Roll Number		

SET A

INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION
SCIENCE

CLASS: IX | Sub. Code: 086 | Time Allotted: 3 Hrs

18.02.2019 | Max. Marks: 80

General Instructions:

(i) The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.

(ii) All questions are compulsory.

(iii) Internal choice is given in sections B, C, D and E.

(iv) Question numbers 1 and 2 in Section-A are one mark questions. They are to be answered in one word or in one sentence.

(v) Question numbers 3 to 5 in Section- B are two marks questions. These are to be answered in about 30 words each.

(vi) Question numbers 6 to 15 in Section-C are three marks questions. These are to be answered in about 50 words each.

(vii) Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.

(viii) Question numbers 22 to 27 in Section- E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

SECTION A

1. Mention any two factors responsible for the loss of grains during storage 1

2. Why Nitrogen is considered as an essential nutrient for all life-forms? 1

SECTION B

3. What is soil erosion? Write two steps to control soil erosion? 2

4. a) (i)What is the quantity which is measured by the area occupied below the velocity-time graph? 2
   (ii) What is the nature of the distance-time graphs for uniform motion of an object?

OR

   a) What does the odometer of an automobile measure?
   b) What is the nature of the distance-time graphs for non-uniform motion of an object?

5. Write any two similarities and two dissimilarities among the organisms belonging to class Nematoda and Annelida. 2

SECTION C

6. a) What happens to the force between two objects, if the masses of both objects are doubled? 3
b) Why does a block of plastic released under water come up to the surface of water?
c) Why does a needle have a sharp tip?

7. a) Give one situation where force is applied but no work is done. Explain why. 3
b) Sate SI unit and commercial unit of electrical energy.
c) In a house, 5 bulbs of 25 W each are used for 6 hours daily. Calculate the units of electricity consumed in a month of 30 days.

8. a) (i) Why are sound waves called mechanical waves? 3
(ii) Which wave property determines (a) loudness (b) pitch?
(iii) Explain how bats use ultrasound to catch a prey?

OR

b) (i) Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen. Why?
(ii) What is reverberation? How can it be reduced?

9. Draw velocity- time graph for a body that has initial velocity 'u' and is moving with uniform acceleration 'a' . Use it to derive $v = u + at$. 3

10. Distinguish solids and gases on the basis of following: 3
(i) interparticle distance
(ii) diffusion
(iii)compressibility

11. a) Calculate the molecular mass of 3
(i) CO_2 (ii) MgO
(At. Mass of C=12u, O=16u , Mg=24u)
b) Write the chemical formula of potassium sulphate.

OR

a) Write four postulates of Dalton's atomic theory
b) Define Avogadro number

12. a) Calculate the number of molecules in 5 moles of water? 3
b) Select a pair of isotopes & isobars from the below list: Argon, protium, calcium, deuterium

13. Differentiate the different meristematic tissues in plant body. 3

14. Why in plant cells, vacuoles are filled with cell sap? Name the substances present in the cell sap. Write any one role played by vacuoles in some unicellular organisms. 3

OR

While demonstrating Osmosis, one peel of Rheo leaf is kept in water and another peel is kept in strong sugar solution. What can you observe after a few minutes? Write the observations in both cases with suitable reason.

15. Differentiate Inter-cropping and crop rotation. Write one benefit for each method. 3

SECTION D

16. a) (i) Define kinetic energy. Obtain an expression for kinetic energy possessed by an object of mass m, moving with velocity v. 5
(ii) Can kinetic energy of an object be negative? Give reason.
(iii) An object of mass **m** is moving with a constant velocity **v**. How much work should be done on the object to bring it to rest?

OR

b) (i)Define work. Give SI unit of work. Write an expression for positive work. Give an example for positive work.
(ii) Justify that 'a body at a greater height has larger energy.'

17. a) State Newton's Second law of motion. 5
b) Road accidents at high speeds are worse than accidents at low speeds. Why?
c) Define impulse.
d) A force of 2N acting on a body changes its velocity uniformly from 2 m/s to 5 m/s in 10 s. Calculate the mass of the body.
e) A heavy body and a lighter body have same momentum. Which of these is travelling faster?

18. a) Compare metals and nonmetals based on their physical properties (any two) 5
b) How would you separate the gases present in the air?

OR

a) A solution of acetone contains 30ml of acetone in 570ml of water. Calculate the percentage concentration of the solute in the solution?
b) Classify physical and chemical changes from the following;
(i) burning of magnesium ribbon (ii) electrolysis of water
(iii) tarnishing of silver spoon (iv) sublimation of iodine
c) Fine beam of light entering through a small hole in a dark room, illuminates the particles in its path. Name the process.

19. a) Write any two observations made by Rutherford's alpha particle scattering experiment. 5
b) If an element has mass number 35 and atomic number 17. Find
(i) the number of neutrons, protons & electrons.
(ii) the electronic configuration and number of electrons in the outermost shell.
c) Suggest any one method by which we can increase the solubility of saturated solutions.

20. a) Write the importance of Ozone layer. 5
b) What is biological nitrogen fixation? Name two microorganisms involved in this process.
c) Mention the process by which carbon is incorporated into life forms.
d) How does the increase in the amount of CO_2 affect the atmosphere?

21. a) How can we control weeds in the cultivated field? 5
b) Write any one local variety and foreign variety of honey bee.
c) Mention any one advantage and disadvantage of composite fish culture.
d) Write any two factors for which variety improvement is done.

OR

What are the two principles of treating an infectious disease? Name any two infectious diseases with their pathogen and modes of transmission Write the major symptoms if the brain is affected by a disease.

SECTION E

22. You are given a sphere of radius 2 cm. If you are asked to select a best suited spring balance to determine its weight, then out of the following which one would you prefer? The sphere is made of an alloy of density 7000 kg/m^3. 2

a)Range 0- 1000 g-wt , least count 5 g-wt
b)Range 0- 500 g-wt , least count 2.5 g-wt
c)Range 0- 250 g-wt , least count 2.5 g-wt
d)Range 0- 100 g-wt , least count 1 g-wt

OR

Define relative density of a substance. Relative density of silver is 10.8. The density of water is 1000 kg/m^3. What is the density of silver in SI units?

23. What type of wave is produced in a metallic slinky when one of its ends is tied to a rigid support and the free end is 2
a) compressed and released along its length?
b) jerked vertically up and down ?

24. While verifying the law of conservation of mass Smith added 3.5g of magnesium metal into 13.7g of hydrochloric acid. If the mass of magnesium chloride formed is 13.8g, what is the mass of eliminated hydrogen gas if the law of conservation of mass is correct? 2

OR

What are homogeneous & heterogeneous mixtures? Write one example each.

25. What is sublimation? Give an example which undergoes sublimation. 2

26. Write any two-point difference between the dicot and monocot plant you observe, if you are provided with the parts of both the plants above the soil. 2

27. While studying animal tissues, a student observed two different slides of involuntary and voluntary muscles. Write any two features which differentiate them. 2

OR

Write any two distinguishing features of the following organisms:
a) Pigeon
b) Spirogyra

End of the Question Paper

Roll Number		

SET B

INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION
SCIENCE

CLASS: IX | Sub. Code: 086 | Time Allotted: 3 Hrs

18.02.2019 | Max. Marks: 80

General Instructions:

(i) The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.

(ii) All questions are compulsory.

(iii) Internal choice is given in sections B, C, D and E.

(iv) Question numbers 1 and 2 in Section-A are one mark questions. They are to be answered in one word or in one sentence.

(v) Question numbers 3 to 5 in Section- B are two marks questions. These are to be answered in about 30 words each.

(vi) Question numbers 6 to 15 in Section-C are three marks questions. These are to be answered in about 50 words each.

(vii) Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.

(viii) Question numbers 22 to 27 in Section- E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

SECTION A

1. Define plasmolysis. 1

2. Why Nitrogen is considered as an essential nutrient for all life-forms? 1

SECTION B

3. State briefly two harmful effects of burning of fossil fuels. 2

4. a) (i) Under what condition(s) is the magnitude of average velocity of an object equal to its average speed? 2
   (ii) What does the slope of a speed- time graph indicate?

   OR

   b) (i) When will you say a body is in uniform acceleration?
   (ii) The velocity –time graph of a body is a straight line parallel to the time axis. What does it signify?

5. Write the characters of sclerenchyma cells. 2

SECTION C

6. a) What happens to the force between two objects, if the separation between the objects is doubled? 3
   b) Why will a sheet of paper fall slower than one that is crumpled into a ball?
   c) Why is it easier to swim in sea water than in river water?

7. a) Define negative work and give one example. 3
   b) Write the relationship between commercial unit and SI unit of electrical energy.
   c) A lamp consumes 1000 J of electrical energy in 10 s. What is its power?

8. a) (i) Define wavelength and amplitude of a sound wave? 3
   (ii) Distinguish between loudness and intensity of sound.
   (iii) In which of the three media, air, water or iron, does sound travel the fastest at a particular temperature?

OR

   b) (i) State the laws of reflection of a sound wave.
   (ii) Explain how defects in a metal block can be detected using ultrasound.

9. Draw velocity- time graph for a body that has initial velocity 'u' and is moving with uniform acceleration 'a'. Use it to derive $S = ut + \frac{1}{2} a t^2$. 3

10. a) Predict the physical state of matter in each case from the following characteristics: 3
   (i) It has a definite volume but no definite shape.
   (ii) It is rigid and highly incompressible.
   (iii) It represents the most highly compressible form of matter.
   b) List any three characteristics of particle of matter.

11. a) Calculate the molecular mass of 3
   (i) MgO (ii) CO_2
   (atomic mass of Mg=24u; C=12u;O=16u)
   b) Write the chemical symbols of
   (i) silver (ii) manganese

OR

   a) Which postulate of Dalton's atomic theory is the result of law of conservation of mass?
   b) What is atomicity? Write the atomicity of phosphorous molecule?
   c) What is the number of molecules present in 2 moles of ammonia molecule?

12. a) What are isotopes? 3
   b) Name the three isotopes of hydrogen?
   c) Name the element whose isotope is used in the treatment of goitre?

13. What are the three levels based on which organisms coming under Kingdom Plantae are classified? 3

14. Why in plant cells vacuoles are filled with cell sap? Name the substances present in the cell sap. Write any one role played by vacuoles in some unicellular organisms. 3

OR

While demonstrating Osmosis, one peel of Rheo leaf is kept in water and another peel is kept in strong sugar solution. What can you observe after few minutes? Write the observations in both cases with suitable reason?

15. Differentiate Organic farming and Inorganic farming. Name any two bio-pesticides. 3

SECTION D

16. a) (i) Define Potential energy. Obtain an expression for potential energy possessed by an object of mass m, placed at a height h above the ground. Justify that 'a body at a greater height has larger energy.' 5

(ii) Explain how energy is conserved in a simple pendulum.

OR

b) (i) State the law of conservation of energy. Prove the conservation of energy in the case of a freely falling object.
(ii) How is power related to the speed at which a body can be lifted?

17. a) State Newton's Third law of motion. 5
b) Mudguards are provided in bikes and cars. Why?
c) Define impulse.
d) A bullet of mass 10g is fired horizontally with a velocity of 150 m/s from a gun of mass 4kg. Calculate the recoil velocity of gun.
e) Distinguish between balanced and unbalanced force.

18. a) Write any two conclusions of Rutherford alpha ray scattering experiment? 5
b) Why did Rutherford select a gold foil in his alpha ray scattering experiment?
c) Write the main drawbacks of Rutherford's model of the atom.

OR

Atomic number and mass number of an element are 8 and 16 respectively:
a) Identify the element.
b) Write the number of protons, neutrons and electrons present in its atom.
c) Write the electronic configuration of the above element.
d) Write the number of electrons in the outermost shell.
e) Show the schematic atomic structure of above element.

19. a) Which separation technique is used in the separation of following: 5
(i) Mixture of oil and water (ii) Common salt and ammonium chloride
(iii) Separate dyes (various colours) in the ink (iv) Separation of cream from milk
b) Draw a flow chart showing the separation of different gases present in the air.

20. a) Write the importance of Ozone layer. 5
b) What is biological nitrogen fixation? Name two microorganisms involved in this process.
c) Mention the process by which carbon is incorporated into life forms.
d) How does the increase in the amount of CO_2 affect the atmosphere?

21. Draw a labelled diagram of a Protozoa. 5
Differentiate Kingdom Protista from Kingdom Fungi (any two points)

OR

a) Write the difference between Chronic and Acute diseases with examples.
b) Name any one infectious disease with the pathogen
c) Write the major symptoms shown by a person whose lungs are affected by a disease.

SECTION E

22. a) The density of aluminium is 2700 kgm-3. What does it mean? Calculate the density of aluminium in CGS system. 2

OR

b) In the experiment, to determine the density of a given solid (denser than water) by using a spring balance and a measuring cylinder, a student made the following.
Mass of solid = 120 g
Initial reading of water level in measuring cylinder = 45 mL
Final reading of water level in measuring cylinder = 69 mL

On the basis of these observations what should be the density of a given solid?

23. In the experiment, to verify the laws of reflection of sound, the tube facing the clock makes an angle equal to 40° with the reflecting surface. What will be the position of the sound tube with respect to the normal, at which the ear will get the best reflected sound? 2

24. State any two observations when Iron nail is dipped in Copper Sulphate solution? 2

OR

What will you observe when Zinc granules is added to dil.sulphuric acid?

25. a) What are homogeneous and heterogeneous mixtures? 2
b) Classify the following into homogeneous and heterogeneous mixtures;
(i) Milk (ii) sugar in water

26. While studying animal tissues, a student observed two different slides of involuntary and voluntary muscles. How can he/she identity them. Write any two features which differentiate them. 2

27. Write any two-point difference between the dicot and monocot plant you observe, if you are given the plant parts above the soil. 2

OR

Write any two distinguishing features of the following organisms
a) Pigeon
b) Spirogyra

End of the Question Paper

Roll Number		

SET C

INDIAN SCHOOL MUSCAT
FINAL TERM EXAMINATION
SCIENCE

CLASS: IX | Sub. Code: 086 | Time Allotted: 3 Hrs

18.02.2019 | Max. Marks: 80

General Instructions:

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(viii) Question numbers 22 to 27 in Section- E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

SECTION A

1. Mention any two factors responsible for the loss of grains during storage. 1

2. What are the desirable agronomic characters of fodder crops? 1

SECTION B

3. Write any two causes of water pollution. 2

4. a) (i) Under what condition(s) is the magnitude of average velocity of an object equal to its average speed? 2
   (ii) What does the speedometer of an automobile measure?

   OR

   b) (i) When will you say a body is in non -uniform acceleration?
   (ii) The velocity –time graph of a body is a straight line parallel to the time axis. What does it signify

5. Write any two similarities and two dissimilarities among the organisms belonging to class Nematoda and Annelida. 2

SECTION C

6. a) What happens to the force between two objects, if the masses of both objects are doubled? 3
b) Why does a block of plastic released under water come up to the surface of water?
c) Why does a needle have a sharp tip?

7. Draw velocity- time graph for a body that has initial velocity 'u' and is moving with uniform acceleration 'a'. Use it to derive $S = ut + \frac{1}{2} a t^2$. 3

8. a) How are the wavelength and frequency of a sound wave related to its speed? 3
b) Distinguish between loudness and intensity of sound.
c) Why are the ceilings of concert halls curved?

OR

a) Why is sound wave called a longitudinal wave?
b) Which characteristic of the sound helps you to identify your friend by his voice while sitting with others in a dark room?
c) How is ultrasound used for cleaning?

9. Define negative work. Explain with an example. 3
Write the relationship between SI unit and commercial unit of electrical energy.

10. a) Define evaporation? Write any two factors affecting evaporation? 3
b) Convert the following temperature into Kelvin scale:
(i) 25^0C (ii) 0^0C

11. a) What mass of silver nitrate will react with 5.85g of sodium chloride to produce 14.35g of silver chloride and 8.5g of sodium nitrate if the law of conservation of mass is true? 3
b) Write the chemical formula and name of the compound formed by the combination of NH_4^+ and CO_3^{2-}
c) Calculate the number of atoms in 0.1 mole of carbon atoms.

OR

a) Give the symbols of Iron and Zinc
b) What are polyatomic ions? Give an example.
c) Define atomic mass unit.

12. a) What is the electronic configuration and number of electrons in the outermost shell of Chlorine atom(Atomic number=17) 3
b) Write any two postulates of Bohr Model of an atom.

13. Why in plant cells, vacuoles are filled with cell sap? Name the substances present in the cell sap. 3
Write any one role played by vacuoles in some unicellular organisms.

14. Differentiate the different meristematic tissues in plant body. 3

OR

While demonstrating Osmosis, one peel of Rheo leaf is kept in water and another peel is kept in strong sugar solution. What can you observe after few minutes? Write the observations in both cases with suitable reason.

15. Differentiate Inter-cropping and crop rotation. Write one benefit for each method. 3

SECTION D

16. a) (i)State the law of conservation of energy. 5
(ii) Prove the conservation of energy in the case of a freely falling object.
(iii) What are the various energy transformations that occur when you are riding a bicycle?

OR

b) (i) Define kinetic energy . Obtain an expression for kinetic energy possessed by an object of mass m, moving with velocity v.
(ii) Can kinetic energy of an object be negative? Give reason.
(iii) An object of mass m is moving with a constant velocity v. How much work should be done on the object to bring it to rest?

17. a) State Newton's Second law of motion. 5
b) Road accidents at high speeds are worse than accidents at low speeds .Why?
c) Define impulse.
d) A force of 2N acting on a body changes its velocity uniformly from 2 m/s to 5 m/s in 10 s. Calculate the mass of the body.
e) A heavy body and a lighter body have same momentum .Which of these is travelling faster?

18. a)Differentiate between solutions, suspensions and colloids based on the following: 5
(i) transparency (ii) stability (iii) filtration
b) Define element and compound.
c) Categorize the following into elements and compounds: Sodium, soil, air, water

OR

a) Name the appropriate methods for the separation of the following:
(i) Common salt and ammonium chloride (ii) Iron filings from sulphur powder
(iii) Dye from ink (iv) separation of cream from milk
b) How would you separate the gases present in the air?

19. a) If K and L shells of the atom of an element are full, then, 5
(i) Identify the element?
(ii) What would be the total number of electrons in the atom?
(iii) Draw the schematic atomic structure of the atom.
b) Name the element whose isotope is used in the treatment of cancer.
c) Helium atom has mass number 4 and atomic number 2:
(i) How many neutrons does it have?
(ii)Where is neutron located in an atom?

20. a) Write the importance of Ozone layer. 5
b) What is biological nitrogen fixation? Name two microorganisms involved in this process.
c) Mention the process by which carbon is incorporated into life forms.
d) What is Green House Effect?

21. a) How can we control weeds in the cultivated field? 5
b) Write any one local variety and foreign variety of honey bee.
c) Mention any one advantage and disadvantage of composite fish culture.

d) Write any two factors for which variety improvement is done.

OR

a) Write the difference between Chronic and Acute diseases with examples.
b) Name any one infectious disease with the pathogen.
c) Write the major symptoms shown by a person whose lungs are affected by a disease.

SECTION E

22. a) In the experiment, to determine the density of a given solid (denser than water) by using a spring balance and a measuring cylinder, a student made the following. 2
Mass of solid = 120 g
Initial reading of water level in measuring cylinder = 45 mL
Final reading of water level in measuring cylinder = 69 mL

On the basis of these observations what should be the density of a given solid?

OR

b)Define relative density of a substance. Relative density of silver is 10.8. What is the density of silver in SI units?

23. In the experiment, to verify the laws of reflection of sound, the tube facing the clock makes an angle equal to 40° with the reflecting surface. What will be the position of the sound tube with respect to the normal, at which the ear will get the best reflected sound? 2

24. a) (i) What do you observe when dil.sulphuric acid is added to zinc granules? 2
(ii) What is the colour of the substance formed when magnesium ribbon is ignited?

OR

b) (i)How will you separate dissolved sugar from a solution of sugar in water?
(ii) Write one disadvantage of evaporation over crystallization.

25. Classify the following into homogeneous and heterogeneous mixtures: 2
(i) milk (ii) salt in water (iii) paint (iv) copper sulphate in water

26. Write any two distinguishing features of the following organisms 2
a) Pigeon
b) Spirogyra

27. While studying animal tissues, a student observed two different slides of involuntary and voluntary muscles. Write any two features which differentiate them. 2

OR

Write any two-point difference between the dicot and monocot plant you observe, if you are given the parts of the plants above the soil belonging to both the types.

End of the Question Paper