Rubric with Model Answers

Instructions:
- Main points of answer are given below each question. Marks for these points are given against them. A student may present these points in the form of paragraph or points, both cases are acceptable. If a student writes anything other than these points and if that is correct, he/she should be awarded with marks in consultation with Subject Specialist of PEC (03217917000).

Q. No.33. (a) What is nervous system?

Rubric: Award two marks for correct definition.

Acceptable Answer:
The system which carries messages from one part of the body to another and coordinates body function.

(b) Describe the structure and function of neuron.

Rubric: Award one mark for each correct point.

Acceptable Answer:
Part with nucleus is cell body, fine projections which receive messages are dendrites, a long projection which conducts messages is axon, and function of neuron is to transmit messages in the form of electrochemical waves called nerve impulses.

(c) Draw and label the diagram of neuron.

Rubric: Award two marks for correct drawing and two marks for labelling any four parts, 0.5 mark for each correct labelling.

Acceptable Answer:
1. Cell Body
2. Dendrites
3. Nucleus
4. Axon

Q. No.34. (a) What is cytokinesis?

Rubric: Award two marks for correct definition.

Acceptable Answer:
Division of cytoplasm during cell division.
(b) Which of the characteristics given in the table are of mitosis and which are of meiosis?

Rubric: Award one mark for each correct identification.

Acceptable Answer:

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mitosis/Meiosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two daughter cells are produced from one parent cell</td>
<td>Mitosis</td>
</tr>
<tr>
<td>Consists of two cell divisions</td>
<td>Meiosis</td>
</tr>
<tr>
<td>Number of chromosomes in the daughter cells becomes half as in the parent cell</td>
<td>Meiosis</td>
</tr>
<tr>
<td>Somatic cells are produced</td>
<td>Mitosis</td>
</tr>
</tbody>
</table>

(c) Write the number of daughter cells produced from one onion cell and number of chromosome in each daughter cell against the cells in the following table. Each parent cell in onion plant has 16 chromosomes.

Rubric: Award one mark for each correct filling.

Acceptable Answer:

<table>
<thead>
<tr>
<th>Type of cell</th>
<th>Number of daughter cells produced from one parent cell</th>
<th>Number of chromosomes in one daughter cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin cells</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Spores</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

Q. No.35. (a) A student adds baking soda (NaHCO₃) and hydrochloric acid in a flask with a balloon attached. The balloon inflates. Which evidence in the diagram shows that reaction has taken place?

Rubric: Award two marks for writing correct reason.

Acceptable Answer:
The balloon inflates.
(b) Write complete balanced chemical equations, name of products and test for the gas produced for the reactants given in the above diagram.

\[
\text{NaHCO}_3 + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2
\]

Rubric: Award two marks for each correct filling.

Acceptable Answer:

<table>
<thead>
<tr>
<th>Complete balanced equation</th>
<th>NaHCO₃ + HCl</th>
<th>NaCl + H₂O + CO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of products</td>
<td>Sodium chloride, water and carbon dioxide</td>
<td></td>
</tr>
<tr>
<td>Test for the gas produced</td>
<td>Turns lime water milky</td>
<td></td>
</tr>
</tbody>
</table>

(c) Write four uses of hydrochloric acid.

Rubric: Award one mark for each correct use.

Acceptable Answer:

Cleaning rust from metals surface, purification of common salt, make aqua regia, make glucose from starch, and proper digestion of food in our stomach etc.

Q. No.36. (a) Draw a ray diagram of image formation on the figure given below.

Rubric: Division of marks for ray diagram is given below.

Correct position of object (1), Correct rays (2), Correct image (1)

Acceptable Answer:

(b) What is the nature of image formed in part ‘a’?

Rubric: Award one mark for each correct point.

Acceptable Answer:

Virtual, erect and diminished (small in size).

(c) Give two differences between image formed by convex lens and image formed by concave lens.

Rubric: Award two marks for each correct difference.

Acceptable Answer:

<table>
<thead>
<tr>
<th>Image formed by convex lens</th>
<th>Image formed by concave lens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real</td>
<td>Virtual</td>
</tr>
<tr>
<td>Inverted</td>
<td>Erect</td>
</tr>
</tbody>
</table>
Q. No.37. (a) Define alternating current.

Rubric: Award two marks for correct definition.

**Acceptable Answer:**
Current which changes its direction again and again after an equal interval of time.

(b) Describe the process of thermal power generation.

Rubric: Award one mark for each correct step.

**Acceptable Answer:**
Fuel is burnt, steam is produced from water, steam turns the blades of turbine, blades of turbine are attached to the lower end of the rotor shaft, rotating shaft turns the rotor which generates electricity.

(c) Describe the problems involved in thermal power generation.

Rubric: Award one mark for each correct problem.

**Acceptable Answer:**
Pollution, fuel is running short and its price is shooting up etc.