School Based Board Question Paper 2015

SUMMATIVE ASSESSMENT – II (2014-15)

SCIENCE Class – X

Time allowed : 3 hours **Maximum Marks : 90**

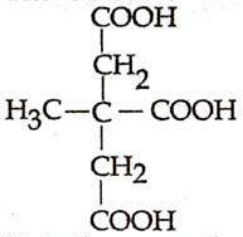
BFRUVW3

General Instructions :

(i) The question paper comprises of **two Sections, A** and **B**. You are to attempt both the sections.
(ii) **All** questions are **compulsory**.
(iii) There is no choice in any of the questions.
(iv) **All** questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.
(v) Question numbers **1** to **3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
(vi) Question numbers **4** to **6** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
(vii) Question numbers **7** to **18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
(viii) Question numbers **19** to **24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
(ix) Question numbers **25** to **33** in **Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
(x) Question numbers **34** to **36** in **Section-B** are questions based on practical skills. Each question is a **two mark** question.

SECTION-A

1 The formula of citric acid is shown below : 1



State the name of $-COOH$ functional group in citric acid.

2 Name the part of the embryo which gives rise to future shoot. 1

3 How does concentration of a pesticide change once it enters a food chain. 1

4 The ciliary muscle of a normal eye are in their 2
(a) most relaxed
(b) most contracted state. Mention in brief how focal length and power of eye lens will change in two cases. Give reason for the same.

5 List four products produced by burning of coal. 2

6 Though the **kulhads** are made up of clay which is an eco-friendly substance but their use has been discontinued in the trains now-a-days. Explain those reasons which lead to discontinuance of this practice. 2

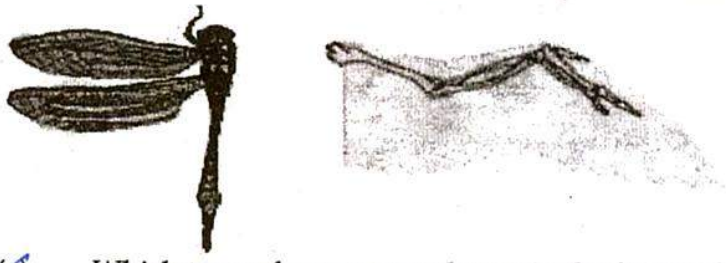
7 Carbon can neither form C^{4+} cations nor C^{4-} anions but form covalent compounds. Justify this statement. Also give reasons why covalent compounds are poor conductor of electricity. 3

8 An organic compound with molecular formula C_3H_8O reacts with sodium metal to produce hydrogen gas. Deduce the possible structures of the compound. Write the balanced chemical equation of the reaction. 3

9 Explain why the size of the atom increases down the group of periodic table ? 3

10 Name two elements which show the same type of chemical property as calcium. Give reason for the selection of elements along with any one chemical property. 3

11 3



(a) Which type of organs are shown in the figure above ?
(b) Which type of origin and structure do these organs have ?

12 It was observed that in a family a woman has only daughters. Analyse on the basis of genetics and give an explaination. 3

13 Why does Planaria reproduce by regeneration ? Explain the process. 3

14 Write the exocrine and endocrine function of ovary. Where the fertilisation takes place in the human female reproductive system How does the uterus prepare itself to receive and nurture the growing embryo ? 3

15 How does sexual reproduction leads to similarities as well as variations ? 3

16 With the help of ray diagram explain the formation of rainbow. 3

17 (a) A wooden stick is partly immersed obliquely first in water and then in turpentine oil. In which liquid does the stick appear to be bent more ? Give reason in support of your answer. Given that the absolute refractive index of water is 1.33 and that of turpentine is 1.4. 3

(b) Define absolute refractive index of a medium in terms of velocity of light. How is relative refractive index different from it ?

18 Eco-club of your school is organising a debate on the topic 'Nature's Fury Unleashed by Human's Greed' (Uttrakhand Disaster). 3

(a) List three arguments that you will use to convince the audience that humans are responsible for this disaster.
(b) List any three values that will be inculcated with this debate.

19 H, Li, Na and K are the elements of same group of Modern Periodic Table. 5

(a) Arrange them in increasing order of their atomic size
(b) How many valence electrons would each have ?
(c) How many shells are present in each ?
(d) Which amongst them is most electropositive ?

20 (a) Why do we say that homozygous plants produce pure progeny ? 5
(b) Define heterozygous.
(c) Explain how the process of speciation takes place.

21 Define the following processes : 5

(a) Fertilization
(b) Vegetative propagation
(c) Menstruation
(d) Regeneration
(e) Binary fission

22 (a) Explain the term power of accommodation. 5

(b) A person finds that visibility of things is decreasing for him. Doctor diagnoses that he was suffering from cataract. What happens in this defect of vision and how can it be corrected ?

(c) List three eye defects.

23 (a) Define power of lens and 1 dioptre. 5

(b) What is meant by converging and diverging lens ? Explain with the help of figure.

(c) An object 10 cm tall is placed on principal axis of a convex lens. Its 10 cm tall image is formed on the screen placed 20 cm away from from the lens. Find the focal length.

24 (a) Write relation between u, v, f for lens and for mirrors where u, v, f are object distance, image distance and focal length respectively. 5

(b) The magnification produced by a concave mirror is $m = +4$. Write the information about the image given by this statement.

(c) Draw a ray diagram for the following and show the formation of the images in case of concave mirror when the object is placed :

(i) Between the pole and focus point

(ii) at the centre of curvature

SECTION - B

25 Soap is chemically : 1

(a) mixture of aluminium salts of higher fatty acids.

(b) mixture of sodium salts of higher fatty acids.

(c) mixture of calcium salts of higher fatty acids.

(d) mixture of magnesium salts of higher fatty acids.

26 In a saponification reaction, fats and oils are treated with : 1

(a) A strong acid (b) A weak base

(c) A weak acid (d) A strong base

27 The water that lathers well with soaps is : 1

(a) Hard water (b) Soft water

(c) Sea water (d) Bromine water

28 An object is placed in front of a concave mirror at infinity. What is the nature of the image ? 1

(a) Virtual and inverted (b) Virtual and erect

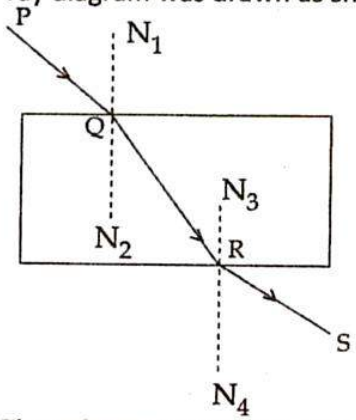
(c) Real and erect (d) Real and inverted

29 Focal length of the concave mirror depends on its : 1

(a) Size (b) Aperture

(c) Radius of curvature (d) Material used

30 An experiment of tracing the path of a ray of light through a glass slab was set up in the laboratory and ray diagram was drawn as shown. 1



The refracted ray in this diagram is :

(a) PQ (b) QR

(c) N_1N_2 (d) RS

31 Which of the following figures has been labelled correctly in an experiment to trace the path of rays of light through a glass prism 1

(a)

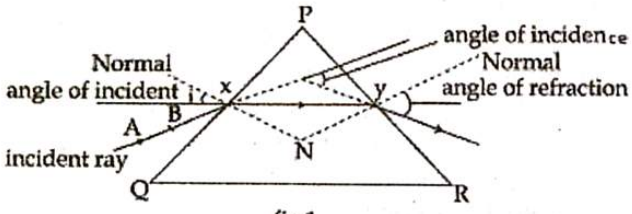


fig.1

(b)

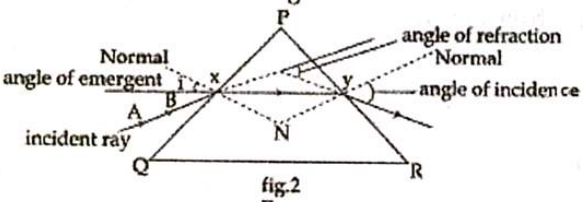


fig.2

(c)

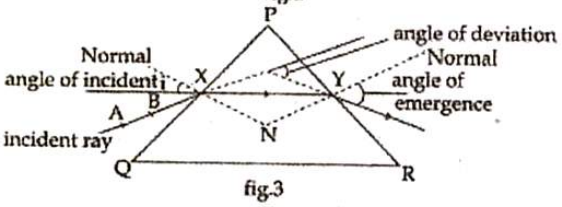


fig.3

(d)

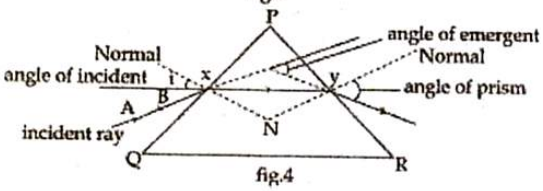


fig.4

32 Structures that have the same evolutionary origin even though they may now have different structures or functions are said to be : 1

(a) endemic (b) analogous
(c) homologous (d) vestigial

33 The kind of dicotyledonous seeds used for the purpose of studying the structure should be : 1

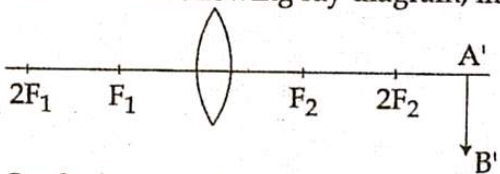
(a) Dry (b) Roasted
(c) Germinating (d) Baked

34 With respect to properties of Acetic acid, answer the following questions : 2

(a) Odour of acetic acid resembles with _____.
(b) Acetic acid is _____ in nature.
(c) Acetic acid is _____ in water.
(d) It produces CO_2 gas when mixed with _____.

35 Draw a well-labelled diagram of budding in yeast. 2

36 Observe the following ray diagram, image A' B' is formed of an object AB for a convex lens. 2



On the basis of above information fill in the blanks :

(a) Position of the object is at _____.
(b) Size of the image A' B' is _____ than the size of object AB.