FIRST SEMESTER (REVISED)

MODEL QUESTION PAPER YEAR 2024 - 2025

GRADE: 9 TIME: 3 HRS. MARKS: 70 SUBJECT: SCIENCE

GENERAL INSTRUCTIONS:

1. There are 49 questions in the question paper. All questions are compulsory.
2. Question No. 1 to 35 are multiple choice questions carrying 1 mark each.
3. Question No. 36 to 44 are short answer type (i) question, carrying 2 marks each.
4. Question No. 45 to 47 are short answer type (ii) questions, carrying 3 marks each.
5. Question No. 48. to 49 are long answer type questions, carrying 4 marks each.
6. There is no overall choice in the question paper.
   However, an internal choice has been provided for 3 questions of 2 marks each, 2 questions of 3 marks each and one question of 4 marks.

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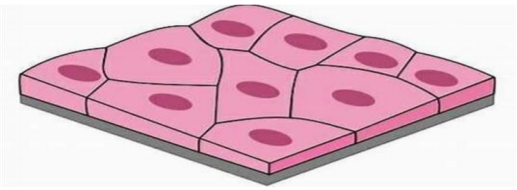
Select the most correct alternative from those given below each statement.

1. One of the substances which can readily sublime on heating is _____
   A. sodium chloride
   B. calcium chloride
   C. ammonium chloride
   D. magnesium chloride
2. Rate of evaporation of water increases with decrease in _____
   A. humidity
   B. temperature
   C. wind speed
   D. surface area
3. A solid melts at 52 ^{o}C. This temperature on Kelvin scale is _____
   A. 52 K
   B. 325 K
   C. 352 K
   D. 425 K
4. During summer, the water kept in an earthen pot becomes cool because of the process of _____
   A. diffusion
   B. osmosis
   C. transpiration
   D. evaporation
5. Tincture of iodine has antiseptic property. This solution is made by dissolving ___
   A. iodine in water
   B. iodine in acetone
   C. iodine in glycerine
   D. iodine in alcohol

6. An element having intermediate properties between those of metal and non-metal is
   A. Carbon
   B. Platinum
   C. Germanium
   D. Aluminium
7. Which of the following has a fixed volume but not a fixed shape?
   A. gas
   B. solid
   C. liquid
   D. Plasma
8. 5 g of sugar is dissolved in 45 g of water. Concentration in terms of mass by mass percentage of the solution is _____
   A. 5%
   B. 10 %
   C. 15 %
   D. 20 %
9. A technique that is used to separate cream from milk is _____
   A. distillation
   B. decantation
   C. centrifugation
   D. chromatography
10. The cell organelle responsible for digesting damaged cells is _____
   A. plastids
   B. lysosomes
   C. mitochondria
   D. Golgi apparatus
11. When a prokaryotic cell is observed under high power of a microscope, which characteristic will help in its identification?
   A. presence of nucleus
   B. presence of central vacuole
   C. absence of genetic material
   D. absence of membrane bound cell organelles
12. When any poison is consumed, which of the cell organelles in the liver cells play a crucial role in its detoxification?
   A. vacuoles
   B. lysosomes
   C. Golgi apparatus
   D. smooth endoplasmic reticulum
13. A cell Organelle other than the nucleus, containing its own DNA is _____
   A. lysosomes
   B. mitochondria
   C. Golgi apparatus
   D. endoplasmic reticulum

14. The muscular tissue that functions without fatigue throughout an individual's life is _____
    A. cardiac muscle
    B. smooth muscle
    C. skeletal muscle
    D. voluntary muscle
15. In gymnosperms, the primary water – conducting tissues are _____
    A. vessels
    B. tracheids
    C. sieve tubes
    D. xylem parenchyma
16. Identify the given epithelial tissue.



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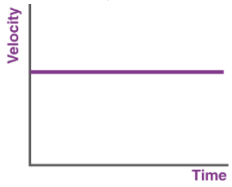
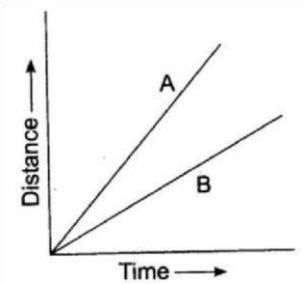
    A. squamous
    B. cuboidal
    C. columnar
    D. stratified
17. The features that best describe the cells of parenchyma are _____
    A. dead cells, thick walled, tightly packed
    B. living cells, thin walled, loosely packed
    C. dead cells, thin walled, tightly packed
    D. living cells, thick walled, loosely packed
18. In the graph shown below, the body is _____



    A. moving with increasing velocity per unit time x
    B. moving at a constant velocity
    C. moving with decreasing velocity per unit time
    D. not moving
19. A bus travelling at 20 ms^{-1} is subjected to a steady deceleration of 5 ms^{-2}, how long will it take to come to rest?
    A. 4 s
    B. 6 s
    C. 8 s
    D. 12 s

20 From the distance- time graph shown below, which of the following option is correct?



A. Speed of A = speed of B
B. Speed of A > speed of B
C. Speed of A < Speed of B
D. Speed cannot be predicted from the above graph

21. A train passes over a 200 m long bridge in 10 s. The length of the train is 100 m. The speed of the train is _____
A. 40 ms^{-1}
B. 30 ms^{-1}
C. 20 ms^{-1}
D. 10 ms^{-1}

22. When the net force acting on a body is zero, the forces acting on it are called _____
A. balanced forces
B. unbalanced forces
C. centripetal forces
D. centrifugal forces

23. An object of mass 2 kg moves with constant velocity of 20 ms^{-1}, then, the unbalanced force acting on the body is _____
A. 0 N
B. 10 N
C. 20 N
D. 40 N

24. The value of 'G' in the universal law of gravitation depends on _____
A. mass and density of the earth
B. density and radius of the earth
C. mass and radius of the earth
D. mass, density and radius of the earth

25. Force acting on an object of mass 1 kg is said to be 1 Newton if it produces an acceleration of ----------
A. 10 ms^{-2}
B. 1 ms^{-2}
C. 0.1 ms^{-2}
D. 0 .01 ms^{-2}

26. The value of acceleration due to gravity _____
A. is same at equator and poles

B. is least at poles
C. is least at equator
D. increases from poles to equator

27. If the gravitational attraction on the object suddenly becomes zero, then weight
A. of the body will become zero but mass will remain unchanged
B. and mass both will become zero
C. and mass of the body will remain unchanged
D. of the body will remain unchanged but mass will become zero

28. Acceleration due to gravity on the moon is 1/6 of it's value on the earth. If the weight of an object on the earth is 600 N, what would be its weight on the moon?
A. 0 N
B. 100 N
C. 200 N
D. 600 N

29. When a body is immersed fully or partially in a fluid, it experiences an upward force, that is _____
A. equal to the weight of the fluid displaced by it.
B. equal to the weight of the fluid in the container
C. half of the weight of the fluid displaced by it.
D. double of the weight of the fluid displaced by it.

30. The gravitational force between two objects is F. If masses of both objects are halved without changing distance between them, then the gravitational force would be _____
A. F/4
B. F/2
C. 4 F
D. 2F

31. Apis mellifera is commonly used in apiaries because _____
A. they stay in beehive for short period of time
B. they have high honey collection capacity
C. they have low honey yielding capacity
D. they are slow breeders.

32. The growing of different crops in pre- planned succession is called _____
A. mixed cropping
B. inter cropping
C. inter breeding
D. crop rotation

33. One of the major problems affecting composite fish culture is _____
A. lack of availability of good quality fish seeds
B. fish seeds are very expensive
C. fish seeds are not available locally
D. fishes compete among themselves and get killed in the process

34. Identify two correct statements from those given below.
(i) hybridization means crossing between genetically dissimilar plants.

(ii) cross between two varieties is called as inter-specific hybridization.
(iii) introducing genes of desired characters into a plant gives genetically modified crop.
(iv) cross between plants of two species is called as inter varietal hybridization.

A. (i) and (iii)
B. (ii) and (iv)
C. (ii) and (iii)
D. (iii) and (iv)

35. Which of the following are Indian cattle:
(i) Bos indicus (ii). Bos bubalis (iii). Bos domestica (iv). Bos vulgaris

A. (i) and (ii)
B. (i) and (iii)
C. (ii) and (iii)
D. (iii) and (iv)

36. Draw a diagram to show the separation of ammonium chloride and salt by sublimation and label the cotton plug and solidified ammonium chloride. .

37. A ball thrown up vertically returns to the thrower after 6 s. Find the velocity with which it was thrown up and the maximum height it reaches. ($g=10\ ms^{-2}$)

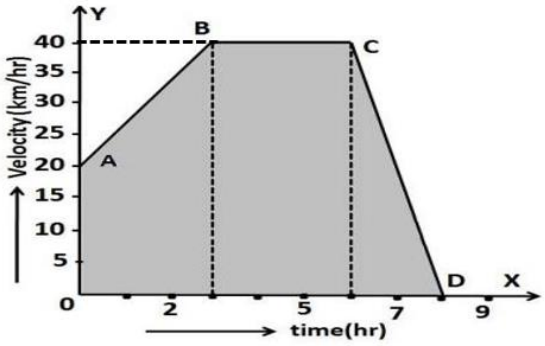
38. Draw a scientifically correct diagram of a plant cell and label the vacuole and cell membrane.

39. A constant force acts on an object of mass 5 kg for a duration of 2 s. It increases the velocity of the object from 3 ms^{-1} to 7 ms^{-1}. Find the magnitude of the force applied. Now if the force was applied for a duration of 5 s, what would be the final velocity.

OR

39. What would be the force required to produce an acceleration of 2 ms^{-2} on a body of mass 12 kg? What would be its acceleration if the force was doubled?

40. Study the graph and answer the questions given below.



(1) Find the distance travelled during the duration when the body travels with constant velocity of 40 km/hr
(2) Find the acceleration acting on the body between A and B.

41. Using Newton's third law of motion, explain the below mentioned situations,

a. rocket propulsion

b. it is difficult for a fireman to hold a hose, which ejects large amounts of water at high velocity

42. A boy standing on the second floor of a building releases a sheet of paper and a crumpled ball of paper both identical in dimensions. Why does a Sheet of paper fall slower than the crumpled paper ball?
State two factors on which the gravitational force between two objects depends on.

OR

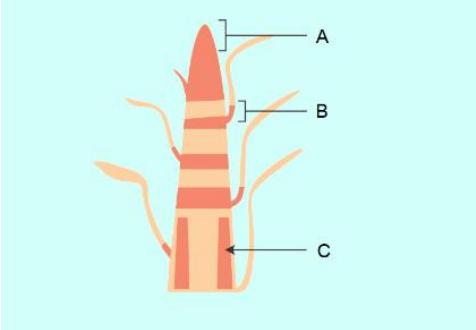
42. A stone when released falls rapidly towards the earth's surface. Even though the force of attraction between the earth and the stone is same why don't we see the earth moving towards the stone?
State two phenomena that show the importance of universal law of gravitation.

43. At the recent Olympics in Paris, a rifle shooter places the gun firmly on her shoulder before shooting. Justify with reasons. If the bullet has mass **m** and velocity **v**, then what will be its momentum?

OR

43. If a person pushes a car while sitting inside it, the car does not move. Justify with reasons. State the relationship between force 'F' , mass 'm' and acceleration 'a' .

44. Given below is the diagram of the meristematic tissues. Identify any two of the labelled parts (A, B, C) and write one function for each part.



45. (i) A motor cyclist moving initially with a speed of 6 ms^{-1} accelerates by 2 ms^{-2} for 5 s. Calculate the final speed and distance travelled by the motor cyclist.
(ii) Write a point of difference between speed and velocity.

OR

45. (i) From a station 'X' a train starts from rest and attains a speed of 15 ms^{-1} in 10 s. Then by applying brakes, a negative acceleration of 3 m s^{-2} is produced and it stops at station 'Y' in 6 s. Find the distance between 'X' and 'Y'.
(ii) Write a point of difference between distance and displacement.

46. (i) Draw a neat labelled diagram of a neuron
(ii) Write the function of neuron

47. A poultry farmer desires to expand his poultry business. Devise a method by which he can increase productivity. Discuss any two modern management practices that he can

employ.

OR

47. A dairy farmer wants to increase the yield of milk. What should the animal feed include to achieve this? Enlist any two practices that the farmer can employ to maintain the health and hygiene of these animals.

48. Draw a diagram to show the process of obtaining coloured component (dye) from blue/black ink. Name the process of separation of dyes in blue / black ink and write two applications of this process.

OR

48. Draw a diagram to show the separation of two immiscible liquids (oil and water). Label the water and oil layers. Explain the principle behind this method of separation.

49 (i) What would happen when raisins are placed in hypotonic solution and subsequently transferred into a hypertonic solution?

(ii) Why is Amoeba able to engulf food and other materials from the external environment?

(iii) How do substances like CO_2 and water move in and out of the cell?