THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

AIM HIGH, TOGETHER WE FLY

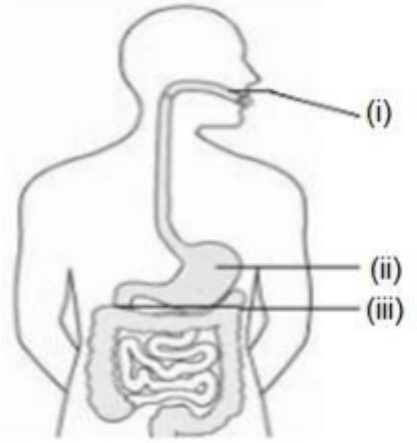
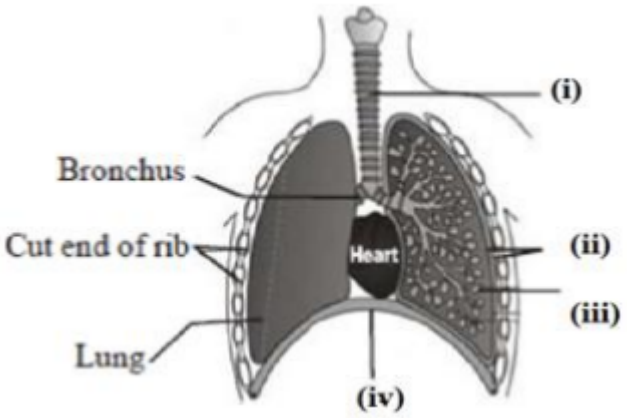
Date: 29/10/21	CPE -2 (2021-22)	Maxmarks: 35
GRADE: XI	BIOLOGY	Time: 1 ½ hours

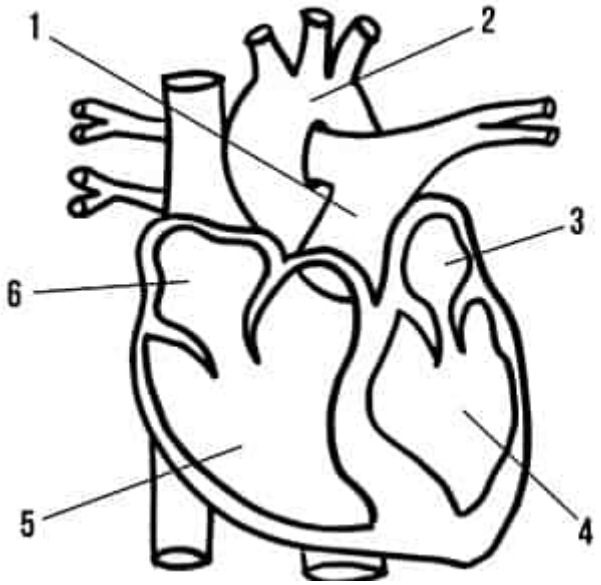
1. The Question Paper contains three sections.
2. Section A has 24 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 12 questions. Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

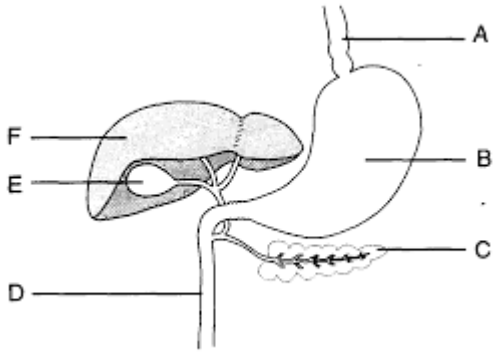
Q.No.	**SECTION A** Section – A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.
1.	Which one of the following process involve chemical reactions? a) Storing oxygen gas under pressure in a gas cylinder b) Liquefaction of air c) Keeping petrol in a china dish in the open d) Heating copper wire in the presence of air at high temperature
2.	Which of the following acid is present in sour milk? a) acetic acid b) oxalic acid c) lactic acid d) citric acid
3.	Sodium Chloride is a (a) Covalent compound (b) Ionic Compound (c) Partial bond formation

	(d) Double bond formation
4.	The following reaction is an example of $Fe_2O_3 + 2Al \xrightarrow{\Delta} 2Fe + Al_2O_3$ a) Thermal decomposition b) displacement reaction c) double displacement reaction d) neutralisation reaction
5.	An aqueous solution turns red litmus solution blue. Excess addition of which of the following solution would reverse the change? a) Baking powder b) Lime c) ammonium hydroxide d) hydrochloric acid
6.	A substance added to food containing fats and oils a) Oxidant b) Rancid c) Coolant d) Antioxidant
7.	Identify x and y in the following reaction Cu + xHNO3 ⟶ Cu(NO3)2 + yNO2 + 2H2O a) 4 and 2 b) 3 and 5 c) 2 and 3 d) 4 and 4
8.	Which gas is evolved when acid reacts with metal. a) O2 b) H2 c) CO2 d) N2
9.	Which of the following statements is correct about an aqueous solution of an acid and a base? I Higher the pH, stronger the acid II Higher the pH, weaker the acid III Lower the pH, stronger the base

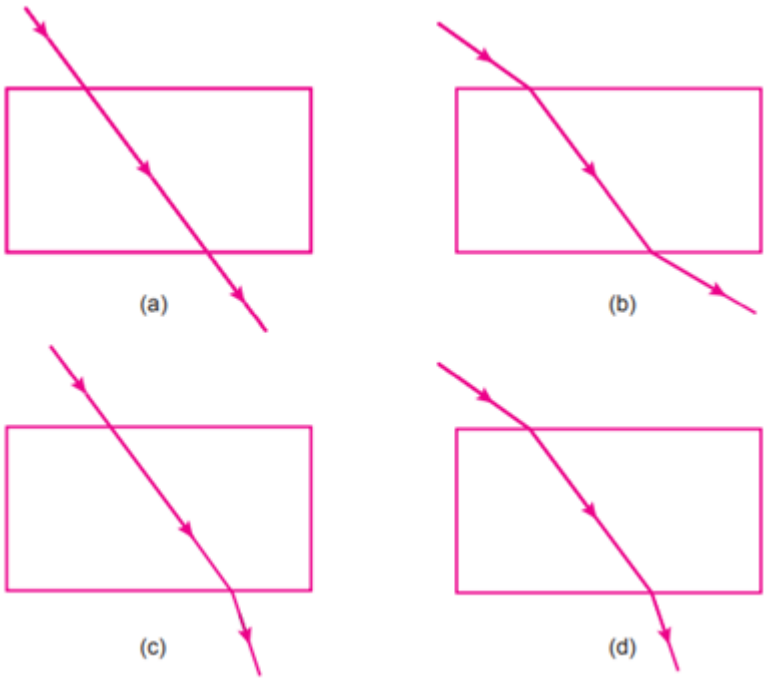
	IV Lower the pH, weaker the base a) II and III b) I and III c) I and IV d) II and IV
10.	Which of the following statements are true about the given reaction? $2Fe + 4H_2O \longrightarrow Fe_3O_4 + 4H_2O$ I Iron metal is getting reduced II water is getting oxidised III Water is acting as reducing agent 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
11.	The stomatal pore opens when: a)Water enters through stomata. b)Water enters into epidermal cells. c)Water enters into guard cells. d)Water exits from epidermal cells.
12.	Carefully study the diagram of the human digestive system with labels i, ii, and iii. Select the option which gives correct identification of the part and the digestive juices that function here.

	 a)(i)Mouth - Saliva, (ii)Stomach - HCl, (iii)Duodenum - Bile b)(i)Mouth - Saliva, (ii)Stomach - Gastric juice, (iii)Duodenum - Trypsin c)(i)Buccal cavity - Salivary amylase, (ii)Stomach - Pepsin, (iii)Duodenum - Lipase d)(i)Buccal cavity - Saliva,(ii) Stomach - Gastric juice, (iii) Duodenum - Bile
13.	Select the option which gives correct identification and its function;  a)(i)Windpipe -Permeable to respiratory gases b)(ii)Ribs - Highly rigid and immovable. c)(iii)Alveoli - Highly vascularised d)(iv)Diaphragm - Made of cartilage and so flexible.
14.	Identify the right sequence of circulation of blood.

	a)Deoxygenated blood to right atrium and oxygenated blood to left atrium. b)Deoxygenated blood to left atrium and oxygenated blood to right atrium. c)Deoxygenated blood out of left ventricle and oxygenated blood out of right ventricle. d)Deoxygenated blood through aorta to the lungs .
15.	Observe the cross section of the human heart and identify the correct label and its function .  a)(1) Dorsal artery-Carries blood out of left atrium b)(2) Pulmonary artery -Carries blood to lungs c)(3) Left atrium - Receives oxygenated blood d)(6)Right atrium - Pumps oxygenated blood
16.	Observe the diagram carefully and identify the correct labelled part.

	 a)(A)-Oesophagus b)(C)- Site of fat emulsification c)(D)-Large intestine d)(E)Site of bile production
17.	Which of the following can make a parallel beam of light when light from a point source is incident on it? a) Concave mirror as well as convex lens. b) Convex mirror as well as concave lens. c) Two plane mirrors placed at 90° to each other. d) Concave mirror as well as concave lens.
18.	A ray of light incident on a plane mirror makes an angle of 20^0 with the mirror . Then the angle between the incident ray and the reflected ray is a) 70^0 b) 90^0 c) 120^0 d) 140^0
19.	The image formed by a concave mirror is observed to be virtual, erect and larger than the object. Where should be the position of the object? a) Between the principal focus and the centre of curvature

	b) At the centre of curvature c) Beyond the centre of curvature d) Between the pole of the mirror and its principal focus
20.	The refractive index of a flint glass is 1.65 and that for alcohol is 1.36 with respect to air. What is the refractive index of flint glass with respect to alcohol? a) 0.82 b) 1.21 c) 1.11 d) 1.01
21.	A student studies that the speed of light in air is 300000 kms/ sec where that of speed in a glass slab is about 197000 kms/ sec. What causes the difference in speed of light in these two media? a) difference in density b) difference in temperature c) difference in amount of light d) difference in direction of wind flow
22.	Magnification produced by a rear view mirror fitted in vehicles a) is equal to one b) is more than one c) is less than one d) can be more than or less than one depending upon the position of the object in front of it.
23.	The path of a ray of light coming from air passing through a rectangular glass slab traced by four students are shown as A, B, C and D in figure. Which one of them is correct?



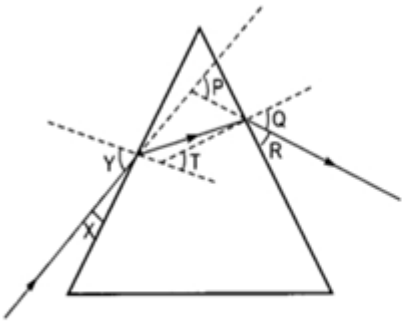
a) a

b) b

c) c

d) d

24. In the following diagram, the path of a ray of light passing through a glass prism is shown:



In this diagram the angle of incidence, the angle of emergence and the angle of deviation respectively are (select the correct option):

a) X, R and T

b) Y, Q and T

	c) X, Q and P d) Y, Q and P
	SECTION – B Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.
25.	Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is a) 1 : 1 b) 2 : 1 c) 4 : 1 d) 1 : 2
26.	Acetic acid was added to a solid *X* kept in a test tube. A colourless and odourless gas was evolved. The gas was passed through lime water which turned milky. It was concluded that. a) Solid *X* is sodium hydroxide and the gas evolved is CO_2 b) Solid *X* is sodium bicarbonate and the gas evolved isCO_2 c) Solid *X* is sodium acetate and the gas evolved isCO_2 d) Solid *X* is sodium chloride and the gas evolved isCO_2
27.	An element X is soft and can be cut with a knife. This is very reactive to air and cannot be kept open in air. It reacts vigorously with water. Identify the element from the following a) Mg b) Na c) P d) Ca
28.	Reaction between X and Y forms compound Z and X loses electron and Y gains electron. Which of the following properties is Not shown by Z ? (a) Has high melting point (b) Insoluble in water (c) Conducts electricity in molten state (d) Occurs as solid

29.	In one of the industrial processes used for manufacture of sodium hydroxide, 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) $H_2$and $NaHCO_3$respectively (b) $CO_2$and $CaOCl_2$respectively (c) $Cl_2$and $CaOCl_2$respectively (d) $Cl_2$and $NaHCO_3$respectively
30.	A sample of soil is mixed with water and allowed to settle. The clear supernatant solution turns the pH paper yellowish orange. Which of the following would change the colour of this pH paper to greenish blue? a) Lemon juice b) Vinegar c) Common salt d) An antacid
	Question No. 31 to 35 consist of two statements – Assertion (A) and Reason (R). Answer these questions 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
31.	**Assertion:** HCl produces H3O+ and Cl- in aqueous solution **Reason**: In presence of water, base give H+ ions
32.	**Assertion:** Quick lime reacts vigorously with water releasing large amount of heat **Reason**: The above chemical reaction is an exothermic reaction
33.	**Assertion:** The length of the loop of Henle is related to the organism's habitat. **Reason:** Water is reabsorbed in the DCT of the nephron.
34.	**Assertion(A)** : White light is dispersed into its seven-colour components by a prism. **Reason (R)** : Different colours of light bend through different angles with respect to the incident ray as they pass through a prism.
35.	The chemical formula of plaster of paris is a) CaSO4. ½ H2O b) CaSO3.½ H2O

<table>
<tr><td></td><td>c) CaSO4.½ O2
d) SO4. ½ H2O</td></tr>
<tr><td>36.</td><td>Which of the following statements is incorrect?
a)Circulation in humans is double circulation.
b)Circulation in humans involves high pressure .
c)Veins in humans carry blood under high pressure.
d)Valves and septa are of great significance in closed double circulation.</td></tr>
<tr><td>37.</td><td>If the phloem tissue is blocked in a plant,how would it affect the plant?
a)The plant will dry up.
b)Buds will not grow and develop .
c)The plant will die immediately.
d)The chlorophyll content will decrease in the leaves.</td></tr>
<tr><td>38.</td><td>Match the columns.
<table><tr><td></td><td>Column I</td><td>Column II</td></tr><tr><td>1.</td><td>Renal artery</td><td>A)Carries urine to bladder</td></tr><tr><td>2.</td><td>Ureters</td><td>B)Carries urine out of bladder</td></tr><tr><td>3.</td><td>Renal vein</td><td>C)Carries impure blood</td></tr><tr><td>4.</td><td>Urethra</td><td>D)Carries purified blood</td></tr></table>
a)1 - C, 2 - B, 3 - D, 4 - A
b)1 - C, 2 - A, 3 - D, 4 - B
c)1 - D, 2 - A, 3 - C, 4 - B
d)1 - D, 2 - B, 3 - C, 4 - A</td></tr>
<tr><td>39.</td><td>Power of a lens is -4, its focal length is
a) 0.20cm
b) -20cm
c) -0.20cm
d) -20m</td></tr>
<tr><td>40</td><td>The nature of the image formed by concave mirror when the object is placed between the focus (F) and centre of curvature (C) of the mirror observed by us is
a) real, inverted and diminished</td></tr>
</table>

	b) virtual, erect and smaller in size c) real, inverted and enlarged d) virtual, upright and enlarged
41.	Which of the following enzymes cannot function in the stomach? i)Lipase ii)Amylase iii)Pepsin iv)Trypsin a)i and ii b)i and iii c)ii and iii d)ii and iv
42.	The part of nephron where the filtering of waste from blood occurs is: a)Bowman's capsule b)PCT c)Loop of henle d)DCT
43.	A concave mirror produces three times magnified real image of an object placed at 10 cm in front of it .Where is the image located? a) 20 cm behind the mirror b) 30 cm in front of the mirror c) 45 cm in front of the mirror d) 25.5 cm behind the mirror
44.	We can get real and highly diminished or diminished size of image by convex lens in the following conditions when object is placed at- (i)Infinity (ii) Beyond 2F1 (iii) AtF1 (iv)BetweenF1andO Which of the above statements are correct? (a) (i) and (ii) (b) (i) and(iii) (c) (i)and (iv) (d) (ii) and (iv)
45.	When sunlight enters at atmosphere the colours which scatter first a) violet ,indigo and blue b) blue and green c) red ,orange and yellow d) only red

46.	Consider these indices of refraction: glass: 1.52; air: 1.0003; water: 1.333. Based on the refractive indices of these materials; arrange the speed of light through them in decreasing order. a)Speed of light in water > speed of light in air > speed of light in glass b) Speed of light in glass > speed of light in water > speed of light in air c) Speed of light in air > speed of light in water > speed of light in glass d)Speed of light in glass > speed of light in air > speed of light in water
47.	A concave lens has focal length of 15 cm . At what distance should the object from the lens be placed so that it forms an image at 10 cm from the lens? a) -30 cm b) -6cm c) +6 cm d) -3cm
48.	Which of the following metals do/does not react with cold water? 1. Potassium 2. Sodium 3. Magnesium 4. Aluminium (a) 1 and 2 (b) 2 and 3 (c) 2 and 4 (d) 3 and 4
	SECTION – C **Section- C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section.** **The first attempted 10 questions would be evaluated.**
Case	pH is quite useful to us in a number of ways in daily life. Some of its applications are: **Control of pH of the soil**: Plants need a specific pH range for proper growth. The soil may be acidic, basic or neutral depending upon the relative concentration of H+ and OH-. The pH of any soil can be determined by pH paper. If the soil is too acidic, it can be corrected by adding lime to it. If the soil is too

<table>
<tr><td></td><td>basic, it can be corrected by adding organic manurewhich contains acidic materials.
Regaining shine of a tarnished copper vessel by the use of acids: A copper vessel gets tarnished due tofromation of an oxide layer on its surface. On rubbing lemon on the vessel, the surface is cleaned and the vessel begins to shine again. This is due to the fact that copper oxide is basic in nature, which reacts with acid present in lemon to frm a salt which is washed away with water.</td></tr>
<tr><td>49.</td><td>When black copper oxide placed in a beaker is treated with dilute HCl, its colour changes to……
a) White
b) Red
c) Blue green
d) No change</td></tr>
<tr><td>50.</td><td>A is an aqueous solution of acid and B is an aqueous solution of base. When these two are diluted separately, then
a) pH of A increases and pH of B decreases
b) pH of A increases and pH of B decreases till pH in each case is 7
c) pH of A and B increases
d) pH of A and B decreases</td></tr>
<tr><td>51.</td><td>Which of the following acids is present in bee sting?
a) Fromic acid
b) citric acid
c) Hydrochloric acid
d) Tartaric acid</td></tr>
<tr><td>52.</td><td>The pH of soil X is 7.5 while that of soil Y is 4.5. Which of the two soils, should be treated with powdered chalk to adjust its pH?
a) X only
b) Y only
c) Both X and Y
d) None of the above</td></tr>
<tr><td>Case</td><td>The table given below shows the composition of air duringthe two stages of breathing:
<table><tr><td>Gas</td><td>% in stage 1 air</td><td>%in stage 2 air</td></tr><tr><td>Oxygen</td><td>21</td><td>16</td></tr><tr><td>Carbon dioxide</td><td>0.04</td><td>4</td></tr></table></td></tr>
</table>

<table>
<tr><td>53</td><td>Which of the following statements is correct?
a)Stage 1 air is exhaled air as it contains more Oxygen and less carbon dioxide
b)Stage 1 air when passed through lime water turns the lime water milky very fast
c)Stage 2 air when passed through lime water turns it milky very slowly.
d)Stage 2 is exhaled air as it contains more carbon dioxide than stage 1 air</td></tr>
<tr><td>54</td><td>Study the table and select the row that has the correct information.
<table><tr><td>1.Aerobic respiration</td><td>Site is - Only cytoplasm</td></tr><tr><td>2.Lactic acid</td><td>Product of respiration in normal muscles.</td></tr><tr><td>3.Fermentation</td><td>Produces least amount of ATP</td></tr><tr><td>4.Anaerobic respiration</td><td>Complete oxidation</td></tr></table>
a)1
b)2
c)3
d)4</td></tr>
<tr><td>55</td><td>Greater amount of oxygen transport in human body is with the help of:
a)Plasma
b)WBC
c)Platelets
d)RBC</td></tr>
<tr><td>56</td><td>Which of the following statements is not true about breathing?
a)Chest cavity volume changes during breathing.
b)Breathing rate depends on the surrounding of the organism.
c)Diaphragm is dome shaped during inhalation
d)Residual volume ensures better diffusion of respiratory gases.</td></tr>
<tr><td>Case</td><td>When the rays of light travels from one transparent medium to another medium, the path of rays is deviated.This phenomenon is called the refraction of light .
The speed of light varies from medium to medium. A medium in which the speed of light is more is optically rarer medium where as in which the speed of light is less is optically denser medium. Whenever light goes from one medium to another , the</td></tr>
</table>

	frequency of light does not change. It is concluded that the change in speed of light is the basic cause of refraction.
57	When light ray travels from glass to air the ray a) bends towards the normal b) bends away from normal c) bends anywhere d) do not bend
58	When a ray passes from a medium A to B, no bending occurs if the ray of light hits the boundary of medium B at an angle of incidence a) 0 degree b) 45dehrees c) 9 degrees d) 120 degrees
59	When a light passes from a denser medium to a rarer medium , the frequency of light in the second medium a) increases b) decreases c) remains same d) either increase or decrease
60	The bottom of pool filled with water due to refraction , appears to be a) deeper b) shallower c) at some depth d) empty