

**NAVODAYA VIDYALAYA SAMITI**  
**TERM-END EXAMINATION-2021-22**  
**CLASS-VII (SCIENCE)**

**TIME: 3hrs**

**M.M:80**

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**General instructions:**

Read the following instructions very carefully and strictly follow them:

- i) This question paper comprises four sections – A, B, C and D. There are 30 questions in the question paper. All questions are compulsory
- ii) SECTION A : Question no 1 to 8 are Competency Based Questions. Each question consists of 5 sub questions each carrying one mark. These questions comprise Multiple Choice Questions (MCQ) , very short answer type questions. Answer to these questions should be given in one word or one sentence.
- iii) SECTION B : Questions 9 to 16 consists of Mental Ability and Logical Reasoning questions, carrying one mark each. Answer to these questions should be given in one sentence .
- iv) SECTION C : Questions 17 to 28 consists of short answer questions , carrying 2 marks each. Answer to these questions should not exceed 30 to 40 words.
- v) SECTION D : Questions 29 & 30 consists of long answer questions , carrying 4 marks each. Answer to these questions should not exceed 80 to 100 words.
- vi) Additional 30 minutes will be provided to the students appearing in online mode.

**SECTION-A**

**TEST ITEM-1**

In the cell, the food(glucose) is broken down into carbon di oxide & water using oxygen. Food can also be broken down, without using oxygen. There are some organisms that can survive in absence of air like yeast. Our muscle cells can also respire without using oxygen, but only for short time such as when there is a temporary deficiency of oxygen and the demand of oxygen is high such as during heavy exercise, fast running, cycling, walking for many hours or heavy weight lifting. But the supply of oxygen to produce the energy is limited. The partial break down of glucose inside our muscle cells produces lactic acid but when the supply of oxygen increases it results in complete breakdown of lactic acid into carbon di oxide and water.

Q1.1. In which type of respiration does the food(glucose) breaks down into carbon di oxide and water using oxygen?

- a) Aerobic respiration
- b) Anaerobic respiration
- c) Both a & b
- d) None of these

Q 1.2. Which type of respiration is observed in Yeast?

- a) Aerobic respiration
- b) Anaerobic respiration
- c) Both a & b
- d) None of these

Q1.3. Which of these activities that can cause our muscle cells to respire in absence of oxygen?

- a) Reading a book.
- b) Lifting a heavy weight.
- c) Practicing yoga.
- d) Writing with a pen.

Q1.4. Why do we get muscle cramps after heavy exercise?

- a) due to availability of glucose
- b) due to accumulation of lactic acid
- c) due to excess amount of oxygen in the cells
- d) None of these

Q1.5. Why do we get relief from muscle cramps after a hot water bath or a massage?

- a) It improves circulation of blood
- b) Increases supply of oxygen to the muscles
- c) Releases muscle tightness
- d) All of these

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### **TEST ITEM-2**

Blood is a fluid connective tissue that flows in the blood vessels. It flows through a network of tubes called the blood vessels. The important components of blood are: Plasma-It is pale yellow in colour and forms about 55% of the blood. It contains water, salts, digested food and waste products which is carried from one part to the other part in the body. Blood cells: Three important types of blood cells are there which forms about 45% of the blood. These are the red blood cells (RBCs), the white blood cells (WBCs) and the platelets. Each of these blood cells has a definite function to perform. While the RBCs help to carry oxygen and carbon dioxide to different parts of the body, the WBCs helps to fight against infection and protect us from diseases. They eat up germs and helps to make antibodies that can fight infections

.They can change their shape and can move on their own .The platelets are colourless ,small, irregular shaped cells which helps the blood to clot when there is a cut or wound.

Q2.1. Which among the following contains haemoglobin?

- a) WBCs
- b) RBCs
- c) Platelets
- d) All of these

Q2.2. What will happen if there is low haemoglobin content in the blood?

- a) The blood will become blue-green in colour.
- b) Transportation of oxygen and carbon dioxide to and from cells will be affected.
- c) Blood will clot.
- d) The person will not survive

Q2.3. Which type of blood cells are responsible for clotting of blood?

- a) Platelets
- b) WBC
- c) RBC
- d) All of these

Q2.4. Which type of blood cells are responsible for fighting against infection and protection from diseases?

- a) RBC
- b) WBC
- c) Platelets
- d) All of these

Q2.5. Why are WBCs unable to transport oxygen and carbon dioxide ?

- a) because they are white in colour.
- b) because they have nucleus.
- c) because they don't have haemoglobin
- d) None of these

Seed dispersal is a type of adaptation in seed bearing plants in which the seeds are transported to distant places away from their parents to ensure survival by adapting to new places, to avoid competition and for proper germination. The seeds can be dispersed by means of wind, water, different animals and birds, gravity and explosion. The seeds which are dispersed by wind are generally very light weight and may have hair or wing like structures. Seeds dispersed by water usually have floating ability and are found near water bodies. Seed which are dispersed by animals and birds may have hook like structures so that they can get attached with the animal fur and carried away to far off places. Some seeds are dispersed when the animal or bird eat away the entire fruit and the fleshy or the juicy part is digested in their body while the seed is excreted out in the form of their droppings which then form new plants. The seeds which are dispersed by gravity generally fall from the plant due to gravitational pull and may roll down or get buried in the soil or may be eaten by some animal and get dispersed. Explosions in fruits literally refer to bursting with all its energy. In this case, as the fruits get ripened, it shoots out its seeds into the external environment. This type of seed dispersal is mainly seen in those plants having pods.

Q3.1. Which of these factor will be responsible for seed dispersal in seed bearing plants?

- a) Abiotic factors
- b) Biotic factors
- c) Both a & b
- d) None of these

Q3.2. What is the process of dispersion of seeds away from the main parent plant ?

- a) Seed fertilisation
- b) Seed dispersal
- c) Seed germination
- d) All of these

Q3.3. Which of these seeds will disperse through the process of explosion?

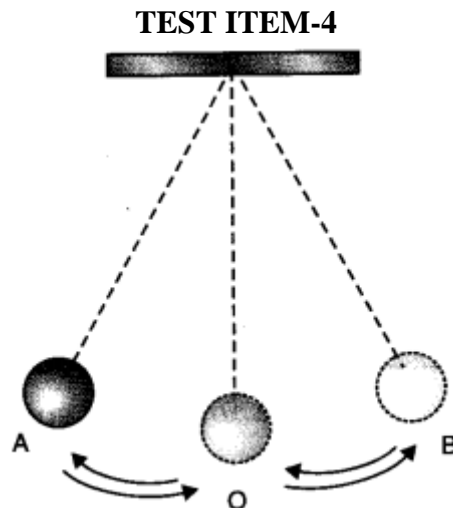
- a) Drum stick
- b) Castor
- c) Xanthium
- d) Coconut

Q3.4. How are the seeds having spines and hooks dispersed?

- a) By the help of wind
- b) By the help of water
- c) By explosion
- d) By attaching to the animal body.

Q3.5. Why do seeds need to disperse?

- a) For survival
  - b) For avoiding competition
  - c) For germination
  - d) All of these
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A simple pendulum consists of a small metal ball called bob which is suspended by a long thread from rigid support such that bob is free to swing back and forth. The to and fro motion of a simple pendulum is an example of periodic or oscillatory motion. Galileo was the first person to study the motion pendulum.

Galileo experimented with various pendulums to verify his observation. He found that a pendulum of a given length always takes the same time to complete one oscillation. This observation led to the development of pendulum clocks. Winding clocks and wristwatches were refinements of the pendulum clocks.

A pendulum completes every swing or every oscillation in exactly the same time provided its length should be kept constant. The pendulum is said to have completed one oscillation when its bob starting from its mean position O, moves to A, to B and back to O. The pendulum also completes one oscillation when its bob moves from one extreme position A to the other extreme position B and come back to A. So, the time taken by the pendulum to complete one oscillation is called its time period. The time period of a pendulum depends on its length. The length of a pendulum is the length of thread from the point of suspension to the centre of the bob.

Q4.1 The time period of a simple pendulum is the time taken by it to travel from :

- a) A to B and back to A
- b) O to A, A to B and B to A
- c) B to A, A to B and B to O

d) A to B

Q4.2. A simple pendulum takes 24 seconds to complete 10 oscillations. The time period of the pendulum

will be:

- a) 1.2 s
- b) 4.8 s
- c) 2.4 s
- d) 1.8 s

Q4.3. A pendulum of a given length will always take the same time to complete one oscillation.

- a) True
- b) False

Q4.4. Two different pendulums having different lengths will have same time period.

- a) True
- b) False

Q4.5. The to and fro motion of a simple pendulum is an example of:

- a) Rectilinear motion
- b) Circular motion
- c) Oscillatory motion
- d) None of these

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#### **TEST ITEM-5**

Wires made from some special materials melt quickly and break when large electric currents are passed through them. These wires are used for making electric fuses. In all buildings fuses are inserted in all electrical circuits. There is a maximum limit on the current which can safely flow through a circuit. If by accident the current exceeds this safety limit, the wires may become overheated and may cause fire. If a proper fuse is there in the circuit it will blow off and break the circuit. A fuse is thus a safety device used to prevent damages to electrical circuits and possible fires by breaking the electric circuit.

Q5.1. Which effect of electric current is responsible for the working of an electric fuse?

- a) Magnetic effect of electric current
- b) Heating effect of electric current
- c) Chemical effect of electric current

d) All of these

Q5.2. Which special material(alloys) are used for making electrical fuse wires?

- a) Copper & tin
- b) Copper & lead
- c) Lead & tin
- d) Aluminium & tin

Q5.3. Which of these physical properties should a fuse wire have?

- a) High melting point & low resistance
- b) Low melting point & low resistance
- c) High melting point & high resistance
- d) Low melting point & high resistance

Q5.4. What causes excessive current in the electrical circuits?

- a) Direct touching of the live wire with the neutral wire.
- b) Connection of many devices in a single socket .
- c) Both a) & b)
- d) None of these

Q5.5. In which of these wires will you connect an electric fuse?

- a) Live wire.
- b) Neutral wire.
- c) Both a & b.
- d) None of these.

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### **TEST ITEM-6**

A stainless steel spoon has two highly polished curved surfaces which acts like spherical mirrors. These surfaces can be used to study the nature of images obtained by spherical mirrors. When we take the inner curved side of the spoon it acts like a concave mirror while its outer curved surface acts like a convex mirror.

Spherical mirrors are a good example of curved mirrors. Spherical mirrors are actually part of a hollow and virtual sphere from which the mirrors are being carved out. We can obtain real as well as virtual images using spherical mirrors. Real images are always inverted while virtual images are always erect.

Concave and convex mirrors have a variety of applications in our daily life.

Q6.1. What will be the nature and size of the image when we bring the outer side of a spoon very near

to our face and look into it ?

- a) Virtual ,inverted & same size.
- b) Real , inverted and smaller in size than the object.
- c) Virtual ,erect & magnified
- d) Virtual ,erect and smaller in size than the object.

Q6.2. When you look into the inner side of a spoon and increase the distance of the spoon from your face,

which of the following image will you obtain?

- a) Real & inverted image
- b) Virtual & erect image
- c) Real & erect image
- d) Virtual & inverted image

Q6.3. Which of these uses concave mirrors?

- a) Headlights of cars & scooters
- b) Reflectors of torches
- c) Mirrors used by dentists
- d) All of these

Q6.4. Which of these mirrors will help a driver to see the traffic behind them by spreading the images over

a large area?

- a) Plane mirrors
- b) Concave mirrors
- c) Convex mirrors
- d) All of these

Q6.5. Which of these mirrors will be able to form a real image on the screen?

- a) Plane mirror
- b) Concave mirror
- c) Convex mirror
- d) All of these



We celebrate the **world water day** to attract the attention of everyone towards the importance of water. The amount of water recommended by the United Nations for drinking, washing, cooking and maintaining proper hygiene is a minimum 50 litres per person per day.

There are millions of people in our country do not get enough water. In some places there is an acute shortage of water. Taps run dry ,long queues for water, fights, marches and protests for demand of water have become a common sight specially during summers. Water shortage has become a matter of concern throughout the world. It is estimated that a few years from now more than one third of the people could face water scarcity. The water that is available in our planet is contained in the seas and oceans, rivers, lakes ice caps, as ground water and in the atmosphere. Most of which is not fit for direct human consumption. The water that is fit for use is the fresh water and its percentage is very less .

Q7.1.What is the amount of water recommended per person per day by the United Nations?

- a) 55 litres.
- b) 25 litres
- c) 50 litres
- d) 50.5 litres

Q7.2. On which day do we celebrate the World Water Day?

- a) 22 September
- b) 22 March
- c) 22 April
- d) 22 August

Q7.3.Which of these statements is not showing shortage of water?

- a) Long queues for fetching water.
- b) Marches and protests for demand of water.
- c) 50 litres of water per person per day.
- d) Taps running dry.

Q7.4. "Save water save life" is a slogan related to:

- a) Save water
- b) Importance of life
- c) Importance of water for life
- d) All of these

Q7.5. Which of the following does not allow the seepage of rainwater into ground?

- a) A cemented floor
- b) Playground
- c) garden

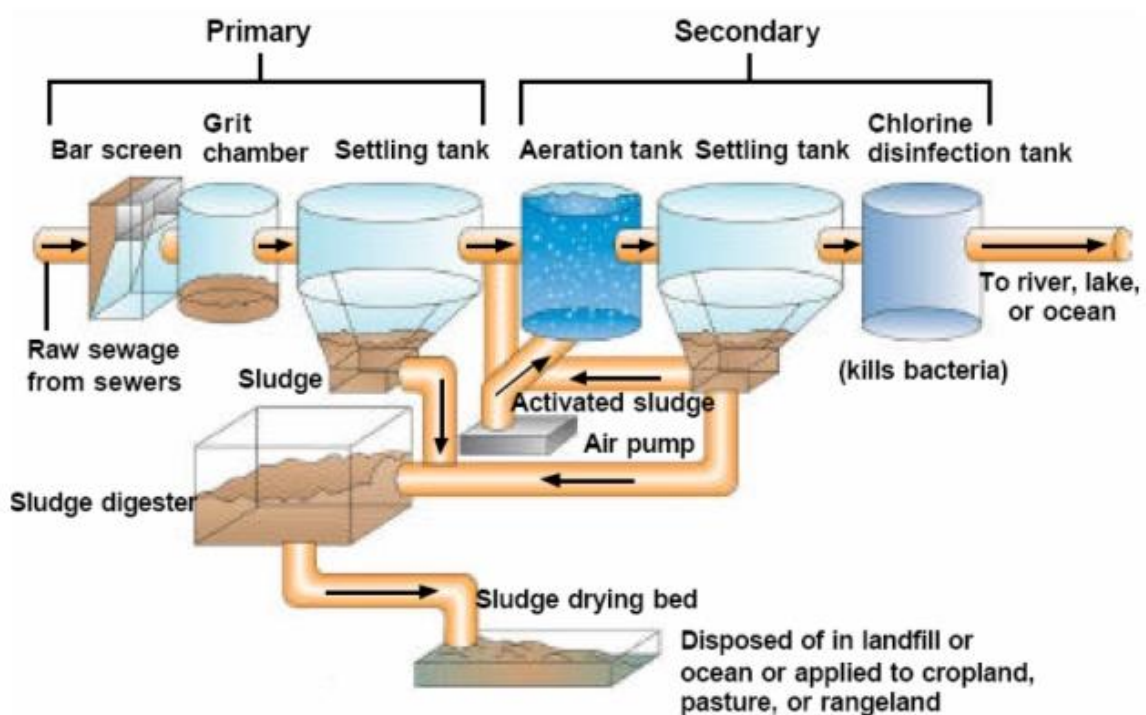
d) Forest floor

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### TEST ITEM-8

Treatment of wastewater involves physical, chemical, and biological processes, which remove physical, chemical and biological matter that contaminates the wastewater. Observe the figure given below and answer the following questions:



Q8.1. Which one of the following is waste water?

- a) Water dripping from a rooftop during rainfall and falling in a tank.
- b) Water flowing down the drain after washing dishes in a kitchen.
- c) Water flowing in a river.
- d) Water leaking from a damaged tap.

Q8.2. Which one of these is a product of waste water treatment?

- a) Biogas
- b) Sludge
- c) Both a & b
- d) None of these

Q8.3. Which one of these are the inorganic impurities present in waste water?

- a) Nitrates
- b) Phosphates
- c) Metals
- d) All of these

Q8.4. Which one of these chemical is used to disinfect water?

- a) Urea
- b) Silica gel
- c) Chlorine
- d) Coal

Q8.5. Which one of these is not a source of waste water?

- a) Hospitals
  - b) Factories
  - c) Laundries
  - d) Sewers
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### **SECTION-B**

Q9. In a bakery the baker was making bread. He added a pinch of yeast and sugar to the dough and left it in a warm place. After few hours the dough had risen. Why did the dough rise?

Q10. Why do arteries have very thick and elastic wall?

Q11. Why is the process of pollination necessary before fertilisation in flowering plants?

Q12. Two cars "X" and "Y" cover different distance to reach a given place but takes same time to reach there. What can you say about their speed?

Q13. Seema made an electromagnet by winding 60 turns of wire over an iron screw. Her brother Ankur also made an electromagnet by winding 120 turns over a similar iron screw. Which electro magnet will attract more pins? Give reason.

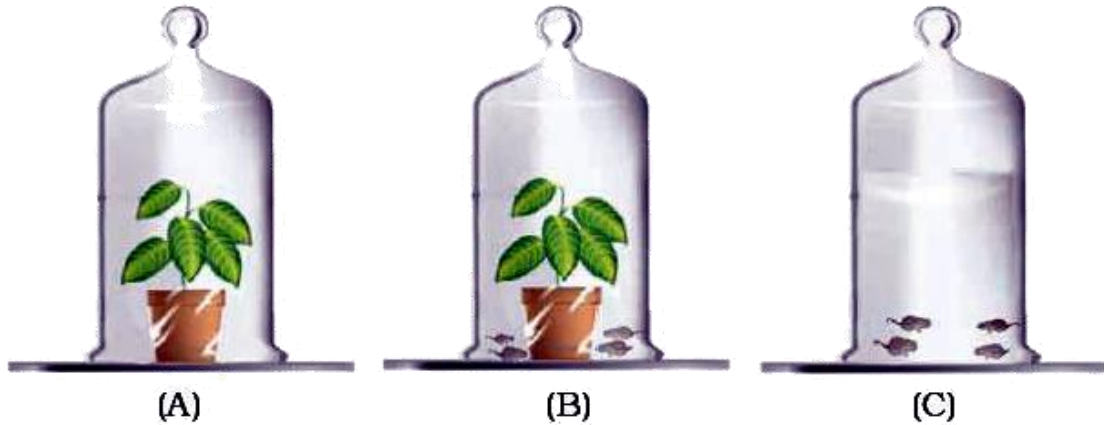
Q14. Payel made light from a laser torch to fall on a prism. Will she be able to observe a band of seven colours ? Explain with a reason.

Q15. Raju while moving in a forest observed that there was no noise pollution, though lots of heavy vehicles were passing from the nearby highway. Explain why?

Q16. Why should we not throw cooking oil and fats down the drain?

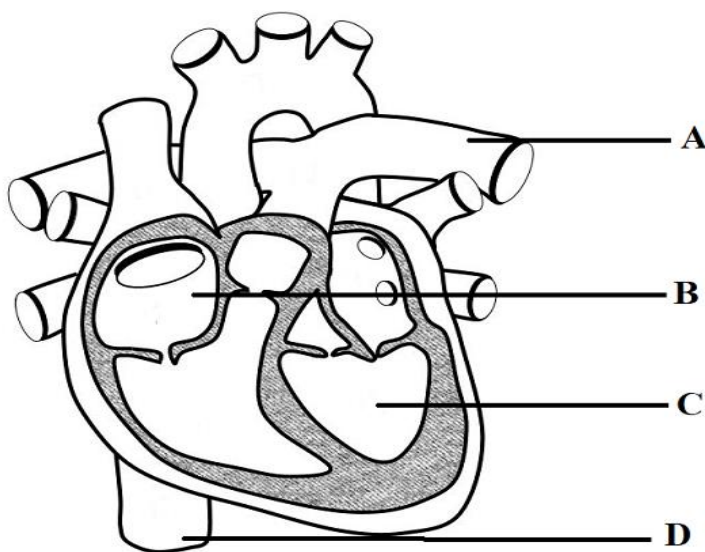
**SECTION-C**

Q17. Observe the diagram and answer the question that follows:



In jar A a potted plant is kept, in jar B a potted plant along with 4 mice have been kept and in jar C only 4 mice have been kept. In which of these jar will the amount of CO<sub>2</sub> be maximum? Why?

Q18. The figure given below shows a cross-sectional view of the human heart. Identify the parts marked as A, B C & D respectively.



Q19. Mention the type of asexual reproduction shown by the following organisms:

- a) Spirogyra
- b) Fern
- c) Yeast
- d) Bryophyllum

Q20. The distance between two stations is 360 km. A train takes 6 hours to cover this distance. Calculate the speed of the train.

Q21. Plot a **distance- time** graph using the data given below and also mention the type of motion shown by the graph.

<b>Distance(Km)</b>	<b>0</b>	<b>50</b>	<b>100</b>	<b>150</b>	<b>200</b>
<b>Time(hr)</b>	<b>0</b>	<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>

Q22. Draw the symbols of the following circuit components.

- (i) electric cell    (ii) switch in off position    (iii) electric bulb    (iv) battery of two cells

Q23. If you are given three mirrors of different types. How will you identify them as plane, concave and convex mirror. ?

Q24. You have been asked to maintain a garden. How will you minimise the use of water? Mention any two ways. ?

Q25. List any four differences between a concave lens and a convex lens.

Q26. Mention any four factors responsible for the depletion of water table.

Q27. List two important roles of the decomposers in the forest.

Q28. When the current is switched on through a wire, a compass needle kept nearby gets deflected from its north-south position. Explain.?

### **SECTION-D**

Q29. While travelling to a relative's place in a village, Ravi saw that people still are defecating in the open grounds or on railway tracks. He along with his friend met the head of village panchayat and discussed with him about this issue and arranged for an awareness programme to make the village people aware about the health hazards of untreated human excreta and ways to dispose sewage in a proper and systematic way. .

- a) What are the health hazards for untreated human excreta?
- b) Name any two diseases caused due to contaminated water.

Q30 . One day Mahi went for a picnic with his parents near a forest . She saw a message written on a tree trunk-



Mahi was confused and asked her father about the message written on the tree trunk..

Her father told her about the importance of trees.

Why are trees important for us? Give reason for your answer.