SUMMATIVE ASSESSMENT – II (2015-16)

SCIENCE

Class – X

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

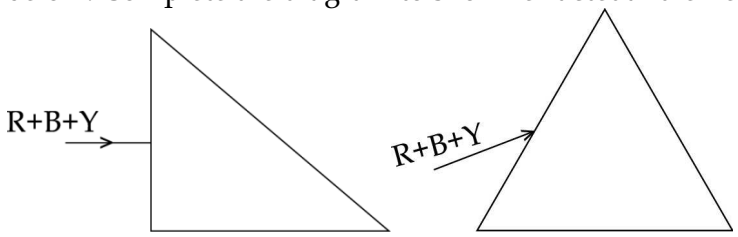
General Instructions :

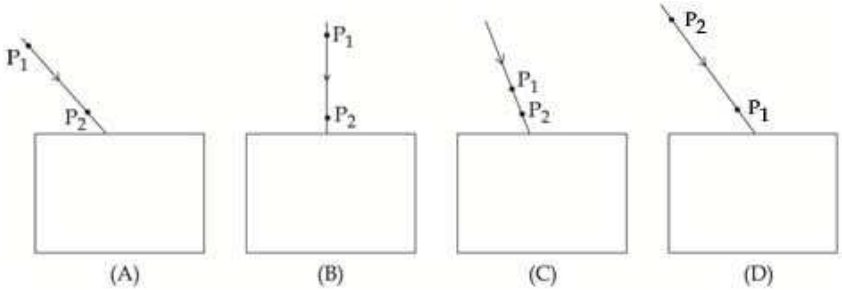
(i) The question paper comprises of **two Sections, A** and **B**. You are to attempt both the sections.
(ii) **All** questions are **compulsory**.
(iii) There is no choice in any of the questions.
(iv) **All** questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.
(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	A colourless gas 'X' has a formula C_3H_6. It decolorises bromine water. Write the chemical name of 'X'.	1
2	Name two sexually transmitted diseases.	1
3	In the food chain given below identify the trophic level in which number of organisms available would be minimum. Grass → Grasshopper→ Frog→ Snake→ Peacock	1
4	Mention the factor on which scattering of light depends. Why does the sky appear dark in space ?	2
5	Burning of fossil fuel is causing great environmental concern. Mention the consequences of combustion of fossil fuels.	2
6	Suggest any two measures to be taken to reduce the damage caused to ozone layer.	2
7	C_3H_6, C_4H_8 and C_5H_{10}belong to the same homologous series. (i) Define homologous series. (ii) Why the melting and boiling points of $C_5H_{10}$is higher than C_4H_8 ?	3

		(iii) Arrange these hydrocarbons in order of increasing boiling points.	
	8	Which element has : (i) Only two shells which are completely filled ? (ii) The electronic configuration 2, 8, 7 ? (iii) Four valence electrons and is in second period ?	3
	9	What are oxidizing agents ? State any two oxidizing agents. Write one chemical equation using oxidizing agent.	3
	10	Arrange giving reason the following elements in increasing order of their atomic size : (a) Be, O, F (Given that they belong to 2^{nd}, 8^{th} and 9^{th} groups and of 2^{nd} period respectively). (b) I, *Cl*, F (Given that they belong to 5^{th}, 3^{rd} and 2^{nd} period respectively of 17^{th} group). (c) Mg, N, P (Given that Mg and P belong to 2^{nd} and 15^{th} group respectively of 3^{rd} period and N belongs to 15^{th} group of 2^{nd} period).	3
	11	(a) What function is performed by human arms, forelimbs of dog and forelimbs of whales ? (b) Which type of organs are these ? (c) Why do we call them so ?	3
	12	The process of fragmentation is not true for all multicellular organisms. Give three reasons in support of this statement.	3
	13	Define the term 'evolution'. "Evolution can not be equated with progress". Justify it.	3
	14	Diagrammatically depict the different parts of a germinated seed and label them	3
	15	What will happen if both the characters present in F1generation pass together in F2 generation ?	3
	16	State the symptoms when a person is said to be suffering from presbyopia. Give its causes.	3
	17	Name the type of mirror used in the following and mention the property which makes them suitable for the purpose. (a) Head lights of car (b) Side rear view mirror in vehicles (c) Solar furnace	3
	18	Eco-club of your school is organising a debate on the topic 'Nature's Fury Unleashed by Human's Greed' (Uttrakhand Disaster). (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.	3
	19	An organic compound 'X' of molecular formula C_2H_6O on oxidation with alkaline $KMnO_4$, gives a compound 'Y'. On heating compound 'X' with compound 'Y' in presence of	5

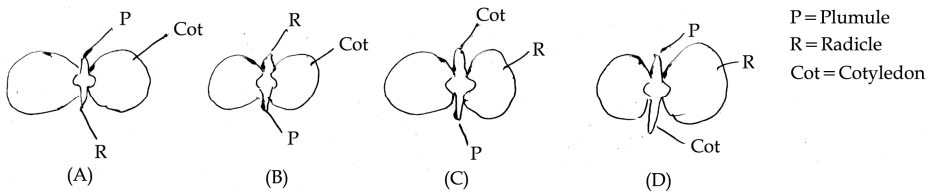
		concentrated sulphuric acid, a sweet smelling compound 'Z' is produced. Identify X, Y and Z. Write chemical equations of the above reactions involved.	
	20	Give differences : (a) Heredity and variations (b) Dominant and recessive traits (c) Natural and artificial selection	5
	21	Explain what happens when : (a) Testosterone is released in males. (b) Pollen grain falls on the stigma of the flower. (c) Egg fuses with sperm cell. (d) Planaria is cut into many pieces. (e) Buds are formed on the notches of the Bryophyllum leaf.	5
	22	(a) Define dispersion of light. How is scattering of light different from its dispersion ? Give one example of natural phenomenon based oneach of these. (b) A beam of light consisting of red, blue and yellow is incident on theprisms as shown below. Complete the diagram to show refractedand emergent ray 	5
	23	(a) An object is placed at the following distances from a convex lens of focal length 15 cm : (i) 35 cm (ii) 30 cm (iii) 20 cm (iv) 10 cm (b) Which position of the object will produce - (a) A magnified, real image (b) A magnified, virtual image (c) A diminished real image (d) Real and an image of same size as the object (c) An object is placed at a distance of 12 cm from this lens. Calculate the distance of the image from the lens and also show it with the help of a ray diagram (not to scale)	5
	24	(a) Write relation between u, v, f for lenses and for mirrors where u, v, f are object distance, image distance and focal length respectively. (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	5
		SECTION - B	

25	The chemicals used for the preparation of toilet soap are : (a) Fat and sodium hydroxide (b) Fat and potassium hydroxide (c) Water and sodium hydroxide (d) Water and potassium hydroxide	1
26	Name the process which occurs when alkaline hydrolysis of coconut oil is done. (a) oxidation (b) hydrolysis (c) saponification (d) reduction	1
27	The cleansing action of soap will be the most in the water obtained from the source : (a) Tap (b) Rain (c) Well (d) Hand pump	1
28	To perform an experiment of determining the focal length of a convex lens a student was provided with a convex lens of focal length between 20 cm to 25 cm. While focusing a distant object to find its focal length, he should adjust the position of the screen between : (a) 40 cm and 50 cm marks on scale from lens. (b) 20 cm and 25 cm marks on scale from lens. (c) 15 cm and 20 cm marks on scale from lens. (d) 25 cm and 30 cm marks on scale from lens.	1
29	The following are the few steps of the procedure for determining the focal length of a given convex lens by obtaining a sharp image of a distant object : (i) Measure the distance between the lens and the screen (ii) Select a suitable distant object (iii) Adjust the position of the lens to form a sharp image (iv) Hold the lens between the object and screen with its faces parallel to the screen. The correct sequence of the steps for the experiment is : (a) (iii), (iv), (i), (ii) (b) (ii), (iv), (iii), (i) (c) (iii), (i), (iv), (ii) (d) (ii), (iii), (iv), (i)	1
30	Out of the following four experimental setups A, B, C, and D to trace the path of a ray of light through a rectangular glass slab, in which set up a student is likely to get best results ? (P_1 and P_2 are the positions of the two pins fixed on the incident ray of glass slab)  (a) A (b) B (c) C (d) D	1
31	A student while doing the experiment of tracing the path of ray of light through a triangular glass prism is not able to see the image of object (pins). This may be due to : (a) angle of incidence is 40°. (b) angle of incidence is 10°.	1

(c) brightness in laboratory.
(d) use of white paper on which prism is placed.

32 The most commonly used pair in the animal kingdom to observe homology is : 1
(a) wings of butterfly, wings of Eagle
(b) wings of dragonfly, wings of bat
(c) wings of birds, forelimbs of man
(d) forelimbs of man, wings of dragonfly

33 Four students A, B, C and D observed the different parts of an embryo of a dicot seed and draw the following diagrams : 1



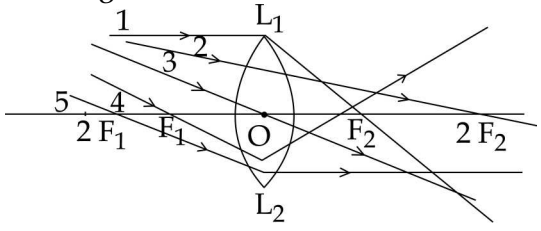
The correct labelling of parts is given in the picture :
(a) A (b) B (c) C (d) D

34 Which tests will you perform in the laboratory to study the following properties of acetic acid : 2
(i) Solubility (ii) Acidic nature

35 Match **A** and **B** Columns : 2

A		**B**	
(i)	Unicellular	(i)	Yeast
(ii)	Multicellular	(ii)	Amoeba
(iii)	Binary fission	(iii)	Yeast
(iv)	Budding	(iv)	Amoeba

36 Study the following diagram in which some rays of light come towards a convex lens and refract through it. Select two rays by which you can determine the position of the object when the image is formed between centre of curvature and focus of it. 2



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