HANSRAJ PUBLIC SCHOOL
SECTOR 6, PANCHKULA
CLASS:X, PERIODIC II (2022-23)
SUBJECT: SCIENCE

Date: 1st August, 2022
Roll No:

Duration: 1 ½ hrs
Maximum Marks: 40

General Instructions:

1. All questions are compulsory
2. There are four sections A, B,C and D.
3. Section A (Q1 to 5) comprises of 5 questions of 1 mark each.
4. Section B (Q6 to13) comprises of 8 questions of 2 marks each.
5. Section C (Q14-16) comprises of 3 questions of 3 marks each.
6. Section D (Q17-18) comprises of two questions of five subparts: each subpart is of 1 mark.

SECTION -A

Q1. What is meant by active transport in plants? Where does it take place?

Q2.What are alkalies? Give one example.

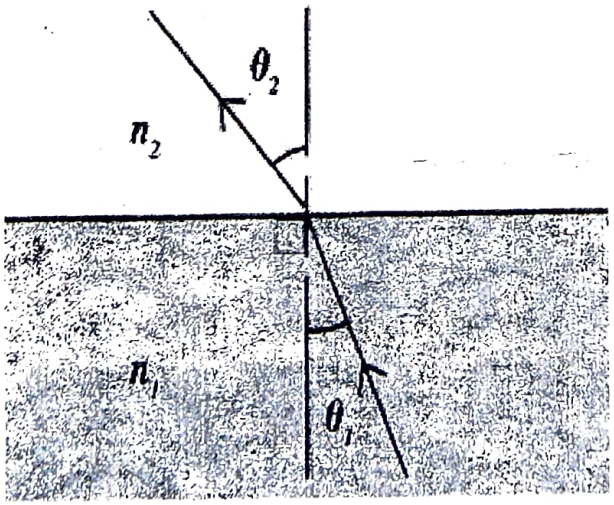
Q3. Complete and balance the following equations:

(a) $NaOH + Zn \longrightarrow$

(b) $H_2SO_4 + Al(OH)_3 \longrightarrow$ (½+½)

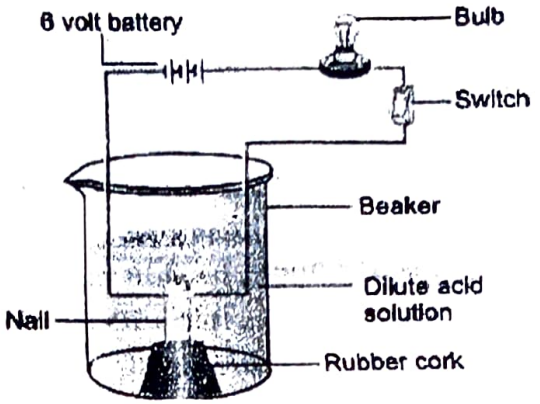
Q4 Why is the absolute refractive index of a medium always greater than 1?

Q5 Observe the given diagram and write the mathematical expression of Snell's law.



SECTION B

Q6.



(i)Why does HCl show acidic character in aqueous solution while solution of compound like glucose does not show acidic character?

(ii) Why does dry HCl gas not change the colour of dry litmus paper. (1+1)

Q7. Metal compound A reacts with dilute hydrochloric acid to produce effervescence The gas evolve extinguishes a burning candle. Write balanced chemical equation for the reaction if one of the compounds formed is calcium chloride?

Q8. Why only birds and mammals have a four chambered heart? Give reasons.

Q9. Differentiate between veins and arteries.

Q10. An object of size 7.0 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed so that a sharply focused image can be obtained? Find the size and nature of the image.

Q11. What is lateral displacement and on which factor(s) the extent of lateral displacement depends for a rectangular glass slab (or block)?

Q12. Bhanu, a student of class 10, wanted to obtain an erect and enlarged image of an object using the lens. Draw the suitable labelled ray diagram showing the same.

Q13. a) The refractive index of diamond is 2.42. What is the meaning of this statement?

b) Light ray travelling in glass enters into an optical fibre of refractive index 1.44. In which direction does this light ray hit the interface so that it should not refract. (1 + 1)

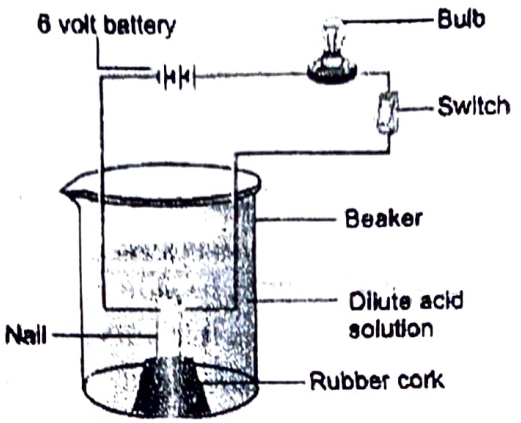
SECTION- C

Q.14. The absolute refractive indices of glass and water are 4/3 and 3/2 respectively. If speed of light in glass is $2X10^{8}$ m/s. Calculate the speed of light in;

a) vacuum b) water

SECTION B

Q6.



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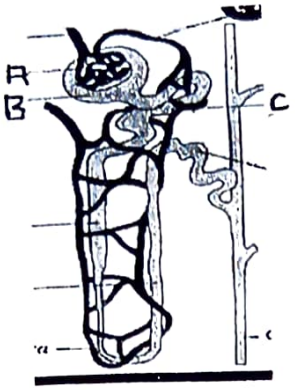
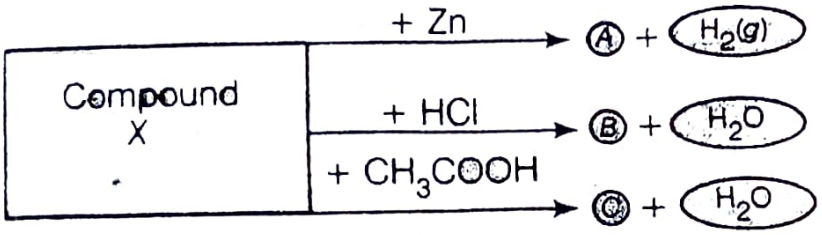
Q15. Identify A,B and C in the given diagram and write their role in urine formation.



Q16. (a) (i) What happens when CO_2 is passed through lime water?

(ii) What happens when excess CO2 is passed through lime water?

Support your answer with balanced chemical equations



(b) Name and write formula of X,A,B,C. (1½ + 1½)

SECTION-D

Q17.CASE STUDY I :Blood enters the heart through two large veins, the inferior and superior vena cava, emptying into the right atrium. It flows from the right atrium through the tricuspid valve into the right ventricle. The right ventricle pumps blood to the pulmonic valve, and the blood flows into the pulmonary artery and to the lungs. Oxygenated blood returns from the lungs to the heart via the pulmonary vein into the left atrium. From the left atrium, blood flows through the mitral valve to the left ventricle. From the left ventricle blood leaves the heart through the aortic valve and flows into the aorta.

(i) Right auricle receives blood from-

(a) Lungs
(b) Stomach
(c) Liver
(d) All parts of the body except lungs.

(ii) Blood circulation is called double circulation as:

(a) Blood flows twice in the heart.
(b) Oxygenated blood remains seperate from deoxygenated blood.
(c) Septum divides heart into left and right side.
(d) All of the above.
(e)

(iii) Veins have valves because

(a) Veins are superficial.
(b) Blood flows with pressure.
(c) To prevent backward flow of blood.
(d) Veins have thin walls.

(iv) name the largest artery -

(a) Pulmonary
(b) Renal
(c) Hepatic
(d) Aorta

(v) The flow of blood from heart to lungs and back is termed as.....circulation.

Q18.CASE STUDY II

Acid base indicators are used to distinguish between an acid and a base. There is an indicator which has pink colour in the presence of base or alkali and it is colourless in acidic solution. Methyl orange has yellow colour in basic and red colour in acidic solution .There are certain indicators which will change their smell in the presence of acid or base. The acidic and basic nature of solution can also be indicated by its pH value .

Read the paragraph given below and answer the following questions:

(i) Which indicator has pink colour in the presence of a base

(a) Methyl Orange

(b) Phenolphthalein

(c) Blue litmus

(d) Red litmus

(ii) The indicators which change their smell in the presence of acid or base are called:

(a) Natural indicators

(b) Olfactory indicators

(c) Synthetic indicators

(d) Neutral indicators

(iii) Red cabbage leaves are example of:

(a) Olfactory indicators

(b) Neutral indicators

(c) Natural indicators

(d) Synthetic indicators

(iv) The reaction between acid and base is known as

(a) Alkalization

(b) Neutralisation

(c) Dilution

(d) Recrystallisation

(v) Explain why acid should be added to water and water should not be added to acid .Give two reasons.