Series JSR/1

Delhi region 2016 Board paper :

Set 2

कोड नं.
Code No. 31/1/2

रोल नं.
Roll No.

परीक्षार्थी कोड को उत्तर-पुस्तिका के मुख-पृष्ठ पर अवश्य लिखें।
Candidates must write the Code on the title page of the answer-book.

- कृपया जाँच कर लें कि इस प्रश्न-पत्र में मुद्रित पृष्ठ **24** हैं।
- प्रश्न-पत्र में दाहिने हाथ की ओर दिए गए कोड नम्बर को छात्र उत्तर-पुस्तिका के मुख-पृष्ठ पर लिखें।
- कृपया जाँच कर लें कि इस प्रश्न-पत्र में **36** प्रश्न हैं।
- **कृपया प्रश्न का उत्तर लिखना शुरू करने से पहले, प्रश्न का क्रमांक अवश्य लिखें।**
- इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है। प्रश्न-पत्र का वितरण पूर्वाह्न में 10.15 बजे किया जाएगा। 10.15 बजे से 10.30 बजे तक छात्र केवल प्रश्न-पत्र को पढ़ेंगे और इस अवधि के दौरान वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे।
- Please check that this question paper contains **24** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **36** questions.
- **Please write down the Serial Number of the question before attempting it.**
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

संकलित परीक्षा - II

SUMMATIVE ASSESSMENT - II

विज्ञान

SCIENCE

निर्धारित समय : 3 घण्टे] *[अधिकतम अंक : 90*

Time allowed : 3 hours] *[Maximum marks : 90*

[P.T.O.

Section-A

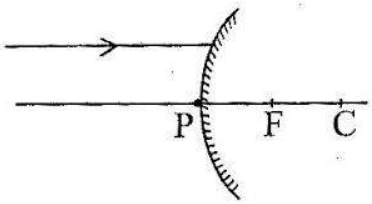
1. Name the following compounds : 1

(a) CH_3-CH_2-OH; (b) $CH_3-\overset{\overset{H}{|}}{C}=O$

2. What is DNA? 1

3. List two biotic components of a biosphere. 1

4. A ray of light incident on a convex mirror as shown. Redraw the diagram and **complete** the path of this ray after reflection from the mirror. Mark angle of incidence and angle of reflection on it. 2



5. Explain giving example where active involvement of local people lead to efficient management of forest. 2

6. List four advantages of properly managed watershed management. 2

7. What is an oxidising agent? What happens when an oxidising agent is added to propanol? Explain with the help of a chemical equation. 3

8. What are covalent compounds? Why are they different from ionic compounds? List their three characteristic properties. 3

9. An element 'M' with electronic configuration (2, 8, 2) combines separately with $(NO_3)^-$, $(SO_4)^{2-}$ and $(PO_4)^{3-}$ radicals. Write the formula of the three compounds so formed. To which group and period of the Modern Periodic Table does the elements 'M' belong? Will 'M' form covalent or ionic compounds? Give reason to justify your answer. 3

10. Name any two elements of group one and write their electronic configurations. What similarity do you observe in their electronic configurations? Write the formula of oxide of any of the aforesaid element. 3

11. What are the functions of testis in the human male reproductive system? Why are these located outside the abdominal cavity? Who is responsible for bringing about changes in appearance seen in boys at the time of puberty? 3

12. Suggest three contraceptive methods to control the size of human population which is essential for the health and prosperity of a country. State the basic principle involved in each. 3

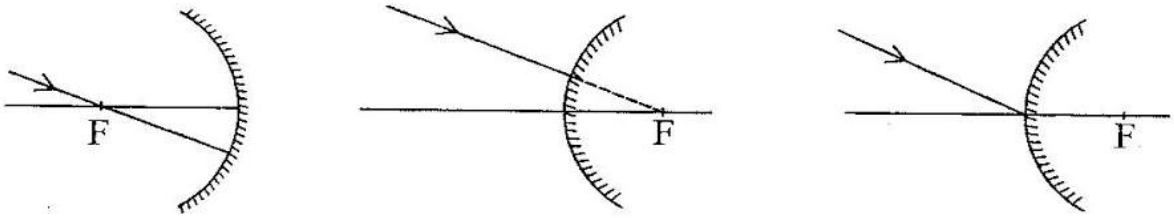
13. What is multiple fission? How does it occur in an organism? Explain briefly. Name one organism which exhibits this type of reproduction. 3

14. How did Mendel interpret his result to show that traits may be dominant or recessive? Describe briefly. 3

15 List three distinguishing features, in tabular form, between acquired traits and the inherited traits. 3

16. What is meant by scattering of light? The sky appears blue and the sun appears reddish at sunrise and sunset. Explain these phenomena with reason. 3

17. Draw the following diagram, in which a ray of light is incident on a concave/convex mirror, on your answer sheet. Show the path of this ray, after reflection, in each case. 3



18. Give reason to justify the following :

(a) The existence of decomposers is essential in a biosphere.

(b) Flow of energy in a food chain is unidirectional.

19. (a) Write the functions of the following parts in human female reproductive system : (i) Ovary (ii) Oviduct (iii) Uterus 5

(b) Describe the structure and function of placenta.

20. What is meant by speciation? List four factors that could lead to speciation. Which of these cannot be a major factor in the speciation of a self-pollinating plant species. Give reason to justify your answer. 5

21. (a) Give a chemical test to distinguish between saturated and unsaturated hydrocarbon. 5

(b) Name the products formed when ethane burns in air. Write the balanced chemical equation for the reaction showing the types of energies liberated.

(c) Why is reaction between methane and chlorine in the presence of sunlight considered a substitution reaction?

22. (a) Draw a ray diagram to show the formation of image by a concave lens when an object is placed in front of it.

(b) In the above diagram mark the object-distance (u) and the image-distance (v) with their proper signs (+ve or –ve as per the new Cartesian sign convention) and state how these distances are related to the focal length (f) of the concave lens in this case. 5

(c) Find the nature and power of a lens which forms a real and inverted image of magnification –1 at a distance of 40 cm from its optical centre.

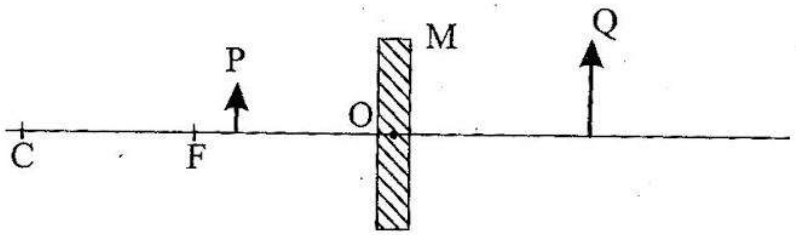
23. (a) Define the following terms in the context of spherical mirrors : (i) Pole (ii) Centre of curvature 5

(iii) Principal axis (iv) Principal focus

(b) Draw ray diagrams to show the principal focus of a

(i) Concave mirror (ii) Convex mirror

(c) Consider the following diagram in which M is a mirror and P is an object and Q is its magnified image formed by the mirror.



State the type of the mirror M and one characteristic property of the image Q.

24. (a) Write the function of each of the following parts of human eye : cornea; iris; crystalline lens; ciliary muscles 5

(b) Millions of people of the developing countries of world are suffering from corneal blindness. These persons can be cured by replacing the defective cornea with the cornea of a donated eye. A charitable society of your city has organised a campaign in your neighbourhood in order to create awareness about this fact. If you are asked to participate in this mission how would you contribute in this noble cause?

(i) State the objective of organising such campaigns.

(ii) List two arguments which you would give to motivate the people to donate their eyes after death.

(iii) List two values which are developed in the persons who actively participate and contribute in such programme.

Section-B

25. Which of the following is a correct set of homologous organs?

(a) Forelimbs of frog, bird and lizard

(b) Spine of cactus and thorn of bougainvillea

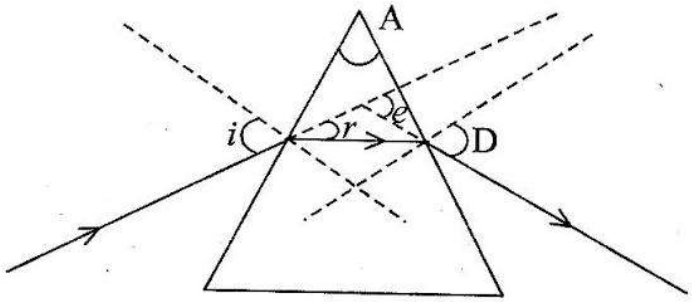
(c) Wings of bat and wings of butterfly

(d) Wings of a bird and wings of a bat

26. A student has to perform the experiment "To identify the different parts of an embryo of a dicot seed." Select from the following an appropriate group of seeds : 1

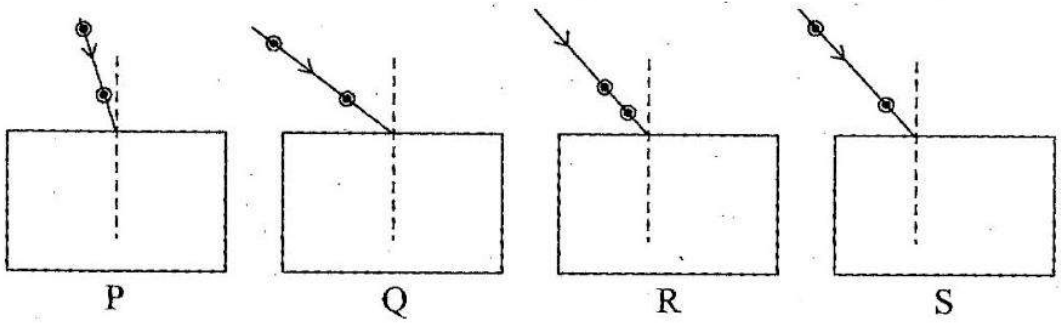
(a) pea, gram, wheat
(b) red kidney bean, maize, gram
(c) maize, wheat, red kidney bean
(d) red kidney bean, pea, gram

27. Study the following figure in which a student has marked the angle of incidence ($\angle i$), angle of refraction ($\angle r$), angle of emergence ($\angle e$), angle of prism ($\angle A$) and the angle of deviation ($\angle D$). The correctly marked angles are : 1



(a) $\angle A$ and $\angle i$
(b) $\angle A$, $\angle i$ and $\angle r$
(c) $\angle A$, $\angle i$, $\angle e$ and $\angle D$
(d) $\angle A$, $\angle i$, $\angle r$ and $\angle D$

28. Select from the following the best experimental set-up for tracing the path of a ray of light passing through a rectangular glass slab : 1



(a) P (b) Q (c) R (d) S

29. A student obtained a sharp image of a candle flame placed at the distant end of the laboratory table on a screen using a concave mirror to determine its focal length. The teacher suggested him to focus a distant building about 1 km far from the laboratory, for getting more correct value of the focal length. In order to focus the distant building on the same screen the student should slightly move the : 1

(a) mirror away from the screen (b) screen away from the mirror

(c) screen towards the mirror (d) screen towards the building

30. To determine the approximate focal length of the given convex lens by focussing a distant object (say, a sign board), you try to focus the image of the object on a screen. The image you obtain on the screen is always : 1

(a) erect and laterally inverted (c) inverted and diminished

(b) erect and diminished (d) virtual, inverted and diminished

31. A student takes four test tubes marked P, Q, R and S of 25 mL capacity and fill 10 mL of distilled water in each. He dissolves one spoon full of four different salts in each as – KCl in P, NaCl in Q, $CaCl_2$ in R and $MgCl_2$ in S. He then adds about 2 mL of a sample of soap solution to each of the above test tubes. On shaking the contents of each of the test tubes, he is likely to observe a good amount of lather (foam) in the test tubes marked : 1

(a) P and Q (b) R and S

(c) P, Q and R (d) P, Q and S

32. Which of the following sets of materials can be used for conducting a saponification reaction for the preparation of soap? 1

(a) $Ca(OH)_2$ and neem oil (c) NaOH and mineral oil

(b) NaOH and neem oil (d) $Ca(OH)_2$ and mineral oil

33. Consider the following comments about saponification reactions : 1

I Heat is evolved in these reactions

II For quick precipitation of soap sodium chloride is added to the reaction mixture

III Saponification reactions are special kind of neutralisation reactions

IV Soaps are basic salts of long chain fatty acids

The correct comments are :

(a) I, II and III (c) I, II and IV

(b) II, III and IV (d) Only I and IV

34. A student focuses the image of a well illuminated distant object on a screen using a convex lens. After that he gradually moves the object towards the lens and each time focuses its image on the screen by adjusting the lens. 2

(i) In which direction-towards the screen or away from the screen, does he move the lens?

(ii) What happens to the size of the image-does it decrease or increase?

(iii) What happens to the image on the screen when he moves the object very close to the lens?

35. What do you observe when you drop a few drops of acetic acid to a test tube containing : 2

(i) phenolphthalein (iii) universal indicator

(ii) distilled water (iv) sodium hydrogen carbonate powder

36. Draw a labelled diagram to show that particular stage of binary fission in amoeba in which its nucleus elongates and divide into two and a constriction appears in its cell membrane. 2