Indian School Al Wadi Al Kabir
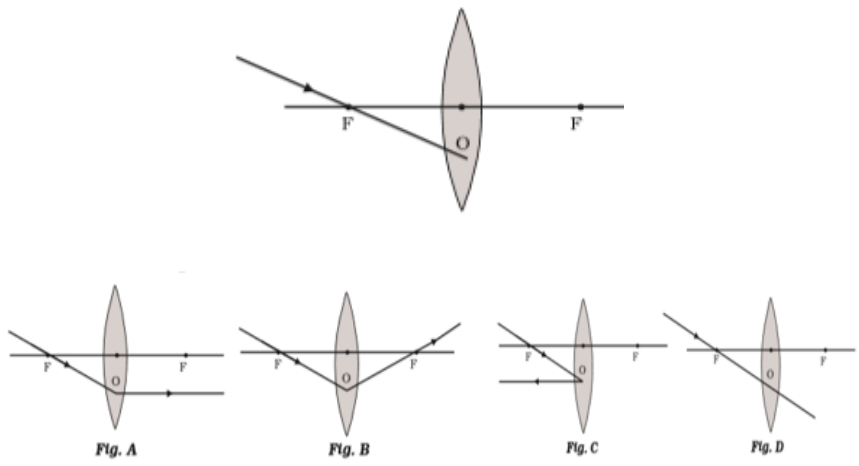## Mid Term Examination
SCIENCE (Code :086)

Class : X

Date : 18.09.2022

Time: 3 Hours

Max. Marks : 80

General Instructions:
i) All the questions are compulsory.
ii) The question paper has five sections and 32 questions.
iii) Section–A has16 questions of 1 mark each; Section–B has 3 case-based questions .Section–C
   has one source based questions of 3 marks.Section–D has 6 questions of 3 marks each and
   Section–E has 6 questions of 5 marks each
iv) Internal choices have been provided in some questions. A student has to attempt only one of
   the alternatives in such questions.

No.	QUESTIONS	MARKS
	SECTION A	
1	Rays from Sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object? (a) 15 cm in front of the mirror (b) 30 cm in front of the mirror (c) between 15 cm and 30 cm in front of the mirror (d) more than 30 cm in front of the mirror	1
2	$Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2 Fe$ The above reaction is an example of: a) Combination reaction b) Double displacement reaction c) Decomposition reaction d) Displacement reaction	1
3	The breakdown of pyruvate to give carbon dioxide, water and energy takes place in____. (a) cytoplasm (b) mitochondria (c) chloroplast (d) nucleus	1

4	Which of the following ray diagrams is correct for the ray of light incident on a lens shown in figure? Fig. A Fig. B Fig. C Fig. D a) Fig. A b) Fig. B c) Fig. C d) Fig. D	1
5	Which of the following statements about the given reaction is / are correct? $3Fe(s) + 4H_2O (g) \rightarrow Fe_3O_4(s) + 4H_2(g)$ (i) Iron metal is getting oxidised. (ii) Water is getting reduced. (iii) Water is acting as reducing agent. (iv) Water is acting as oxidising agent. a) (i), (ii) and (iii) b) (iii) and (iv) c) (i), (ii) and (iv) d) (ii) and (iv)	1
6	The phloem in plants are responsible for (a) transport of water. (b) transport of food. (c) transport of amino acids. (d) both (b) and (c)	1

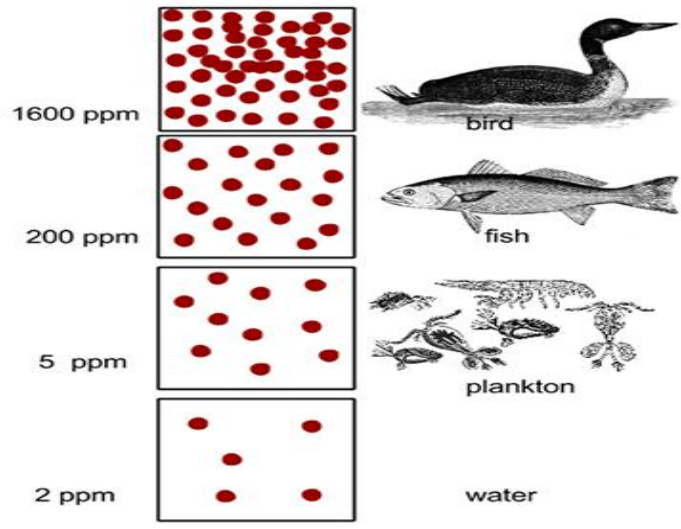| 7	Find the power of a concave lens of focal length 2m.
	  a) -0.5 D
	  b) +0.5 D
	  c) +0.2D
	  d) -0.2D
		1

8	A solution turns red litmus blue, its pH is likely to be
	  a) 1
	  b) 4
	  c) 5
	  d) 10
		1

9	The correct sequence of path of urine is. (a) Kidney→ ureter → urethra→ urinary bladder (b) Kidney → urinary bladder → urethra → ureter (c) Kidney→ ureter → urinary bladder→ urethra (d) Urinary bladder → kidney → ureter →urethra	1

10	The change in focal length of human eye is caused due to
	  a) Ciliary muscles
	  b) Pupil
	  c) Cornea
	  d) Iris
		1

11	Which of the following substances will not give carbon dioxide on treatment with dilute acid?
	  a) Marble
	  b) Limestone
	  c) Baking soda
	  d) Lime
		1

12	Which group of organisms are not constituents of a food chain? (a) Grass, lion, rabbit (b) Plankton, large fish, small fish, zooplankton (c) Wolf, grass, snake, tiger (d) Frog, snake, eagle, grass, grasshopper	1

13	The focal length of the eye lens increases when eye muscles
	  a) are relaxed and lens becomes thinner
	  b) contract and lens becomes thicker
	  c) are relaxed and lens becomes thicker
	  d) contract and lens becomes thinner
		1

14	An element A is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in the air. It reacts vigorously with water. Identify the element from the following
	  a) Mg
	  b) Na
	  c) P
	  d) Ca
		1

15	The ability of a cell to divide into several cells during reproduction in Plasmodium is called (a) budding (b) multiple fission (c) binary fission (d) reduction division	1
16	Least distance of distinct vision for normal eye is (a) 25 cm (b) 50 cm (c) 75 cm (d) infinity	1

SECTION B
(CASE STUDY BASED QUESTIONS)

17	<u>CASE:</u> Myopia is the most common cause of refractive error in children. It is the most common ocular disorder worldwide. Apart from genetic factors, age and environmental factors have also been found to be closely associated as predictors of myopia. Myopia is a major cause of visual disability around the world. In 1972 and 2004, the prevalence of myopia increased from 25% to 44% in the United States, while in Asia, the prevalence is approximately >80%. In 2010, it was noted that the uncorrected refractive error was the major cause of vision impairment. a) In myopia ,light from a distant object converges : 　　i.Before the retina 　　ii.At the retina 　　iii.After the retina 　　iv.At infinity b) What is power of accommodation of an eye? c) Make a ray diagram to show how myopia is corrected by using a suitable lens. d) A person with myopic eye cannot see objects beyond a distance of 1.5 m. What is the power of the lens required to correct the problem?	1 1 1 2
18	<u>CASE:</u> The following diagram displays a chemical reaction. Observe carefully and answer the following questions: Silver chloride a) How will the colour of the salt change? 　　i)　　White to grey 　　ii)　　Grey to white	 1

	iii) White to brownish		
	iv) White to yellowish		
	b) Write the chemical equation of the reaction that takes place.		
	c) Mention one commercial use of silver chloride.	1	
	d) Identify the type of chemical reaction that will take place and define it.	1	
		2	
19	**CASE**: The digestive system is made up of the gastrointestinal tract—also called the GI tract or digestive tract—and the liver, pancreas, and gallbladder. The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus. The hollow organs that make up the GI tract are the mouth, oesophagus, stomach, small intestine, large intestine, and anus. The liver, pancreas, and gallbladder are the solid organs of the digestive system. The small intestine has three parts. The first part is called the duodenum. The jejunum is in the middle and the ileum is at the end. The large intestine includes the appendix, cecum, colon, and rectum. The appendix is a finger-shaped pouch attached to the cecum. The cecum is the first part of the large intestine. The colon is next. The rectum is the end of the large intestine. Bacteria in your GI tract, also called gut flora or microbiome, help with digestion. Parts of your nervous and circulatory systems also help. Working together, nerves, hormones, bacteria, blood, and the organs of your digestive system digest the foods and liquids you eat or drink each day 1. What is the gut flora in the digestive tract of our body? 2. Name the three parts of the small intestine? Which part receives the digested food from the stomach?	1 2	
	SECTION C (SOURCE BASED QUESTIONS)		
20	Biological magnification refers to the process where toxic substances move up the food chain and become more concentrated at each level. These substances are often pollutants from industries or pesticides from farming. An example of biological magnification and its dangers is any small fish that eats plankton that has been tainted with mercury. Hundreds of small fish might then contain just few parts of the mercury, not enough to cause major harm. On the image, the amount of mercury is measured in ppm, which means "parts per million."		

A bird then might eat hundreds of the small fish, so that now instead of 200 ppm in a single fish, that bird has much higher levels of mercury. The toxin amplifies as it moves up the food chain.

Biological magnification caused a crisis with eagles, where DDT was used to control mosquitoes and other pests. Birds would accumulate toxic levels of DDT in their bodies which would cause their eggs to become fragile and break. The eagle almost became extinct, but lawmakers banned DDT and the eagle is now in recovery.

1. Which chemical caused the decline of the eagle population?

2. Based on the claims made in the passage, biological magnification

   is a result of:

   a) pollution   b) climate change   c) food shortages   d) extinction

3. What type of animals are most affected by biological magnification?

SECTION D
(SHORT ANSWER TYPE QUESTIONS)

| 21 | Study the diagram given below and answer the following questions : | 3 |

	   Name the defect of vision depicted in the diagram. List two causes of the defect.	7
22	Define absolute refractive index? The absolute refractive indices of two media 'A' and 'B' are 2.0 and 1.5 respectively .If the speed of light in medium 'B' is 2×10^8 m/s .Calculate the speed of light in : a) Vacuum b) Medium A OR Define the term magnification. The magnification produced by a convex lens is -2 .What is meant by this statement and also write the information regarding the image obtained from it.	3
23	On heating blue coloured powder of copper (II) nitrate in a boiling tube, copper oxide (black) oxygen gas and a brown gas X is formed. (i) Write a balanced chemical equation of the reaction (ii) Identify the brown gas X evolved	3
24	2 ml of sodium hydroxide solution is added to a few pieces of granulated zinc metal taken in a test tube. When the contents are warmed a gas evolves which is bubbled through a soap solution before testing. Write the equation of the chemical reaction involved and the test to detect the gas. Name the gas which will be evolved when the same metal reacts with dilute solution of a strong acid? OR The pH of a salt used to make tasty and crispy, pakoras is 14. Identify the salt and write a chemical equation for its formation. List its two uses.	3
25	a. Why is ozone layer getting depleted at the higher levels of the atmosphere? b. Write two differences between biodegradable and non-biodegradable wastes. OR Construct a grassland food chain showing three trophic levels. If grass has 10000J of solar energy what is the amount of energy available to the third trophic level?	3
26	a. How is the binary fission in amoeba different from that of leishmania? b. What is fragmentation in organisms? Name a multicellular organism which reproduces by this method.	3
SECTION E (LONG ANSWER TYPE QUESTIONS)	
27	A student wants to project the image of a candle flame on the walls of school laboratory by using a lens: (a) Which type of lens should be used and why? (b) At what distance in terms of focal length 'F' of the lens should be placed the candle flame so as to get (i) a magnified, and (ii) a diminished image	5

	respectively on the wall? (c) Draw ray diagram to show the formation of the image in each case? OR (a) Explain the following terms related to spherical lenses : i) optical centre ii) principal axis iii) principal focus (b) A converging lens has focal length of 12 cm. Calculate at what distance should the object be placed from the lens so that it forms an image at 48 cm on the other side of the lens.	8
28	At what distance from a concave lens of focal length 20 cm and 6 cm tall object be placed so as to obtain its image at 15 cm from the lens? Also calculate the size of the image formed. Draw a ray diagram to justify your answer for the above situation and label it.	5
29	(a) What is Plaster of Paris? How is it prepared? Give any two important uses. (b) Identify the acid and base which form sodium hydrogencarbonate. State whether this compound is acidic, basic or neutral.	5
30	Compose an activity to arrange Ca, Mg and Fe metals in the decreasing order of reactivity with water. Write suitable balanced chemical equation. OR What are amphoteric oxides? Give examples of two amphoteric oxides.	5
31	(a) Draw a neat diagram of excretory system of human beings and label the following parts on it: (i) Right Kidney. (ii) Ureter (iii) Urinary bladder (iv) Urethra (b) What are the methods used by plants to get rid of their excretory wastes? OR (a) Draw a labelled diagram of open stomata. List two functions of stomata. (b) What are the raw materials used during photosynthesis? Write chemical equation for photosynthesis.	5
32	(a) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide during transportation of blood in human beings and label it: Lung capillaries, Pulmonary artery, Aorta to body, Pulmonary veins from lungs (b) What is the advantage of separate channels in mammals and birds for oxygenated and deoxygenated blood?	5