Sample Question Paper

SCIENCE

Class-IX (SUMMATIVE ASSESSMENT II)

M.M.-80 **Time-3-31/2 hrs.**

General Instructions:

1. Questions 1 to 5 are one mark questions. They are to be answered in one word or one sentence.

2. Questions 6 to14 are two marks questions. They are to be answered in about 30 words.

3. Questions 15 to 23 are three marks questions. They are to be answered in about 50 words.

4. Questions 24 to 26 are five marks questions. They are to be answered in about 70 words.

5. Question 27 to41are multiple choice questions based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of the four a, b,c and d provided to you.

1 Which animal tissue is commonly known as packaging tissue? **1**

2. Calculate the formula unit mass of $CaCO_3$ (given at masses: Ca = 40. 0μ, c=12 0μ, 0 = 16.0μ . **1**

3. An ion M^{3+} has 10 electrons and 14 neutons

What is the atomic number and mass number of M ? **1**

4. State the wave property that determines 'pitch' of sound. **1**

5. How does the speed of sound change on increasing the temperature? **1**

6.What do you mean by photoperiod? Name two processes that are dependent on photoperiod. **2**

7. What will happen if:

i) The skin epithelium is not stratified.

ii) Stratified squamous epithelium lines blood vessels. **2**

8. Name the target organ/organ system of AIDS virus. What is the cause of death in case of people suffering from AIDS? **2**

9. What is meant by (i) a solute and (ii) a solvent in a solution? Identify the solute and the solvent in a homogenous mixture of iodine and alcohol. **2**

10. A housewife churned full cream milk with a milk churner.

(i) What did she observe after churning milk?

(ii) What could be the possible reason for this observation? **2**

11. The average atomic mass of a sample of an element 'X' is 16.2μ. What is the percentage of each isotope $^{16}_{8}X$ and $^{18}_{8}X$ in the sample? **2**

12.Why does a wooden block float and an iron block sinks when both are placed on the surface of water ? **2**

13. The gravitational force of attraction between two masses is 16 N. What would be the force of attraction between them if each mass and the distance between them are doubled? **2**

14. A child winds his toy car by moving its key. Name the type of energy –

i) used up in the process

ii) energy transformation taking place in it

The car then runs on the floor of the room. Give the transformation of energy taking place in it now. **2**

15. To increase productivity per unit area ,the farmers grow two different types of crops on the same field in definite rows. What is this practice called? What care is required to be taken before selecting two crops for such practice and why? Give any two reasons **3**.

16. Draw a neat diagram of the leaf epidermis showing pores through which exchange of gases takes place. Label any two parts giving one function of each. **3**

17. i) Which of the following diseases are protozoan in origin?

a)Dengue b)Malaria c)Kalaazar d)AIDS

ii) Suggest any two ways you would like to adopt, to prevent being infected by them. **3**

18. Write two properties each of a solution, suspension and a colloid with respect to stability and filterability**.** **3**

19. (i) State 'Law of constant proportions'.

(ii) Taking the example of water, explain the law of constant proportions.

(iii) Which postulate of Daltons' atomic theory explains this law? **3**

20. (i) Write the names of the compounds represented by the following formulae:

a) Na_2S b) KNO_3

(ii) Write the chemical formulae of :

a) Aluminum Chloride
b) Magnesium oxide

(iii) Find out the mass of 12.044×10^{23} atoms of magnesium (Given at mass of Mg = 24.0μ) **3**

21. A stone is dropped from the edge of the roof.

a) How long does it take to fall 4.9 m?

b) How fast does it move at the end of the fall?

c) What is its acceleration after 1s and 2s?

(given that g = 9.8 m/s^2) **3**

22. A boy weighing 50 kg climbs up a vertical height of 100 m in 200 seconds.

Calculate the –

a) amount of work done by him
b) potential energy gained by him
c) Power of the boy
(given that g = 10 m/s^2) **3**

23. i) In a tug of war, one team (team A) wins and the other team (team B) loses.

Which of these two teams does

a) positive work b) negative work

ii) What is the work done in case of a satellite moving around the earth? **(2+1)**

24 i)Write any three differences between Procaryotic and Eucaryotic cell.

ii)Draw a neat diagram of a typical prokaryotic cell and label any two parts. **5**

25. Give reason for the following

a) Isotopes of an element are chemically similar

b) An atom is electrically neutral

c) Noble gases show least reactivity

d) Nucleus of an atom is heavy and positively charged.

e) Ions are more stable than atoms. **5**

26.. i) What is meant by the statement – "Frequency of a source of sound is 200 H_z"

ii) Give the audible range of frequency of sound for human beings

iii) Give the range of frequencies associated with infrasound and ultrasound'.

iv) Explain, how defects in a metal block can be detected using ultrasound.

(1+1+1+2)

27 The mixture will appear translucent in case of:

a) $CuSO_4$ +water

b) alum + water

c) sugar + water

d) starch + water **1**

28 On heating a mixture of iron filings and sulphur, it is observed that:

a) the mixture sublimes
b) brown fumes are evolved
c) a grey mass is formed
d) no change occurs **1**

29. When solutions of sodium sulphate and barium chloride are mixed, an insoluble solid settles at the bottom of the test tube. Its colour is :

a) blue
b) yellow
c) white
d) green **1**

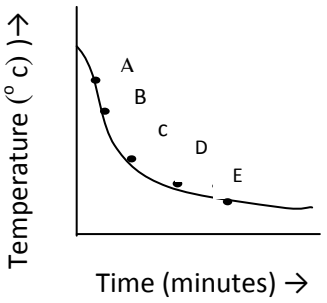
30 After heating salt, common salt and ammonium chloride for a few minutes, we observe the following on the upper part of the inverted funnel:

a) a reddish brown deposit
b) a white solid deposit
c) water droplets
d) a yellow gas **1**

31. At 0^oc or 273 K, the physical state of water is observed as :

a) solid
b) liquid
c) vapour
d) both solid and liquid **1**

32. The given figure represents the curve showing cooling of hot water with time plotted by a student. The part of the curve for which rate of cooling is fastest is:



a) AB b) BC c) CD d) DE **1**

33. While determining the density of a copper piece using a spring balance and a measuring cylinder, Rama carried out the following procedure:

1. Noted the water level in the measuring cylinder without the copper piece.
2. Immersed the copper piece in water.
3. Noted the water level in the measuring cylinder with the copper piece inside it.
4. Removed the copper piece from the water and immediately weighed it using a spring balance

The wrong step in the procedure is :

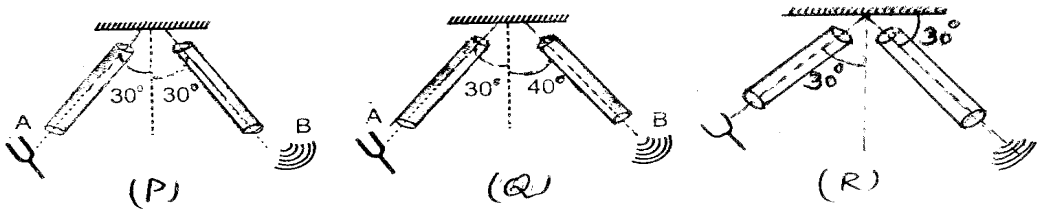
a) Step '1'
b) Step '2'
c) Step '3'
d) Step '4' **1**

34. In the experiment for determining the velocity of propagation of a pulse in a slinky, we prefer a long slinky/string

a) because pulse cannot be formed in a short slinky/string
b) because slinky/string is cheap
c) so that pulse may move through it easily
d) so that time taken by pulse to move from one end of slinky/string to other is more **1**

35. Three students performed the experiment on verifying the laws of reflection of sound using a tuning fork as a source of sound. Their experimental set up is shown in figures P, Q, and R.

In which of the following set ups, will the sound of the vibrating tuning fork be heard the most?



a) fig. P b) fig. Q c) both P and Q d) fig. R **1**

36. During the experiment on measurement of loss in weight of solid in tap water and salty solution, the maximum loss in weight of the body is observed when –

a) it just touches the surface of the liquid
b) it is completely immersed in the liquid
c) it is partially immersed in the liquid
d) no difference in loss in weight in above three cases. **1**

37. Temporary mount of a tissue is made in :

a) Glycerin
b) Alcohol
c) Wax
d) Formalin **1**

38. The following is a typical identifying character of sclerenchyma

a) sufficient inter cellular spaces
b) Thick lignified cell wall
c) Presence of chlorophyll
d) Presence of stored food **1**

39. A student was observing a sample of adulterated Dal with Metanil yellow. What colour appears when HCl is added to the sample?

a) Yellow

b) Red

c) Pink

d) Brown **1**

40. Rohit observed the posterior part of a male cockroach in the laboratory. He made the following diagram. The missing part/parts in this diagram is

a) Antennae
b) Brood Pouch
c) Anal Cerci
d) Anal styles **1**

41. A boy brought a free floating, bright green, silky mass from the surface of a fresh water pond. He observed it under a microscope. Identify the specimen

a) Nostoc
b) Spirogyra
c) Sargarsum
d) Sphagnum **1**

Marking Scheme

1. Areolar Tissue **1**

2. Ca: $40 \times 1 = 40\mu$

   C : $12 \times 1 = 12\ \mu$

   O: $16 \times 3 = 48\ \mu$

   $100\ \mu$

3. Atomic number : 13 ½

   Mass number : 27 ½

4. Frequency **1**
5. Speed of sound increases with increase in temperature **1**

6. Photoperiod is related to exposure of plants to the duration of sunlight.

   germination, growth and flowering(any two) in case of plants are dependent on Photoperiod.

   (1+1)

7. i)There will be no protection to the inner layers and wear and tear will be more.

   ii)The exchange of substances through selectively permeable surface cannot take place. (**1+1**)

8. Lymph nodes/Immune System

   In absence of a strong Immune system ,minor infections can turn in to serious problems**.** **(1+1)**

9. (i) Solute : the component of a solution that dissolves in the other component /a substance which is present in lesser quantity in the solution ½

   (ii) Solvent : The component of a solution that dissolves the other component in it/ a substance which is present in larger quantity in the solution. ½

   Iodine: Solute ½

   Alcohol Solvent ½ **(2)**

10. (i) The lighter particles of cream/ butter appear on the top and the heavier milk remains at the bottom.

(ii) The denser particles are forced to the bottom and the lighter stay on top when spun rapidly. **(1+1)**

11. 16.2 = $\frac{X}{100} \times 16 + + \frac{(100 - X)}{100} \times 18$ **1**

X = 90%, 100- X = 10% **½+½**

12. Explanation on the basis of buoyancy or density **2**

13. $F_1 = \frac{Gm_1m_2}{r^2} = 16N$

$F_2 = \frac{G\ 2m_1\ \ 2m_2}{(2r)^2}$

$= \frac{\cancel{4}\ Gm_1\ m_2}{\cancel{4}r^2}$

$= \frac{G\ m_1m_2}{r^2}$

$= F_1 = 16\ N$ **2**

14. Energy used up: muscular energy **½**

Energy transformation 1: muscular to potential **1**

Energy transformation 2: potential to kinetic **½**

15. Intercropping **½**

The nutrient requirements of two crops are different **½**

i) Maximum utilization of the nutrients. **1**

ii) Prevents spread of pests and diseases to all plants belonging to one crop in a field. **1**

16. Page 72, Fig.-6.5

Correct Diagram of leaf epidermis showing Stomata **1**

Guard cell- closing and opening of stomata

Stomata- exchanging gases with atmosphere

Epidermis-Protection to all parts of plant **{Any two- 2(1/2 +1/2) }**

17. i) Malaria and Kalaazar **(1/2+1/2)**

ii) -We should not throw waste or garbage in open in the street **1**

-There should not be open drain with stagnant water **1**

18. .

Properties	**Solution**	**Suspension**	**Colloid**
1. Stability	Stable	Unstable	Stable
2. Filterability	Cannot be filtered	Can be Filtered	Can not be filtered

½× 6 =3

19. (i) In a chemical compound the elements are always present in a definite proportion by mass. **1**

(ii) In water, H_2O, the ratio of the mass of hydrogen to the mass of oxygen is always 1:8, whatever be the source of water. Thus, if 9 g of water is decomposed, I g of hydrogen and 8 g of oxygen are always obtained. **1**

(iii) Atoms combine in the ratio of small whole numbers to from compounds. **1**

20. (i) a) Sodium Sulphide **½**

b) Potassium Nitrate **½**

(ii) a) $AlCl_3$ **½**

b) MgO **½**

(iii) Mass of 12.044×10^{23} atoms of Mg = 48g **1**

21. h = 49 m g = 98 m/s^2 n=0 v =? a =?

a) h = nt +1/2 gt^2 $\because$ n=0

$\therefore$ t = $\sqrt{\frac{2h}{g}}$

= $\sqrt{\frac{2\times49}{98}}$

t = 1s **1**

b) v = n+gt **1**

= 0 + 9.8 ×1

= 9.8 m/s

c) 9.8 m/s^2 **1**

(because acceleration of a freely falling body is same at all times)

22. m=50 kg h = 100m g=10m/s^2 t = 200s

i) w = mgh

= 50 kg ×10m/s^2× 100m = 50,000 J **1**

ii) PE = mgh

= 50,000 J (alternately, P.E gained = work done against gravity

= 50,000 J) **1**

iii) P = $\frac{w}{t} = \frac{50,000J}{200s}$ = 250w **1**

23. i) a) wining team does positive work **½**

Displacement is along the direction of force **½**

b) Losing team does negative work

Direction of displacement is opposite to the direction of force **½**

ii) Zero **1**

(force acting is perpendicular to the direction of displacement)

24. i) Procaryotic cell | Eucaryotic cell

a)Nuclear region poorly defined due to lack of nuclear membrane . | a)Nuclear region well defined and surrounded by a nuclear membrane.

b) Single chromosome | b)More than one chromosome

c) Membrane bound cell organelles absent. | c)membrane bound cell organelles Present **1x3=3**

II) Page-62, Fig.-5.4 NCERT Book

Diagram of prokaryotic cell **1**

Ribosomes, Plasma membrane,Cell wall,Nucleoid (label any Two) **(½+½)**

25 a) Isotopes of an element are chemically similar because the atoms have same number of valence electrons.

b) The number of positively charged protons is equal to the number of negatively charged electrons.

c) Noble gases have completely filled outermost shells and thus have maximum stability.

d) The entire mass of an atom lies in the nucleus which contains both protons and neutrons, which have mass. Protons carry positive charge and neutrons are neutral, so that net charge on the nucleus is positive.

e) In ions, the valence shells have octet configuration, therefore they do not need to lose or gain electrons and hence are stable. **1× 5**

26. i) source is vibrating with 200 vibrations in one second **1**

ii) 20 H_z to 20 k H_z **1**

iii) Infrasound – less than 20 H_z **1**

ultrasound – more than 20 kH_z

iv) Explanation –(reflection of ultrasound from the defected location in the metal block) **2**

27. (d)

28. (c)

29. (c)

30. (b)

31. (d)

32. (a)

33. (d)

34. (d)

35. (a)

36. (b)

37. (a)

38. (b)

39. (c)

40. (d)

41. (b)