Set-A

SUMMATIVE ASSESSMENT – II, 2016-17

SCIENCE

Class – X

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

General Instructions :

1. The question paper comprises of **two Sections, A** and **B**. You are to attempt both the sections.
2. **All** questions are **compulsory**
3. **All** questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.
4. Question numbers **1** to **3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**
5. Question numbers **4** to **6** in **Sections-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7** to **18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each
7. Question numbers **19** to **24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. 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.
9. Question numbers **34** to **36** in **Section-B** are questions based on practical skills. Each question is of two **marks**.

SECTION-A

1	Name the functional group present in the following compounds : (i) $CH_3-CH_2-CH_2-COOH$ (ii) $CH_3-CO-CH_2-CH_3$	1
2	When a round seeded pea plant is crossed with a wrinkled seeded pea plant, what type of plant we get in F1generation ?	1
3	In the food chain given below identify the trophic level in which number of organisms available would be minimum. Grass $\rightarrow$ Grasshopper$\rightarrow$ Frog$\rightarrow$ Snake$\rightarrow$ Peacock	1
4	A person is not able to see distinctly the objects placed beyond 2 m from him. Giving reason identify the defect in his eye. Write the nature of lens used to correct the defect.	2
5	The 3 R's to save the environment, can make a difference. What do these R's refer to ?	2
6	There is a need to ban polythene bags completely. Explain this statement giving reasons.	2
7	(a) How does the atomic size vary as we move (i) down a group (ii) across a period from left to right Justify the answer with reason.	3

8	One of the commercially important carbon compounds is ethanol. Mention its two uses. When a small piece of sodium is dropped in ethanol a gas is evolved. How can we test the gas evolved ?	3
9	Carbon has four electrons in the valence shell. How does it attain stable electronic configuration ? Draw electron dot structure of CO_2 and CH_4 to justify your answer.	3
10	The position of some elements A, B, C, D, E, F, and G in the part of the Modern Periodic Table is given as under:	3

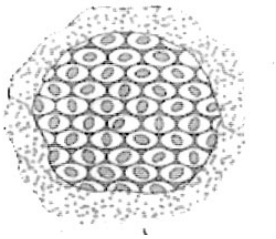
Group → / Period ↓	16	17	18
1			A
2	B	C	D
3	E	F	G

(a) In which group are inert elements placed?

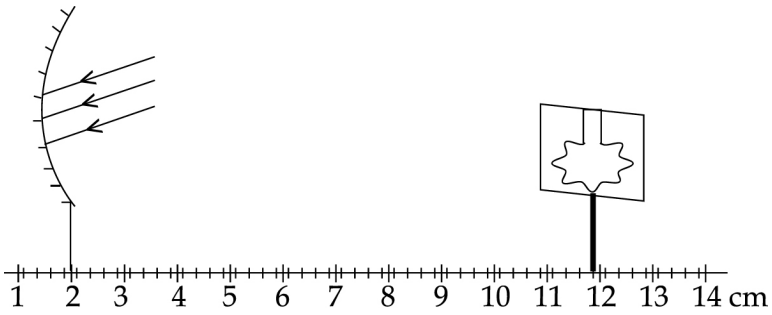
(b) What type of ions would elements B and C form?

(c) Which element would have chemical properties similar to C?

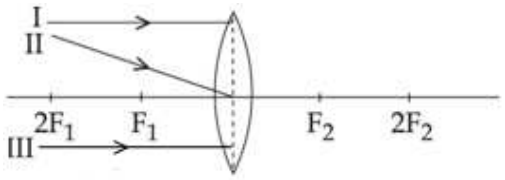
(d) What is the similarity between the elements A and D?

11	The humans have a genetic basis of sex determination. (a) Besides humans which organisms have genetic basis ? (b) Which chromosomes are similar in human males and females ? (c) What is the function of these types of chromosomes ?	3
12	Traits that are acquired during lifetime do not result in evolution. Why ? Give at least two examples to support your answer.	3
13	The picture given below depicts the process of asexual reproduction in Plasmodium,  (a) Name the process depicted above and define it. (b) What is meant by asexual reproduction ?	3
14	Flowers undergo pollination to produce new flowers by the fusion of the male and the female germ-cells. (a) Define pollination. (b) Name this process when it takes place in (i) the same flower (ii) in different flowers. (c) Name any two agents that help in the male and the female germ-cells of different flowers fertilize with each other ?	3

	15	Define artificial selection with reference to Kohlrabi and Cauliflower.	3
	16	(a) State one main function of lens, iris and retina of the eye. (b) Why does the power of accommodation of an eye decreases with age ? Explain.	3
	17	Define the power of a lens. The power of a lens is -4 D. (a) Find the focal length of this lens in metre. (b) Name the kind of this lens. Explain with the help of figure whether this lens would converge or diverge a beam of light.	3
	18	You plan to organise a campaign on 'Harmful effects of Smoking on human health' in your neighbourhood areas and guide them. (a) List any three reasons that you will give to convince the people about harmful effects of Smoking on human health ? (b) List any three values that are inculcated with such approach ?	3
	19	(a) What is meant by the term valency? (b) Explain with reason the variation of valency in a period on going from left to right in the modern periodic table. (c) Explain with reason the variation of valency on going down in a group. (d) Find the valency of magnesium with atomic number 12.	5
	20	(a) Give appropriate terms for the following. (i) Trait which expresses itself in next generation. (ii) The trait an organism has due to inheritance. (iii) Origin of new species from existing ones. (b) Genes are the unit of inheritance. Mention any two characteristics of genes.	5
	21	(a) Explain what happens if the egg is not fertilized in a female's body. What is the time duration for this process ? (b) Explain the function of fallopian tube and uterus.	5
	22	(a) Define refractive index of a transparent medium. What is its unit ? Which has higher refractive index, glass or water ? (b) A ray of light travelling in air enters obliquely into water. Does the light ray bend towards or away from the normal (with reference to refractive index).	5
	23	(a) List the colours observed in a spectrum through a prism in the increasing order of their deviation through prism. (b) With the help of a diagram explain how dispersed light can be recombined to produce white light.	5
	24	Draw ray diagrams to show the formation of images when an object is placed in front of converging mirror : (i) between its centre of curvature and focus.	5

	(ii) At its focus Describe the nature, size and position of images formed in above cases.	
	SECTION - B	
25	Saponification reaction is : (a) Endothermic as heat is absorbed. (b) Exothermic as heat is evolved. (c) Endothermic as heat is evolved. (d) Exothermic as heat is absorbed.	1
26	For the preparation of soap in the laboratory, the caustic soda (sodium hydroxide) would be available in the form of : (a) pellets (b) crystals (c) powder (d) paste	1
27	Washing with soap is difficult in hard water due to the formation of the substracts: (a) foam (b) colloid (c) suspension (d) scum	1
28	In the set-up shown below, a clear image of a distant object is obtained on the screen. The focal length of the concave mirror is :  (a) 11.4 cm (b) 9.4 cm (c) 9.8 cm (d) 9.9 cm	1
29	While performing an experiment to determine the focal length of a convex lens, a student obtains a sharp inverted image of the laboratory window grill on the screen and measures the distance 'd' between the screen and the lens. She then repeats the experiment and takes a distant tree as the object in the second case. In order to get a sharp image on the screen, she will now need to move the screen. (a) slightly nearer to the lens. (b) slightly farther away from the lens. (c) very close to the lens. (d) very far away from the lens.	1

30	In the experiment on refraction of light through a glass slab done by four students A, B, C and D, the following observations were made : (A) The emergent ray moves towards the normal after second refraction through glass slab with $\angle i = \angle e$ (B) The emergent ray moves away from the normal after second refraction through glass slab with $\angle i < \angle e$ (C) For any angle of incidence, always $\angle i > \angle e$ (D) The emergent ray moves away from normal after second refraction through glass slab with $\angle i = \angle e$ The student who has made the correct observation is : (a) (A) (b) (B) (c) (C) (d) (D)	1
31	In an experiment to trace the path of a ray of light through a glass prism, the emergent ray obtained : (a) is parallel to the incident ray. (b) is perpendicular to the incident ray. (c) bends at an angle to direction of incident ray. (d) is parallel to the refracted ray.	1
32	The thorns of Euphorbia are analogous to spines of cacti because the thorns of Euphorbia are modified : (a) leaves (b) branches (c) flowers (d) roots	1
33	Label the part A in the adjoining diagram, from the following :  (a) Plumule (b) Radical (c) Cotyledon (d) Embryo	1
34	Acetic acid is a colourless liquid without any odour. It is miscible in water in all proportions. It turns red litmus to blue and evolves CO_2 gas when added to sodium hydorgen carbonate solution. Identify the incorrect statement(s) in the above description given about the properties of acetic acid making necessary corrections accordingly.	2
35	Draw a well labelled diagram of budding in yeast.	2

	36	Observe the following incomplete ray diagram for a convex lens  Draw the rays I, II and III after refraction and also locate the optical centre of the lens in the ray diagram.	2
		-o0o0o0o-	