce by (K)
   a) Fragmentation
   b) Budding
   c) Spore formation
   d) Fusion of gametes
56. Plants having winged seeds. (K)

57. Potato used as vegetable is a modified root. (True/False) (U)

58. The cell formed by fusion of gamete is called (K)

Match the items in Column I and Column II (K)

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>59. Cutting</td>
<td>(i) Yeast</td>
</tr>
<tr>
<td>60. Budding</td>
<td>(ii) Sugarcane</td>
</tr>
<tr>
<td>61. Fragmentation</td>
<td>(iii) Fungus</td>
</tr>
<tr>
<td></td>
<td>(iv) Spirogyra</td>
</tr>
</tbody>
</table>

62. Rearrange letters to make a word related to reproduction in plants (SYN)

   LOFEWR

63. To grow into healthy plant seed dispersal is necessary. (True/False) (U)

64. Classify into sexual and asexual reproductive part of plant (SYN)

   Bryophyllum, Flower, Ginger

<table>
<thead>
<tr>
<th>Sexual reproductive</th>
<th>Asexual reproductive</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

65. Classify as unisexual & bisexual flowers (SYN)

   corn, petunia, papaya, mustard

<table>
<thead>
<tr>
<th>Unisexual flowers</th>
<th>Bisexual flowers</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

66. Flowers are colorful to attract insects for pollination. (True/False) (U)

67. All plants grow from seeds. (True/False) (U)

68. Classify the following as motion along a straight line, circular or oscillatory motion. (U)

<table>
<thead>
<tr>
<th>Motion</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion of your hands while running</td>
<td></td>
</tr>
<tr>
<td>Motion of train on straight bridge</td>
<td></td>
</tr>
<tr>
<td>Motion of child on see-saw</td>
<td></td>
</tr>
</tbody>
</table>
69. Mark the incorrect statement from the following: (U)
   a) The basic unit of time is second. (True/ False)
   b) Every object moves with constant speed. (True/ False)
   c) Time period of given pendulum is not constant. (True/ False)
   d) Speed of train is expressed in m/h. (True/ False)

70. Which of the following relation is correct? (U)
   a) Speed = Distance \times Time
   b) Speed = Time / Distance
   c) Speed = Distance / Time
   d) Speed = 1/D \times Time

71. Which of the following distance (D) – Time (T) graph shows a truck moving with speed which is not constant (SYN)

72. A car is moving with 72 km/h the speed of car in m/s is (ANA)
   a) 20 m/s
   b) 25 m/s
   c) 30 m/s
   d) 40 m/s

73. A truck travelled 540 km in 4.5 hr. its travelled with the speed of (ANA)
   a) 140 km/h
   b) 120 km/h
   c) 180 m/s
   d) 160 m/s

74. When speed is more (U)
   a) Time taken to cover the distance is more
   b) Time taken to cover the distance is less
   c) Time taken to cover the distance does not matter
   d) All of the above
75. Distance moved by the vehicle is measured by (K)
76. ‘Year’ is measurement of time. (True/False) (U)
77. Metallic ball in the pendulum is called (K)
78. Motion of a swing can NOT be called (A)
   a) To and fro motion
   b) Oscillatory motion
   c) Circular motion
   d) Periodic motion
79. The speed of train is always expressed in m/s. (True/False) (U)
80. Arrange the following from slowest to fastest speed. Mark lowest as 1 and fastest as 5. (A)
   a) Speed of car
   b) Speed of airplane
   c) Speed of bicycle
   d) Speed of walking
   e) Speed of auto rickshaw
81. Which of these was NOT used for measuring time before the intervention of pendulum clock (K)
   a) Sand clock
   b) Water clock
   c) Stop watches
   d) Sundials
82. From the Distance (D) – Time (T) graph for the motion of two vehicles – a car and a truck. Which is moving faster? Tick on the right answer. (ANA)

83. Distance between two cities is measurement in meter. (True / False) (U)
84. Every object moves with constant speed. (True / False) (U)
85. Distance moved by an object in a unit time is called its (K)
86. The basic unit of speed is (K)
   a) m/s
   b) km/h
   c) m/hr
   d) km/s
87. Save __________ if we wish to save earth. (water/ animals) (U)
88. World Water Day is celebrated on (K)
   a) 20 March
   b) 21 March
   c) 22 March
   d) 23 March
89. Suggest two water saving habits (SYN)
   a) __________________________
   b) __________________________
90. Groundwater stored between layers of hard rock below the water table is known as __________ (aquifer/ infiltration) (K)
91. Rainwater used to recharge the groundwater is referred as ________________ (groundwater recharge/ rainwater harvesting) (K)
92. A technique of watering plants by making use of narrow tubing is called ____________, (rainwater harvesting/ drip irrigation) (K)
93. Wilting in the plants results due to scarcity of ____________. (water/ minerals) (U)

Explore the process given in the jumble format. Write in water cycle (U)

a) RUDGONRAWET __________________
b) ATOONIAERVP __________________
c) DUCLOS __________________
d) TSPRATNIAOINR __________________
e) NTCIEPIRTAIP __________________
Name the process (K)

94. Conversion of ice to water ______________
95. Conversion of vapor to water ______________
96. Add more uses of water in the ovals in diagram given below (SYN)

97. There is acute shortage of water due to (U)
   a) Growing population and overuse
   b) Melting of ice at poles
   c) Pollution of rivers
   d) Lack of technique to purify water

98. Recycling of water is not possible. (True/ False) (U)

99. Surface from which the ground water supply can be obtained is called ______________. (surface water / water table / runoff water) (K)

100. Categorize the following as Organic Impurities, Inorganic Impurities and Nutrients (ANA)

   Urea, nitrogen, cow dung, nitrates, paper, phosphorus, plastic file cover, phosphate, thermocol cups

<table>
<thead>
<tr>
<th>Organic Impurities</th>
<th>Inorganic Impurities</th>
<th>Nutrients</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
101. Water used for washing utensils is wastewater / freshwater. (ANA)
102. Classify as biodegradable and non biodegradable waste (ANA)
   a) Fruit peel
   b) Glass

<table>
<thead>
<tr>
<th>Biodegradable waste</th>
<th>Non biodegradable waste</th>
</tr>
</thead>
</table>

103. What percentage of earth’s surface is covered with water? (K)
   (a) 70%
   (b) 71%
   (c) 72%
   (d) 73%

104. Snow is ________ form of water. (solid / liquid/ gas) (U)

105. Complete the food chain by filling the missing organism (U)
   Grass → Insects → Frog → → Eagle

106. Dead plants and animals are converted to humus by decomposers/ scavengers. (U)

107. Branchy part of tree above stem is called (K)
   C  E

108. Write four forest products used by us in the daily life (SYN)
   a) __________
   b) __________
   c) __________
   d) __________

109. Microorganisms act upon the dead plants (U)
   a) Mushroom
   b) Humus
   c) Wood
   d) Soil

110. Forests are called green lungs because (EVAL)
   a) They help in rainfall
   b) They take in carbon dioxide and give out oxygen
   c) They help in cloud formation
   d) They maintain water table

111. Forests protect soil from (K)
   E  O  O

112. Vulture is an example of scavenger/ decomposer. (A)
113. Forest provide habitat to different

(U) [L T] and [N M S]

114. Choose the odd one out (ANA)
   a) Paper   b) Plywood   c) Door   d) Keys   e) Jute bags

115. ___________ is an example of saprotrophs. (fungi/algae) (A)

116. If forests disappear carbon dioxide in air will increase / decrease. (U)

117. Forests are ___________ for forest dwelling communities. (lifeline/brain) (U)

118. ___________ from the lower most layer of vegetation in forest. (herbs/shrubs) (K)

119. Which of these can control flood better? Tick the figure. (ANA)

120. Which will have more transpiration rate? Tick the figure. (ANA)

121. Identify switch in ON and OFF position (A)
122. Will the bulb light in the given circuit? Yes/ No (A)

123. Figure below shows five cells fixed on a board. Draw lines to indicate how to connect their terminals with wires to make a battery of five cells. (A)

124. Smaller line in the symbol for a cell represents the ___________ terminal. (positive/ negative) (K)

125. The device used to make or break an electric circuit is: (U)
   a) Resistor
   b) Battery
   c) Switch
   d) Ammeter

126. Which of the following is an essential element in an electric circuit? (U)
   a) Switch
   b) Connecting wires
   c) Voltmeter
   d) Ammeter

127. __________________ should be used to reduce wastage of electricity. (compact fluorescent lamp/ incandescent lamp) (U)

128. Before buying electrical items one must check ____________ mark. (ISI/ ISO) (K)

129. Identify conductor from the following: (A)
   a) Silver
   b) Cloth
   c) Plastic
   d) Rubber

130. In bulb electricity is converted into ________________ energy. (U)
   a) Light
   b) Heat
   c) Sound
   d) Mechanical
131. A device which does not allow electric current to pass through them is called _____.(A)
   a) Conductor
   b) Fuse
   c) Insulator
   d) Switch

132. Which of the following is the best option while considering the safety of household electric appliance? (U)
   a) We should use wire strip as fuse
   b) We should use non-ISI marked MCBs
   c) We should use ISI marked MCBs
   d) We should use conductor with high melting points in fuses

133. MCB stand for (K)
   a) Minimum current breaker
   b) Maximum current breaker
   c) Miniature circuit breaker
   d) Molar circuit breaker

134. Electric cell is source of __________. (electricity / light) (U)

135. Electric bulb has _______ that is connected to its terminals. (filament / fuse) (K)
Annexure IIIb

ACHIEVEMENT TEST

SCIENCE

Name: ________________  Class: _____  Section: ____  Gender: Male ☐  Female ☐  
School: __________________________________

Instruction for Question 1 to Question 22: Choose the most appropriate answer from the option given for each statement.

1. Mr. Aman is 40 years old healthy man. Can you guess his breathing rate per minute at rest?
   a) 9-12
   b) 15-18
   c) 21-24
   d) 30-33

2. Find which of these is not a part of human respiratory system?
   a) Diaphragm
   b) Nostrils
   c) Bronchitis
   d) Lungs

3. If a person’s kidney stops functioning, the doctor recommends the periodical filtering of blood through artificial kidney. What is this process called?
   a) Dialysis
   b) Kinesis
   c) Analysis
   d) Synthesis

4. Select which of the following is not a part of your excretory system?
   a) Urethra
   b) Ureter
   c) Uterus
   d) Urinary bladder

5. The fluid part of blood is called __________.
   a) Plasma
   b) Cytoplasm
   c) Protoplasm
   d) Hemoglobin

6. The average heart rate of an adult human at rest is:
   a) 90-120 times per minute
   b) 70-80 times per minute
   c) 40-50 times per minute
   d) 10-20 times per minute
7. Platelets help in:
   (a) Circulation of blood
   (b) Purification of blood
   (c) Blood clotting
   (d) Fighting infections
8. Fusion of male and female gametes is called __________.
   a) Seed formation
   b) Pollination
   c) Reproduction
   d) Fertilization
9. Which of the following relation is correct?
   a) Speed = Distance x Time
   b) Speed = Time / Distance
   c) Speed = Distance / Time
   d) Speed = 1/D x Time
10. Suppose you are sitting in a car which is moving with speed 72 km/h. Your friend asks you the speed of the car in m/s. Your answer will be__________.
    a) 20m/s
    b) 25 m/s
    c) 30 m/s
    d) 40 m/s
11. Your school plans a trip to Funcity, which is 540 km away. The School bus starts at 5:00 a.m. What should be the average speed of school bus so that you reach there at 9:30 a.m.?
    a) 180 km/h
    b) 160 km/h
    c) 140 m/s
    d) 120 m/s
12. Which of these was NOT used for measuring time before the invention of pendulum clock?
    a) Sand clock
    b) Water clock
    c) Stop watches
    d) Sundials
13. The SI unit of speed is:
    a) m/s
    b) km/h
    c) m/hr
    d) km/s
14. There is acute shortage of water due to:
    a) Growing population and overuse
    b) Melting of ice at poles
    c) Smoke from industries
    d) Lack of technique to purify water
15. What percentage of earth’s surface is covered with water?
   a) 70%
   b) 71%
   c) 72%
   d) 73%
16. Which of the following grows on the dead plants?
   a) Mushroom
   b) Humus
   c) Wood
   d) Soil
17. Forests are called green lungs because:
   a) They help in rainfall
   b) They take in carbon dioxide and give out oxygen
   c) They help in cloud formation
   d) They maintain water table
18. The device used to make or break an electric circuit is:
   a) Resistor
   b) Battery
   c) Switch
   d) Connecting wires
19. Identify conductor of electricity from the following:
   a) Silver
   b) Cloth
   c) Plastic
   d) Rubber
20. In bulb, electrical energy is converted into ______________ energy.
   a) Light
   b) Chemical
   c) Sound
   d) Mechanical
21. MCB stand for:
   a) Minimum current breaker
   b) Maximum current breaker
   c) Miniature circuit breaker
   d) Molar circuit breaker
22. Which of the following is the best option while considering the safety of household electric appliance?
   a) We should use wire strip as fuse
   b) We should use non-ISI marked MCBs
   c) We should use ISI marked MCBs
   d) We should use conductor with high melting points in fuses
Instructions for Question 23 to Question 35: Fill in the blanks by choosing the most appropriate option

23. Sweat contains water and ___________. (Salt/ Glucose)
24. Stems and leaves are _______ parts of plant ( sexual/ vegetative)
25. Groundwater stored between layers of hard rock below the water table is known as _____________. (aquifer/ infiltration)
26. A technique of watering plants by making use of narrow tubing is called ______________. (rainwater harvesting/ drip irrigation)
27. Wilting in the plants results due to scarcity of _____________. (water/ minerals)
28. Surface from which the ground water supply can be obtained is called _________________. (water table/ surface water)
29. Dead plants and animals are converted to humus by_____________. (decomposers/ scavengers.)
30. Vulture is an example of __________ (scavenger/ decomposer).
31. __________ form the lower most layer of vegetation in forest. (herbs/ shrubs)
32. __________________ should be used to reduce wastage of electricity. (compact fluorescent lamp/ incandescent lamp)
33. Before buying electrical items one must check ______________ mark. (ISO/ ISI)
34. Smaller line in the symbol for a cell represents the ____________ terminal. (positive/ negative)
35. Snow is __________ form of water. (solid/ liquid)

Instructions for Question 36 to Question 40: Read the instruction for each question carefully and provide answers as directed.

36. Complete the following reaction:
   \[ \text{Glucose} \quad \text{in the absence of oxygen} \quad \rightarrow \quad \text{+ Energy} \]

37. Suggest any two water saving habits
   a) ____________________________
   b) ____________________________

38. Aditi studied about major excretory product in different organism but now she is confused. Can you match the organism with the major excretory product for her?
   a) (i) uric acid
   b) (ii) ammonia
   (iii) urea
39. Match the items in Column II with their mode of reproduction in Column I

<table>
<thead>
<tr>
<th>Column I</th>
<th>Column II</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Cutting</td>
<td>(i) Spirogyra</td>
</tr>
<tr>
<td>b) Fragmentation</td>
<td>(ii) Sugarcane</td>
</tr>
<tr>
<td></td>
<td>(iii) Fungus</td>
</tr>
</tbody>
</table>

40. Mark True or False for the following statements.

   a) We sweat to maintain body temperature. (True / False)
   b) Throbbing of heart is called Pulse. (True / False)
   c) Removal of waste from the body is called excretion. (True / False)
   d) For plant growth seed dispersal is necessary. (True / False)
   e) All plants grow from seeds. (True / False)
   f) The basic unit of time is second. (True / False)
   g) Every object moves with constant speed. (True / False)
   h) Insulators allow the electric current to pass through them. (True / False)

Instructions for Question 41: Complete the following word

41. Forests protect soil from E O O

Instructions for Question 42 to Question 48: Observe each diagram carefully and answer the question as directed.

42. Observe the following test tubes carefully and find out the test tube that will have highest concentration of carbon dioxide.

   ![](tube_a.png) Tube A  ![](tube_b.png) Tube B  ![](tube_c.png) Tube C

43. Draw arrows to show cross pollination in flowers
44. Identify switch in ON and OFF position in the following figure.

45. Will the bulb light in the given circuit?

46. Figure below shows five cells fixed on a board. Draw lines to indicate how to connect their terminals with wires to make a battery of five cells.

47. Which of these can control flood better? Tick the figure.

48. Which will have more transpiration rate? Tick the figure.
ROSENBERG SELF-ESTEEM SCALE

Name: _______________________      Class: _______      Gender: Male ☐   Female ☐
School: ______________________________________

Instructions: Below is a list of statements dealing with your general feelings about yourself. Mark tick (✓) in the box which best describes your general feelings about yourself. If you strongly agree, mark SA; if you agree with the statement, mark A; if you disagree, mark D; and, if you strongly disagree, mark SD.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Statements</th>
<th>SA</th>
<th>A</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On the whole, I am satisfied with myself.</td>
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<td>2</td>
<td>At times, I think I am no good at all.</td>
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<td>3</td>
<td>I feel that I have a number of good qualities.</td>
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<td>4</td>
<td>I am able to do things as well as most other people.</td>
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<td>5</td>
<td>I feel I do not have much to be proud of.</td>
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<td>6</td>
<td>I certainly feel useless at times.</td>
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<td>7</td>
<td>I feel that I'm a person of worth, at least equal to others.</td>
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<td>8</td>
<td>I wish I could have more respect for myself.</td>
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<td>9</td>
<td>All in all, I am inclined to feel that I'm a failure.</td>
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<td>10</td>
<td>I take a positive attitude toward myself.</td>
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</tbody>
</table>
CLASSROOM ENVIRONMENT SCALE (CES)

DIRECTIONS

Please fill the following:

Name of student .......................... Class .......... Section .................

Roll No ............ Male  Female

Name of the school ...............................................................

The following statements are meant to assess your classroom environment. Read each statement carefully. Please mark the responses depending upon what you actually perceive about your classroom on one of the five options. There is no time limit, but work rapidly.

Be sure to rate all the statements for each section you are asked to complete. Here SA stands for strongly agree, A stands for agree, UD stands for undecided (neither agree nor disagree), DA stands for disagree and SDA stands for strongly disagree.
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Strongly Agree (SA)</th>
<th>Agree (A)</th>
<th>Undecided (UD)</th>
<th>Disagree (DA)</th>
<th>Strongly disagree (SDA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. CLASSROOM INFRASTRUCTURE</td>
<td></td>
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</tr>
<tr>
<td>1.</td>
<td>My Classroom is well lit.</td>
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<tr>
<td>2.</td>
<td>Ventilation is proper in my classroom.</td>
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<td>3.</td>
<td>Blackboard work is visible to whole class.</td>
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<td>4.</td>
<td>There is furniture for the teacher in the classroom.</td>
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<tr>
<td>5.</td>
<td>The environment around my classroom is peaceful.</td>
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<td>6.</td>
<td>There are charts / maps displayed in my classroom.</td>
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<td>7.</td>
<td>My classroom has a proper seating arrangement.</td>
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<td>8.</td>
<td>The equipments / apparatus which are used in science laboratory are working properly</td>
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<tr>
<td>B. TEACHER BEHAVIOUR AND CHARACTERISTICS</td>
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</tr>
<tr>
<td>(I) LEADERSHIP Vs UNCERTAINTY</td>
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<td>10.</td>
<td>We respect teachers sincerely.</td>
<td></td>
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<td>11.</td>
<td>The teacher guides us in taking the task to completion.</td>
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<td>12.</td>
<td>Teacher allows us to change the course of activities in the class.</td>
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<tr>
<td>13.</td>
<td>The teacher is not assertive in checking unruly students.</td>
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<td>14.</td>
<td>Teacher is not clear how to deal with the lessons.</td>
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<tr>
<td>S. No.</td>
<td>(II) HELPING, FRIENDLY Vs DISSATISFIED</td>
<td>(III) UNDERSTANDING Vs ADMONISHING</td>
<td>(IV) STUDENT FREEDOM Vs FEAR</td>
<td>(C) STUDENT BEHAVIOUR AND CHARACTERISTICS</td>
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<td></td>
<td>Strongly Agree (SA)</td>
<td>Agree (A)</td>
<td>Undecided (UD)</td>
<td>Disagree (DA)</td>
<td>Strongly disagree (SDA)</td>
</tr>
<tr>
<td>S. No.</td>
<td>Strongly Agree (SA)</td>
<td>Agree (A)</td>
<td>Undecided (UD)</td>
<td>Disagree (DA)</td>
<td>Strongly disagree (SDA)</td>
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<tr>
<td>31.</td>
<td>Students praise the contribution of each other in class activities.</td>
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<tr>
<td>32.</td>
<td>There are strong jealousies over marks scored by classmates.</td>
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<tr>
<td>33.</td>
<td>Students compete with each other to get better grades, certificates etc.</td>
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<td></td>
<td><strong>(D) DISCIPLINE AND EVALUATION</strong></td>
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<tr>
<td>34.</td>
<td>Students do not pay attention to the teacher.</td>
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<tr>
<td>35.</td>
<td>We do our daily exercises to complete the syllabus.</td>
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<tr>
<td>36.</td>
<td>The teacher checks our assignment regularly.</td>
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<tr>
<td>37.</td>
<td>No one disturbs the class when teacher is teaching.</td>
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<tr>
<td>38.</td>
<td>When teacher gives us work to do on our own, like diagram, exercises, project work etc we are able to work without problem.</td>
<td></td>
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<tr>
<td>39.</td>
<td>We use newspapers / computers / TV programmes / library etc to make textbook learning relevant.</td>
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<tr>
<td>40.</td>
<td>The teacher gives us surprise test.</td>
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<tr>
<td>41.</td>
<td>The teacher is able to complete syllabus within time.</td>
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<tr>
<td>42.</td>
<td>We are assessed continuously on our class work.</td>
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<tr>
<td>43.</td>
<td>I feel happy with what I learn in class.</td>
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<tr>
<td>44.</td>
<td>The teacher points out our mistakes in the notebooks.</td>
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</tbody>
</table>
Feedback Form

Part-A

Read each statement carefully and mark your responses based on how you perceived the teaching approaches used in the class. Be sure to rate all the statements. There is no time limit, but work rapidly. Here SA stands for **Strongly Agree**, A stands for **Agree**, U stands for **Undecided** (neither agree nor disagree), D stands for **Disagree** and SD stands for **Strongly Disagree**.

<table>
<thead>
<tr>
<th>S.No</th>
<th>Item</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I found it interesting.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>I was totally involved in the task.</td>
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<tr>
<td>3.</td>
<td>I was focused in doing various tasks during class.</td>
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<tr>
<td>4.</td>
<td>My attention was not at all in the activities.</td>
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<tr>
<td>5.</td>
<td>I was not thinking of anything else while doing various activities during class.</td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td>I had no difficulty in concentrating while performing the activities.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7.</td>
<td>I could not think of anything else while doing task.</td>
<td></td>
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</tr>
<tr>
<td>8.</td>
<td>I had to make an effort to keep my mind on what was happening in the class.</td>
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<tr>
<td>9.</td>
<td>I felt time went by quickly during the class</td>
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<tr>
<td>10.</td>
<td>It was boring for me</td>
<td></td>
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</tr>
<tr>
<td>11.</td>
<td>I felt time slowed down while doing various activities in class.</td>
<td></td>
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<tr>
<td>12.</td>
<td>I enjoyed doing the homework.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>13.</td>
<td>I would like to do similar things again.</td>
<td></td>
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</tbody>
</table>
Part-B

Write about:

The most interesting part of the class was______________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

I learnt quickly when__________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

I learnt slowly when___________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

I liked_______________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

I did not like__________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________