SAMPLE QUESTION PAPER 2015

SUMMATIVE ASSESSMENT – I, 2015 SCIENCE Class – IX

TIME : 3 HRS.   M.M.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 number 25 to 33 in Section – B are Multiple Choice questions on practical skills. Each question is a one mark question. You are to select one most appropriate response out of four provided to you.

9. Question numbers 34 to 36 are questions based practical skills are two marks questions.

SECTION – A

1. Name a connective tissue which has a hard matrix.   1

2. If the distance between two point masses is doubled what will happen to the gravitational force of attraction between them?   1

3. Define sustainable practices in agriculture.   1

4. Among solids , liquids and gases , which one has :   2

   (a) maximum force of attraction between the particles

   (b) minimum spaces in between constituent particles. Give reason in support of your answer.

5. Mention the function of the various elements of Xylem.   2

6. (a) Mention two factors on which force of a body depends.

   (b) The force applied by a moving toy aeroplane on the wall is 20N when it moves at the rate of $4m/s^2$. Find the mass of the toy.   2

7. (a) State the difference between a pure substance and a mixture. Give one example of each.

                                                                                                                           3

   (b) Identify homogenous mixture from the following :

      (a) smoke   (b) Brass   (c) Tincture of Iodine (d) Milk

8. Give any three differences between a mixture and compound.   3

9. Aarushi's mother always squeezes water from wet clothes in the spinner of washing machine and then uses it to clean the floor. 3

   (a) Write the principle of the technique used in the above mentioned process.

   (b) Write one more application of this technique.

   (c) What do you learn from Aarushi's mother?

10. Define Osmosis. In what two ways it is different from diffusion. 3

11. Identify the type of tissues in the following : 3

    (a) Vascular bundle   (b) Inner lining of the Intestine   (c) Lining of Kidney tubule

    (d) Iris of the eye   (e) Muscle of the heart   (e) Bronchi of lungs

12. A motor car is moving with a velocity of 108 km/h and it takes 4 s to stop after the brakes are applied. Find the force exerted by the brakes on the motor car if its mass along with the passengers is 1000 kg. 3

13. Use velocity time graph to derive graphically the equation for position time relation for travelling a distance's under uniform acceleration (a). 3

14. A ball is thrown upwards from the surface of the moon with a velocity of 19.6m/s

    (a) How much time will it take to attain the maximum height 3

    (b) How high will it go ?

15. (a) State the law of conservation of momentum.

    (b) A mass of 200 kg is accelerated uniformly from a velocity of 10 ms^{-1} to 16ms^{-1} in 12s. Calculate the initial and final momentum of the object and the force that brings about this change. 3

16. Write two macro and micro nutrients needed for the growth of plants. How would the plants be affected, if they are deficient in the soil? 3

17. (a) List three factors on which cultivation practices and crop yield depends.

    (b) Name three stages involved in farming practices. 3

18. Write the two purposes of poultry farming. Name one indigenous and one exotic breeds of hen. 3

19. (a) Mention any two differences between physical and chemical changes. Give one example of each.

    (b) List any two properties for each of the following case of metals which makes them suitable to be used as :

       (i) utensils for cooking food   (ii) wires for electrical connections 5

20. (a) List the three characteristics of particles of matter.

    (b) Arrange the following substances in increasing order of forces of attraction between the particles – milk, sugar, carbon dioxide.

    (c) On a hot sunny day, people sprinkle water on the roof or open ground. Explain with reason.

    (d) Write the factors which determine the state of a substance? 5

21. (i) Define tissue. What is the utility of tissues in multi cellular organisms?

(ii) Are plant and animals made of same types of tissues ? If no, then. Write three points of difference.   5

22. (a) Write the formula to find the magnitude of gravitational force between earth and an object on earths' surface.

(b) What is direction of an object moving with acceleration due to gravity?

(c) How does the value of gravitational force 'F' change between two objects when the :   5

  (i) distance between them is reduced to half, and

  (ii) mass of one object is increased four times

  (iii) distance is reduced to one fourth.

23. State Newton's first law of motion. Show that Newton's first law of motion is a special case of Newton's second law. Determine the acceleration of a car of mass 800 kg, on application of a force of 200 N on it.   5

24. Define animal husbandry ? Discuss the feeding, breeding and controlling the diseases of cattle population in dairy farming.   5

SECTION – B

25. Which one of the following chemical gives a blue black colour with starch?   1

  (a) fluorine   (b) chlorine   (c) iodine   (d) bromine

26. To observe starch granules in potato under a microscope, freshly cut surface of potato was pressed on a slide. The stain that will show starch granules clearly is:

  (a) Acetocarmine   (b) Iodine   (c) Safranin   (d) Eosin   1

27. When a mixture of iron filings and sulphur powder was prepared, it was observed that the colour of iron filings is :   1

  (a) greyish   (b) reddish   (c) yellow   (d) green

28. A student by mistake mixed iron filing and sulphur powder. He wanted to separate them from each other. The method you would advise him to use is to dissolve the mixture in :   1

  (a) boiling water   (b) cold water   (c) carbon disulphide   (d) kerosene

29. Rahul placed an iron strip in copper sulphate solution and after about four hours he observed that the coating deposited on the iron strip is :   1

  (a) grey and hard   (b) soft and black   (c) reddish brown   (d) smooth and shiny

30. To observe cells in an onion peel, we must prepare the slide by using :   1

  (a) crushed pulp of onion   (b) dry scale leaf

  (c) green leaf of onion   (d) thin layer of fleshy leaf of onion

31. The slide under microscope shows alternate light and dark bands and many nuclei in the cells. It may most probably be of :   1

  (a) nerve cell   (b) phloem fibres   (c) striated muscle   (d) sclerenchyma

32. During the process of Sublimation the pure substance which collects on the inner side of

funnel is called :   1

    (a) Mixture   (b) Sodium   (c) Sublimate (d) Colloid

33. The direction of force of friction is :   1

    (a) opposite to the direction of force applied on body

    (b) same as the direction of force applied on body.

    (c) direction not fixed.

    (d) independent of force applied

34. Identify two clear and transparent solutions from the following mixtures:-   2

    (a) milk and water   (b) sugar and water   (c) chalk powder and water

    (d) starch powder and water   (e) glucose and water

35. In an experiment to determine the melting point of ice in laboratory, what form

    of ice should be preferably used? When should the reading of thermometer

    be noted?   2

36. If 'x' is the initial mass of the raisins and 'y' is the final mass of raisins after

    soaking in water. Calculate the percentage of water absorbed by raisins.   **2**

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SUMMATIVE ASSESSMENT – I, 2015 SCIENCE Class – IX

[Answer sheet]

1. Bone is a connective tissue which has a hard matrix.

2. Decreases

4 times

3. The practice of increase food production without degrading our environment and disturbing the balances maintaining it is called sustainable practices in agriculture.

4. Among solids, liquids and gases, Solid has: (a) Maximum force of attraction between the particles .This force keeps the particles together as a result they have fixed shape.
(b) Minimum spaces in between constituent particles as they have fixed volume

5. Mention the function of the various elements of Xylem. 2

Xylem consists of tracheids, vessels, xylem parenchyma and xylem fibres.
Tracheids and vessels are tubular structures that help in transporting water and minerals. The Parenchyma stores food and helps in the sideways conduction of water. xylem fibres give strength to xylem.

6. (a) mass and acceleration two factors on which force of a body depends.$\{f = ma\}$

(b) The force applied by a moving toy aeroplane on the wall = 20N , a= $4m/s^2$

Since, f = ma $\Rightarrow$ m = f/a = 20/4 = 5 kg

So, the mass of the toy = 5 kg

7. (a) State the difference between a pure substance and a mixture. Give one example of each. 3

A pure substance consists of a single type of particles. it is a pure single form of matter. For example, copper, iron, gold etc. A pure substance cannot be separated into other kinds of matter by any physical process.

Mixture is a kind of matter consist of more than one kind of the pure substance, for example, sea water, minerals, soil etc. A mixture can be separated into other kinds of matter by any physical process.

 (b) Brass and Tincture of Iodine(iodine in alcohol) are homogenous mixture

8. Three differences between a mixture and compound are:

The components of mixture are in any proportions while components of compound are in fixed proportions.

Components of mixture retain its properties while the components in a compound do not.

Components of mixture can be separated by physical means while Components of compound can be separated by chemical means.

9. a) The technique used is centrifugation. The principle of the technique is that the denser particles are forced to the bottom and the lighter particles stay at the top when spun rapidly.

b) This technique is also used in dairies and at home to separate butter from cream.

c) We learn one of the ways to reuse and save water, from Aarushi's mother.

10. Osmosis is the passage of water from a region of high water concentration through a semi-permeable membrane to a region of low water concentration.

Diffusion plays an important role in gaseous exchange where as osmosis plays an important role in gaseous water.

Diffusion is possible in any medium but osmosis require semipermiable membrane.

11. (a) Vascular bundle - Xylem and phloem   (b) Inner lining of the Intestine – columnar epithelium   (c) Lining of Kidney tubule – Cuboidal epithelium (d) Iris of the eye - unstriated muscles (e) Muscle of the heart – cardiac muscles   (e) Bronchi of lungs - unstriated muscles

12. u = 108 x 5/18= 30m/s, t= 4 s v = 0 m/s. mass of car = kg

The force exerted by the brakes on the motor car to stop = ma = m(v-u)/t = 1000 x -30/4 = - 7500N

13.Let a body of mass m kg is moving with initial velocity of the object is u (at point A) and then it velocity increases to v (at point B) in time t. The velocity changes at a uniform rate a.
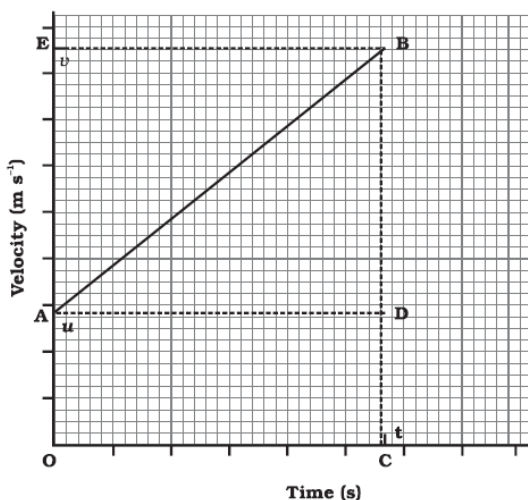
Let us draw AD parallel to OC.

BC = BD + DC = BD + OA

Substituting BC = v and OA = u,

We get v = BD + u or BD = v - u ------------------(a)

The acceleration of the object is given by a = Change in velocity/time taken = BD /AD = BD/OC

Substituting OC = t, we get a = BD/t $\Rightarrow$ BD = at ------------------ (ii)

From (i) and (ii) v = u + at

The distance s travelled by the object is given by s = area (trapezium OABC)

S= ½ (OA+BC) x OC = ½ (u + u + v) x t = ut = ½ at^2

14.A ball is thrown upwards from the surface of the moon with a velocity of 19.6m/s (a) How much time will it take to attain the maximum height (b) How high will it go ?

u= 19.6m/s , at the maximum height v = 0m/s , s =h, g =-9.8

t = (v-u)/a = (0-19.6)/-9.8 = 2sec

h = ut + ½at^2 = 19.6 x 2 + 0.5 x -9.8x2x2 =39.2+39.2= 78.4m

15. (a) Law of conservation of momentum : the sum of momentum of the two objects before collision is equal to the sum of momentum after the collision if there is no external unbalanced force acting on them

(b) mass = 200 kg u=10 ms – 1, v= 16ms -1 , t = 12s.

The initial = mu = 200x10 = 2000kgm/s and The final momentum of the object = mv = 2000 x 16 = 3200 kg m/s

The force that brings about this change =(mv = mv) /t = 1200/12 = 100N

16. Two macro nitrogen, phosphorus and two *Micronutrients are* iron, manganese that are needed for the growth of plants.
Deficiency of these nutrients affects physiological processes in plants including reproduction, growth and susceptibility to diseases

17. (a) weather, soil quality and availability of water are three factors on which cultivation practices and crop yield depends.
  (b) The first is the choice of seeds for planting. The second is the nurturing of the crop plants. The third is the protection of the growing and harvested crops from loss

18. The two purposes of poultry farming are egg production and meat.

One indigenous – Aseel and one exotic breeds of hen - Leghorn.

19. (a) Differences in physical and chemical

physical	chemical
no change in the chemical nature of the substance	change in the chemical nature of the substance
It is reversible	It is irreversible
boiling of water to form steam	burning of paper and wood

(b) (i) utensils for cooking food - Metals are good conductor of heat (ii) wires for electrical connections

Metals are good conductor of electricity

20. (a) the three characteristics of particles of matter (i) there is enough space between particles of matter

(ii) Particles of matter are always in motion (iii) particles of matter attract each other

(b) Substances in increasing order of forces of attraction sugar > milk >carbon dioxide

(c) On a hot sunny day, people sprinkle water on the roof or open ground because the large latent heat of vaporization of water helps to cool the hot surface

(d) One factor which determine the state of a substance is forces of attraction among the partials among

21. (i) The group of cells that perform special function at a definite place in the body is called a tissue, What is the utility of tissues in multi cellular organisms?

In multi-cellular organisms tissue show division of labour. Cells specialising in one function are often grouped together in the body at a definite place to give the highest possible efficiency of function.

(ii) Plant and animals are not made of same types of tissues

Plant tissues	Animal tissues
These tissue are mainly supportive and provide structural strength	These tissues control all functions even movement
They have tissue made up of mostly dead cells to provide mechanical strength	They have tissue made up of mostly living cells
Tissues in plants divide throughout their life	Tissues in plants have permanent shape

22. (a) $F = GMm/d^2$ (b) Downward towards the earth

(c) the value of gravitational force 'F' change between two objects when the :

(i) distance between them is reduced to half = increases 4 times

(ii) mass of one object is increased four times = increases 4 times

(iii) distance is reduced to one fourth.   = increases 16 times

23. State Newton's first law of motion. Show that Newton's first law of motion is a special case of Newton's second law. Determine the acceleration of a car of mass 800 kg, on application of a force of 200 N on it

Newton's first law of motion: An object remains in a state of rest or of uniform motion in a straight line unless compelled to change that state by an applied force

The second law of motion said that $F = ma = m(v-u)/t$

or $Ft = mv - mu$

if, $F = 0$, $v = u$ for whatever time, t is taken. This means that the object will continue moving with uniform velocity, u throughout the time, t.

If u is zero then v will also be zero. therefore, the object will remain at rest.

Thus we can say that the Newton's first law of motion is a special case of Newton's second law.

24. Define animal husbandry ? Discuss the feeding, breeding and controlling the diseases of cattle population in dairy farming.

Animal husbandry is the scientific management of animal livestock.

Animal feed mainly includes: (a) roughage,which is largely fibre, and (b) concentrates, which are low in fibre and contain relatively high levels of proteins and other nutrients

Exotic or foreign breeds (for example, Jersey, Brown Swiss) are selected for long lactation periods, while local breeds (for example, Red Sindhi, Sahiwal) show excellent resistance to diseases. The two can be cross-bred to get animals with both the desired qualities.

For controlling the diseases proper cleaning and shelter facilities are ensured. Vaccinations are given against many major viral and bacterial diseases.