SUMMATIVE ASSESSMENT – I, 2014
SCIENCE
Class – IX

Date: -22|10|14

Time Allowed : 3 hours

Maximum Marks : 90

General Instructions :

1. The question paper comprises of **two Sections, A and B.** You are to attempt both the sections.
2. All questions are **compulsory**
3. All questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.
4. Question numbers **1 to 3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**
5. Question numbers **4 to 6** in **Sections-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7 to 18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each
7. Question numbers **19** to **24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **25 to 33** in **Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36** in **Section-B** are questions based on practical skills are two **marks** questions.

SECTION-A

1	How is permanent tissue formed in plants ?	1
2	What is the magnitude of the gravitational force acting on a body of mass 'x' ?	1
3	Why do a backseater moves forward when a fast moving bike is stopped suddenly ?	1
4	Boiling is known as bulk phenomenon. Justify this statement.	2

18   (a)   State two problems of composite fish culture.   3
    (b)   How can you overcome this problem ?

19   (a)   Define evaporation and explain the role of speed of wind at the rate of evaporation.   5

    (b)   Why during summer we sit under Fan ?

20   (a)   'Water is considered as a compound of Hydrogen and Oxygen and not a mixture of   5
Hydrogen and Oxygen.' Comment on it.

    (b)   Differentiate between a compound and a mixture (any three points)

21   Write four characteristic feartures of Parenchyma a tissues. How would you classify this   5
tissue based upon its specialised functions ? What are these functions ?

22   (a)   An object has mass 1 kg and weight 1.67 N on moon. Calculate its weight and mass on   5
earth ($g510$ ms^{2}2)
    (b)   Calculate the force exerted by sun on earth and earth on sun if mass of sun is 2310^{30} kg,
mass of earth is 6310^{24} kg, average distance 1.5310^{11} m between them

23   (a)   State two factors on which the gravitational force between two objects depends.   5
    (b)   Why is 'G' called as universal constant ?
    (c)   What happens to the gravitational force between two objects if masses of both the objects is doubled and the distance between them is also doubled ?
    (d)   What is the value of G on moon ?
    (e)   What is the value of 'g' on moon ?

24   (a)   Distinguish between macronutrient and micronutrients on the basis of   5

        (i)   their functions   (ii)   amount required by plants.

    (b)   Classify the following elements as macro or micro nutrients in plants.

        (i)   Nitrogen   (ii)   Zinc

        (iii)   Copper   (iv)   Potassium

30   While observing a stained mount of onion peel under high power compound microscope, the   1
      part of the cell that takes vey little stain is :

      (a)   Nucleus   (b)   Cytoplasm

      (c)   Vacuole   (d)   Cell wall

31   The slide under microscope shows alternate light and dark bands and many nuclei in the cells.   1
      It may most probably be of :
      (a)   nerve cell   (b)   phloem fibres
      (c)   striated muscle   (d)   sclerenchyma

32   On sublimation of ammonium chloride salt and iron-fillings the component found to stick to   1
      the inverted funnel is / are :
      (a)   ammonium chloride salt
      (b)   iron fillings
      (c)   sand
      (d)   water vapours

33   A student performed the experiment, "To establish relationship between weight of a   1
      rectangular wooden block lying on a horizontal surface and minimum force required to just
      move it using a spring balance". It the weight of the given wooden block is nearly 200g wt
      and   three   known   weights   of
      100g wt, each are to be successively placed on the wooden block to take three more readings,
      then which one of the following balances available in the laboratory would you select for the
      best results in the experiment ? It is known that a force of 90g wt. is required to just move the
      block on the surface.
      (a)   Range 0-100g wt. ; Least count 1.0g wt.
      (b)   Range 0-200g wt. ; Least count 2.0g wt.
      (c)   Range 0-250g wt. ; Least count 2.0g wt.
      (d)   Range 0-500g wt. ; Least count 5.0g wt.

34   A mixture of sand, powdered glass and common salt is dissolved in water and then filtered.   2
      Name the substance left on filter paper. Name the substance in the filtrate.

35   In an experiment to determine the boiling point of water. State reason for the following:-   2

(a)   Pumice stone pieces are added to water in the beaker.
(b)   A glass stirrer is used.

36   Prakash soaked 6g raisins in water and after 10 hours found that their mass has become 9g.   2
        Determine the percentage of water absorbed by raisins.

4KYCPHF

Marking Scheme
SUMMATIVE ASSESSMENT – I (2014-15)
Science (Class–IX)

General Instructions:

1. The Marking Scheme provides general guidelines to reduce subjectivity and maintain uniformity. The answers given in the marking scheme are the best suggested answers.
2. Marking be done as per the instructions provided in the marking scheme. (It should not be done according to one's own interpretation or any other consideration).
3. Alternative methods be accepted. Proportional marks be awarded.
4. If a question is attempted twice and the candidate has not crossed any answer, only first attempt be evaluated and 'EXTRA' be written with the second attempt.
5. In case where no answers are given or answers are found wrong in this Marking Scheme, correct answers may be found and used for valuation purpose.

भाग-अ / SECTION-A

1	From meristematic tissue through cell differentiation	1
2	$F = xg$	1
3	Due to inertia of motion	1
4	Particles from bulk (whole) of the liquid changes into vapour state.	2

5   Unicelluar - gain water by osmosis   2

Plants - roots absorb water by osmosis

6      $u = 0, s = 500$ m, $t = 10$ s, $a = ?$ 2

$$S = ut + \frac{1}{2}at^2$$

$$500 = 0 + \frac{1}{2} \times a \times 100$$

$$50a = 500$$

$$a = 10 \text{ m/s}^2$$

7   <u>Flow diagram</u> :   3

Air

↓

Compressed and cooled by increasing pressure and decreasing temperature

↓

Liquid Air

Allow to warm up slowly in fractional distillation column

↓

Gases get separated at different heights of fractionating column

- Oxygen

8   (a)   Homogeneous mixture - It has uniform composition throughout   3

Ex : sugar in water, salt in water

(b)   Heterogeneous mixture has non uniform composition and different parts of the mixture have different properties.

Ex : sand and salt or oil in water

9   Each part carries 1 mark   3

(ans in tabulator form)

10   (i)   On cell division , chromatin network organises themselves into chromosomes.   3

(ii)   Chloroplast is a plastid which contains a green pigment called chlorophyll which is responsible for photosynthesis.

(iii)   The segments of DNA are called genes

11   3

Tissue	Apical	Lateral	Intercalary
Location	Root tip, shoot tip	Lateral sides of the stem and root	At the base of the leaves or internodes
Function	Increases the length of the plant (primary growth)	Increases the girth of stem and root (secondary growth)	Increases the length of the organs

12   The reason is that the acceleration is inversely proportional to the mass of the body. The mass   3

of stone being very small as compared to the mass of the earth the acceleration produced in the stone is large. But the mass of the earth being very large the acceleration produced in the earth is so small that the earth does not move towards the stone.

13   Answer according to Newton's II Law of Motion   3
         a)

14   An athlete completes one lap in a race and A passenger in a train travels from Delhi to   3
      Mumbai.

      Justification for each case

15   (a)   s = 20.0 m   3

      (b)   v = − 1.00 m/s

      (c)   t = 4.5 s

16   Forward   3
         a) Action reaction pair

17   Expected Answer / Value Points of Test item – 03   3

      (i)   Nitrogen, Phosphorus, Potassium

      (ii)   Continuous use of fertilizers destroy soil fertility as organic matter is not replenished
      and microorganisms are also harmed

      (iii)   scientific temper, spirit of inquiry, care for family

18   (a)   two problems   3

       (b)   one solution

19   (a)   Definition of evaporation and role of speed of wind   5

       (b)   To make body cool by evaporating sweat when we sit under fan

20   (a)   Hydrogen is combustible and oxygen is a supporter of combustion but water is u: 5
extinguish fire. So water is not a mixture of hydrogen and oxygen, but it is a compound. (o
other point)

       (b)   Table 2.2 Page 26 (Any three points).

21   Thin cell wall, leaf, usually loosely packed, large intercellular spaces provides support and   5
also stores food (any four)

CHLORENCHYMA – Contains chlorophyll and performs photosynthesis

AERENCHYMA - in aquatic plants, large air cavities give buoyancy to the plants and helps
them float

22   (a) $W_e = 6 \times W_m = 6 \times 1.67 = 10.02$ N   5

               Mass on earth same i.e 1 kg

(b) $F = \dfrac{GM_1M_2}{d^2} = \dfrac{6.7 \times 10^{-11} \times 2 \times 10^{30} \times 6 \times 10^{24}}{(1.5 \times 10^{11})^2}$

$= 3.57 \times 10^{22}\,N$

Force of earth on sun will be same

23   (a)   Mass of objects, distance between them   5

(b)   When $F \propto \dfrac{1}{d^2}$, $F \propto M \times m$

$F \propto \dfrac{M \times m}{d^2}$

or $F = \dfrac{GMm}{d^2}$

G is a constant of proportionality value of constant is universal :

(c)   Remains same

(d) $6.6.7 \times 10^{-11}\,Nm^2\,kg^{-2}$

(e) $1.63\,ms^{-2}$

24   (a)   Difference of macro and micro nutrients on the basis of   5

       (i)   Function, one point of difference –

       (ii)   For mentioning one point of difference on the basis of   requirement

(b)   For classifying each one correctly ½ can be given

(c)   Deficiency of these nutrients affects physiological processes in plants including reproduction growth and susceptibility to diseases.

भाग-ब / SECTION - B

| 25 | (c) | carbohydrates | 1 |

| 26 | (c) | apple juice | 1 |

27 (d) Carbon di sulphide remain Colourless.   1

28 (c) A homogenous mixture is formed.   1

29 (d) No change in colour of Solution.   1

| 30 | (b) | | 1 |

| 31 | (c) | | 1 |

32	(a)	ammonium chloride, salt	1

33	(c)		1

34   A mixture of sand and powdered glass will be left on filter paper. Salt solution will be filtrate.   2

35   (a)   Pumice stone pieces are added to stop bumping of water.   2
        (b)   A glass stirrer is used to keep the temperature uniform.

36   Mass of dry raisins $w_1 = 6g$ 2
       Mass of raisins soaked in water $w_2 = 9g$
       Mass of water absorbed by raisins = 9-6 = 3g
       % of water absorbed by raisins = $\dfrac{w_2-w_1}{w_1}$ x100

$$= \dfrac{3}{6} \text{ x100}$$

$$= 50\%$$