



Roll No.	
Name	
Class & Section	

APEEJAY COMMON ANNUAL EXAMINATION, 2019-20

SCIENCE

Time Allowed : 3.00 Hrs.

Class – IX

Maximum Marks : 80

General Instructions :

- The question paper comprises three sections — A , B and C. Attempt all the sections.*
- All questions are compulsory.*
- Internal choice is given in each section.*
- All questions in section A are one- mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.*
- All questions in Section B are three mark, short answer type questions. These are to be answered in about 50 — 60 words each.*
- All questions in section C are five mark, long answer type questions. These are to be answered in about 80 — 90 words each.*
- This question paper consists of a total of 30 questions.*

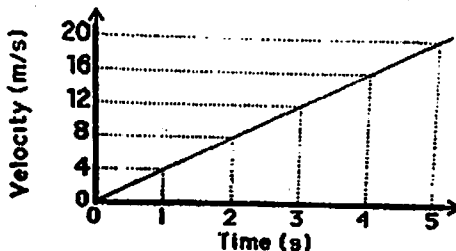
Section-A

- Why do we see water droplets on the outer surface of a glass containing ice cold water? 1
- A gas completely fills the vessel in which it is kept. Explain why?

OR

What happens when acetone is poured on the palm?

- The motion of a body of mass 5 kg is shown in the velocity-time graph.

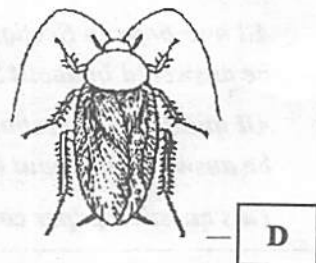
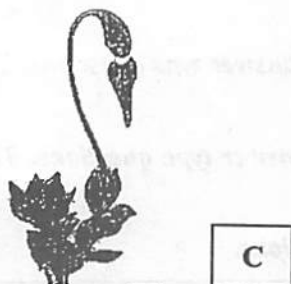
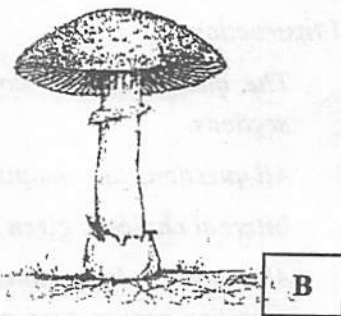
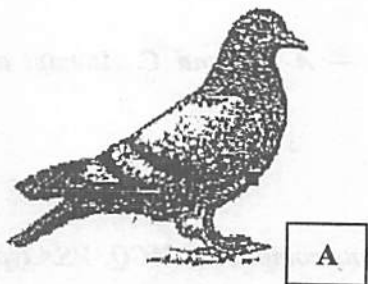


Find from the graph :

- (i) The acceleration.
- (ii) The force acting on the body.
- (iii) The change in momentum of the body in 2 s after the start.
- (iv) The distance covered by the body in 4 s after the start.

(1×4=4)

4. Question numbers 4(a) - 4(d) are based on the diagrams given below. Study the diagrams and answer the questions that follow. (1×4=4)



- (a) One specific feature related to adaptation of animal A is

- (i) The presence of a notochord.
- (ii) Forelimbs are modified for flight
- (iii) A post anal tail
- (iv) The presence of gill slits.

- (b) The features found in organisms (B) is /are

- (i) Umbrella shaped part called pileus
- (ii) A saprophytic mode of nutrition
- (iii) A mycelial body
- (iv) All of the above .

8. Farming without the use of chemicals like fertilizers, herbicides and pesticides is known as
- (a) Terrace farming
 - (b) Crop rotation
 - (c) Jhum cultivation
 - (d) Organic farming
7. When we change feeble sound to loud sound, We increase its
- (a) frequency
 - (b) amplitude
 - (c) velocity
 - (d) wavelength
6. To compare the pressure exerted by the solid iron cuboid, a student took two cuboids having the same dimension and same nature of material. After performing the experiment with both the cuboids, she found
- (a) $p_1 = 2p_2$
 - (b) $p_2 = 3p_1$
 - (c) $p_1 = p_2$
 - (d) $p_2 = 2p_1$
- “Action and reaction are equal and opposite but even then they do not cancel each other” the above statement is
- (a) partially false.
 - (b) false
 - (c) partially true
 - (d) true

OR

5. Rocket works on the principle of
- (a) Newton's third law
 - (b) Newton's second law
 - (c) Newton's fourth law
 - (d) Newton's first law
- (i) *Cotyledons*
- (ii) Well differentiated reproductive organs.
- (iii) Hidden reproductive organs
- (iv) Seeds enclosed in fruits
- (d) The scientific name of organism D is
- (i) *Columbia livia*
 - (ii) *Periplaneta americana*
 - (iii) *Pheretima posthuma*
 - (iv) *Passer domesticus*
- (c) The plant C belongs to “cryptogamae” because they have

OR

Cross between plants of different varieties is called

- (a) Intergeneric hybridisation (b) Intervarietal hybridisation
(c) Somatic hybridisation (d) Interspecific hybridisation

9. Which one of the following is an example of a colloid?

- (a) Fog (b) Salt Solution
(c) Air (d) Mixture of oil and water

10. Electronic Configuration of the element with atomic number 14 is

1

- (a) 2,8,4 (b) 2,4,8
(c) 4,2,8 (d) 4,8,2

11. Following is the example of Triatomic molecule :

1

- (a) Hydrochloric Acid (b) Carbon dioxide
(c) Ammonia (d) Sulphuric Acid

12. The atomic number of four elements A, B, C and D are 9, 10, 8 and 13 respectively. Which of them will form a cation?

1

- (a) A (b) B
(c) C (d) D

For questions 13 and 14, two statements are given — one labelled *Assertion (A)* and the other labelled as *Reason (R)*. Select the correct answer to these questions from the codes i, ii, iii and iv as given below :

- (a) Both assertion(A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

13. Assertion : Solubility of a substance depends on the temperature

Reason : Solubility of sodium chloride decreases with increase in temperature.

1

14. Assertion : Motion of satellites around their planets is considered as accelerated motion.

Reason : During their motion, the speed remains constant, while the direction of motion changes continuously.

1

Section-B

15. How does the fractional distillation differ from simple distillation process? Draw a labelled diagram of the apparatus used for fractional distillation. 3
16. (i) Calculate the molecular mass of C_2H_5OH . (Atomic Mass of C = 12u, H = 1u, O = 16u)
- (ii) How many moles are present in 4g of Sodium Hydroxide ? (Atomic Mass of Na = 23u, H = 1u, O = 16u)
- (iii) Write down the names of compounds represented by following formulae
- (a) $Al_2(SO_4)_3$
- (b) $CaCl_2$ 3
17. Draw Oxygen Cycle in nature 3

OR

Draw Carbon Cycle in nature

18. List any three human activities which would lead to an increase in the carbon dioxide content in air. 3
19. (a) What will happen if cork is not formed in older stems and root? 3
- (b) Name the following :-
- (i) Tissue where fat is stored
- (ii) The tissue which lines blood vessels
- (iii) Tissue found in the respiratory tract.
- (iv) Tissue found in the salivary glands.

OR

- (a) State two points of difference between parenchyma and sclerenchyma
- (b) Identify the tissue /cell in each case
- (i) Which has widely spaced cells and where matrix is made of proteins and sugars.
- (ii) Which supports internal organs and help in repair of tissues
- (iii) Which has spindle shaped cells and is uninucleate
- (iv) Cells specialised in receiving stimuli and transmitting them.

20. Name one indigenous and one exotic variety of honey bees. Why is exotic variety of honey bee commonly used for commercial honey production? 3

21. (a) Flat worms are 'triploblastic' and 'acoelomate'. What do these terms mean? 3

(b) Pick the odd one out giving suitable reason.

Cladophora Marsilea, Ulothrix, Spirogyra

22. A body weighs 900 N on the surface of earth. How much will it weigh on the surface of mars whose mass is $1/9$ and the radius is $1/2$ of that of the earth. 3

OR

(a) State Archimedes principle.

(b) The volume of a 500 g sealed packet is 350 cm^3 . Will the packet float or sink in water if the density of water is 1 g/cc ? What will be the mass of the water displaced by this packet?

23. If an electric iron of 1200 W is used for 30 minutes every day, find the electric energy consumed (in units) in the month of April. 3

24. (a) Why are sound waves called mechanical waves?

(b) How cracks in metal block can be detected? 1+2=3

Section-C

25. (a) Give reasons for the following :

(i) Evaporation causes cooling.

(ii) Rate of evaporation of an aqueous solution decrease with increase in humidity.

(iii) Sugar crystals dissolve faster in hot water than cold water.

(b) Substance 'A' has highest compressibility and can be easily liquefied. It can take the shape of any container. Predict the state of the substance. Enlist any two properties of this state of matter other than those mentioned above. 5

26. (i) Explain valency by taking example of Chlorine and Sodium. 5

(ii) If Bromine atom is available in the form of say, two isotopes ^{79}Br (49.7%) and ^{81}Br (50.3%). Calculate the average atomic mass of bromine atom.

(iii) Which subatomic particle is absent in an ordinary hydrogen atom?

OR

- (i) Define and give examples of the following :
- (a) Atomic Number (b) Mass Number
(c) Isotopes (d) Isobars
- (ii) Give the limitation of Thomson's Model.

27. (a) Which organ/tissue is infected in the following diseases? 5

(i) AIDS

(ii) Cholera

(b) How does Penicillin work? Explain briefly.

(c) Give reasons for the following :-

(i) Being exposed or infected with a microbe does not necessarily mean developing a disease.

(ii) Tuberculosis of the lungs is a more serious disease as compared to cough and cold.

28. (a) Draw a neat diagram of the plant cell and label the following organelles and state a function for each. 5

(i) Smooth Endoplasmic Reticulum.

(ii) Cell wall

(iii) Nucleus.

(b) A drop of a concentrated solution of sugar was put on a peel of Rheo leaf on a slide. What is your observation when it is viewed under a microscope? Explain

(c) Name the type of cell division where the daughter cells have only half the number of chromosomes. Which cells shows this type of division?

OR

(a) Draw a neat labelled diagram of a Bacterial cell and label any three parts.

(b) Dry raisins were first placed in plain water for sometime and then transferred to a concentrated sugar solution. Explain your observations.

(c) State the function of the following organelles :

(i) Mitochondria

(ii) Lysosomes

29. (a) Derive the second equation of motion graphically?
- (b) A stone is thrown in a vertically upward direction with a velocity of 5 m/s. If the acceleration of the stone during its motion is 10 m/s^2 in the downward direction, what will be the height attained by the stone and how much time will it take to reach there?

3+2=5

OR

- (a) State Newton's second law of motion and derive its mathematical expression.
- (b) From a rifle of mass 4 kg, a bullet of mass 50 g is fired with an initial velocity of 35 m/s. Calculate the initial recoil velocity of the rifle.
30. (i) State Newton's law of gravitation. 5
- (ii) Derive how does the value of gravitational force F between two objects change when
- (a) distance between them is reduced to half and
 - (b) mass of an object is increased four times.
- (iii) A stone is dropped from a height of 100 m on earth. At the same time, another stone is thrown vertically upwards from a ground with a velocity of 25 m/s. At what height from the ground will the stone meet?