# DAV BR PUBLIC SCHOOL, BINA SESSION 2023-24 Half Yearly Examination PRACTICE PAPER

Class X Time Allowed: 3hrs Subject Science MM: 80

General Instructions:

(a) This question paper consists of 39 questions in 5 sections.

- (b) All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- (c) Section A consists of 20 objective type questions carrying 1 mark each.
- (d) Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- (e) Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- (f) Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.
- (g) Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

#### **SECTION - A**

# Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

- In one of the industrial processes used for manufacture of sodium hydroxide, 1

   a gas X is formed as by-product. The gas X reacts with lime water to give a
   compound Y which is used as a bleaching agent in chemical industry. The
   compound X and Y could be:
  - (a) H<sub>2</sub>and NaHCO<sub>3</sub>respectively
  - (b) CO<sub>2</sub>and CaOCl<sub>2</sub>respectively
  - (c) Cl<sub>2</sub>and CaOCl<sub>2</sub>respectively
  - (d) Cl<sub>2</sub>and NaHCO<sub>3</sub>respectivel
- Which among the following is (are) double displacement reaction(s)?
  (i) Pb + CuCl → PbCl<sub>2</sub> + Cu

HY- PP/Class X/ Science

	(ii) Na <sub>2</sub> SO <sub>4</sub> + BaCl <sub>2</sub> $\rightarrow$ BaSO <sub>4</sub> + 2NaCl	
	(iii) C + O <sub>2</sub> $\rightarrow$ CO <sub>2</sub>	
	(iv) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$	
	(a) (i) and (iv)	
	(b) (ii) only	
	(c) (i) and (ii)	
	(d) (iii) and (iv)	
3.	An aqueous solution turns red litmus solution blue. Excess addition of which	1
	of the following solution would reverse the change?	
	(a) Baking Powder	
	(b) Lime	
	(c) Ammonium Hydroxide Solution	
	(d) hydrochloric Acid	
4.	Methyl orange is	1
	(a) Pink in acidic medium, yellow in basic medium	
	(b) Yellow in acidic medium, pink in basic medium	
	(c) Colourless in acidic medium, pink in basic medium	
	(d) Pink in acidic medium, colourless in basic medium.	
5.	Which of the following Hormone is given out by Pancreas	1
	a) Growth hormone and ADH b) Actin ,Myosin	
	c) Cutin, fats d) Insulin, Glucagon	
6.	Which of the following Plant hormone works on increasing the intermodal	1
	length of the sugarcane?	
	e) ABA f) Cytokinin	
	g) GA h) Auxin	
7.	At noon the sun appears white as	1
	a) light is least scattered	
	b) all the colours of the white light are scattered away	
	c) blue colour is scattered the most	
	d) red colour is scattered the most	
8.	Which of the following is called the functional unit ofLungs?	1
	a) Neuron b) Nephron c) Alveoli d) All of the above	
9.	Which part of alimentary canal has oxyntic cells and Peptic cells	1
	HY- PP/Class X/ Science Page 2 of 7	

	a) Large Intestine b) Stomach	
<b>10</b> T	c) Small intestine d) Oesophagus	1
10. 1	i Dengin digasta Maltaga	T
	i. Truncin digests Mattose	
	ii. Lingge directe Chappe	
1	in. Lipase digests Glucose.	
	iv. Nucleases digests fats	
<b>11.</b> F	Pancreatic juice and juices from Liver is sent to intestine through	1
(4	a) Bile duct (b) Pancreas (c) Diaphragm (d) Oesophagus	
<b>12.</b> V	Which of the following is often referred to as food pipe?	1
	a) Stomach b) Oesophagus c) Intestine d) Bile duct	
<b>13.</b> 1	The radius of curvature of a convex mirror is 30 cm. At what distance from the	1
ľ.	mirror should an object be placed so as to obtain a virtual image?	
	a) Infinity b) 30 cm	
	c) Between 15 cm and 30 cm d) Anywhere in front of mirror	
<b>14.</b>	A full length image of a distant tall building can definitely be seen by using	1
	a) a concave mirror b) a convex mirror	
	c) a plane mirror d) both concave as well as plane mirror	
<b>15.</b> V	Which of the following chemical is used initially to demonstrate that the	1
e	exhaled air contains Carbon di oxide	
	a) KOH b) KCL c) NAOH d) CaO	
<b>16.</b> V	Which one of the following hormone helps in proper metabolism of all	1
t	piomolecule	
	a) Acetylecholine b) Thyroxene c) Serotonin d) Oestrogen	
Q. no	o 17 to 20 are Assertion - Reasoning based questions.	
These	e consist of two statements – Assertion (A) and Reason (R). Answer these	
quest	tions selecting the appropriate option given below:	
	(a) Both A and R are true and R is the correct explanation of A	
	(b) Both A and R are true and R is not the correct explanation of A	
	(c) A is true but R is false	
	(d) A is False but R is true	
<b>17.</b> A	Assertion(A): The reaction of calcium with water is less violent in comparison	1
t	to that of sodium.	
F	Reason(B): The heat evolved is not sufficient for the hydrogen to catch fire.	
HY-	- PP/Class X/ Science Page <b>3</b> of <b>7</b>	

18.	Assertion(A): Amoeba reproduces asexually by the process of Binary fission .	1
	Reason(B) : Amoeba is a multicellular organism.	
19.	Assertion(A): The size of the mirror affects the nature of the image.	1
	Reason(B): Small mirrors always form virtual images.	
20.	Assertion(A):Respiration only takes place in Mitochondrial matrix .	1
	Reason(B): Cellular Respiration is important for generation of ATP.	
	SECTION – B	
Q. 1	no. 21 to 26 are very short answer questions.	
21.	Draw a well labelled diagram of aStomatal apparatus.	2
22.	Write the preparation and uses of baking soda	2
	OR	
	How plaster of Paris is prepared from gypsum. Write chemical equations. Write	
	uses of plaster of Paris	
23.	(a) When fresh milk is changed into curd will its pH value increase or	2
	decrease? Why?	
	(b) What are olfactory indicators? Give an example.	
24.	Absolute refractive indices of water and glass are $4/3$ and $3/2$ respectively.	2
	(i) In which one of the two media is the speed of light less ?	
	(ii) If a ray of light enters obliquely from water to glass, will it bend towards the	
	normal or away from the normal ?	
25.	Why there is no dispersion of light refracted through a rectangular glass slab.	2
	OR	
	What is meant by near point and far point of an eye? State their values of the	
	normal human eye.	
26.	Explain the steps of digestion of Lipids only in your body in a tabular form at	2
	various sites/juice, enzyme required along with substrate and product.	
	SECTION - C	
Q.n	o. 27 to 33 are short answer questions	
27.	Draw a neat diagram of showing Binary fission in any two types of Organism.	3
28.	List down and Explain briefly the role of all Growth Promotors (PGR)	3
29.	Write down only the procedure and reaction of an experiment that	3
	Chlorophyll is important for the process of Photosynthesis.	
30.	Explain in brief the steps of transportation of food and water in Plants.	3
31.	Size of image of an object by a mirror having a focal length of 20 cm is	3
	observed to be reduced to 1/3rd of its size. At what distance the object has	

HY- PP/Class X/ Science

been placed from the mirror? What is the nature of the image and the mirror?

32. Write the balanced chemical equation for the following reactions and identify 3 the type of reaction in each case.

(a) In Thermite reaction, iron (III) oxide reacts with aluminium and gives molten iron and aluminium oxide.

(b) Magnesium ribbon is burnt in an atmosphere of nitrogen gas to form solid magnesium nitride.

(c) Chlorine gas is passed in an aqueous potassium iodide solution to form potassium chloride solution and solid iodine.

33. (a) A student cannot see distinctly the charts hanging in the science laboratory. Name the defect of vision he/she is suffering from. List two causes of this defect. Suggest the type of lenses for the modification of this defect. 2 OR

(b) A person cannot see distinctly the objects placed at the least distance of distinct vision for a normal eye. However, he can easily read a newspaper by placing it at a distance of 40 cm from his eyes. Name the defect of vision in this case. List its two causes. Suggest the type of lenses for his spectacles.

### **SECTION - D**

# Q.no. 34 to 36 are Long answer questions.

- **34.** A thin converging lens forms a:(i) real magnified image (ii) virtual magnified image of an object placed in front of it.
  - (a) Write the positions of the objects in each case.
  - (b) Draw labelled diagrams to show the image formation in each case.
  - (c) How will the following be affected on cutting this lens into two halves along the principal axis?
    - i. focal length,
    - ii. intensity of the image formed by half lens.

#### OR

A 5 cm long pencil is placed 15 cm in front of a concave mirror having a radius of curvature of 40 cm.

(i) Determine the position of the image formed by this mirror.

(ii) What is the size of the image?

(iii)Draw a ray diagram to show the formation of the image as mentioned in the part (i).

**35.** a.Write down names of any three exocrine gland that is functional in your **5** 

3

body and list down any one enzyme secreted by these gland with their specific function.

b. Draw a flow chart to show the various ways of combustion of fuel of your body in your each and every cells.

**36.** a) Mention the pH range within which our body works. Explain how antacids give relief from acidity. Write the name of one such antacid.

(b) Fresh milk has a pH of 6. How does the pH will change as it turns to curd? Explain your answer.

(c) A milkman adds a very small amount of baking soda to fresh milk. Why does this milk take a longer time to set as curd?

# OR

Mention the nature of toothpastes. How do they prevent tooth decay? A metal carbonate X on reacting with an acid gives a gas which when passed through a solution Y gives the carbonate back. On the other hand, a gas G that is obtained at anode during electrolysis of brine is passed on dry Y; it gives a compound Z, used for disinfecting drinking water. Identify X, Y, G and

# **SECTION - E**

# Q.no. 37 to 39 are case - based/data -based questions with 2 to 3 short sub - parts. Internal choice is provided in one of these sub-parts.

- 37. We also think about our actions. Writing, talking, moving a chair, clapping at the end of a programme are examples of voluntary actions which are based on deciding what to do next. So, the brain also has to send messages to muscles. This is the second way in which the nervous system communicates with the muscles. The communication between the central nervous system and the other parts of the body is facilitated by the peripheral nervous system consisting of cranial nerves arising from the brain and spinal nerves arising from the spinal cord. The brain thus allows us to think and take actions based on that thinking.
  - i) What are the three major parts of the brain?
  - ii) what are the function of medulla?
  - iii) Which fluid is present in our brain?
  - iv) What is the function of hypothalamus?

- 38. A compound microscope is an instrument which consists of two lenses L<sub>1</sub> and L<sub>2</sub>. The lens L<sub>1</sub> called objective, forms a real, inverted and magnified image of the given object. This serves as the object for the second lens L<sub>2</sub>; the eye piece. The eye piece functions like a simple microscope or magnifier. It produces the final image, which is inverted with respect to the original object, enlarged and virtual.
  - a) What types of lenses must be  $L_1$  and  $L_2$ ?
  - b) If power of the eyepiece  $(L_2)$  is 5 diopters and it forms an image at a distance of 80 cm from its optical centre, at what distance should the object be?
  - c) What is the value and sign of magnification (according to the new Cartesian sign convention) of the image formed by L<sub>1</sub>?

# OR

- c) What is the value and sign of (according to new Cartesian sign convention) magnification of the image formed by L<sub>2</sub>?
- 39. Take solutions of glucose, alcohol, hydrochloric acid, sulphuric acid, etc. n Fix two nails on a cork, and place the cork in a 100 mL beaker. Connect the nails to the two terminals of a 6 volt battery through a bulb and a switch, as shown in. Now pour some dilute HCl in the beaker and switch on the current. Repeat with dilute sulphuric acid. What do you observe? Repeat the experiment separately with glucose and alcohol solutions. What do you observe now? Does the bulb glow in all cases?

Following the above paragraph, answer the following questions;

i) What was the changes occur in case of acids i.eHCl, H2SO4?

- ii) Why do glucose and alcohol do not conduct electricity?
- iii) Why do acids do not show acidic behaviour in absence of water?
- iv) Does rain water or distilled water will conduct electricity?

# OR

Why do aqueous solution of acids conduct electricity?