Series JSR

कोड़ नं

Code No 31/2

● प्रश्न-पत्र में दाहिने हाथ की ओर दिए गए कोड नम्बर को छात्र उत्तर-पुस्तिका के मुख-पष्ट पर लिखें।

● कपया जाँच कर लें कि इस प्रश्न-पत्र में **36** प्रश्न हैं।

● कपया 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 पूर्वाह 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 16 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 cheek 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(कक्षा-दसवीं)
SCIENCE(Class-X)

निर्धारित समय : 3 घण्टे

Time allowed : 3 hours

अधिकतम अंक : 90

Maximum Marks : 90

SECTION # A

Q.1   Write the name and structure of an alcohol with four carbon atoms in its molecule.   [1]

Q.2   What are those organisms called which bear both the sex organs in the same individival. Give one example of such organism.   [1]

Q.3   Write one negative effect, on the environment, of affluent life style of few persons of a society.   [1]

Q.4   "The magnification produced by a spherical mirror is - 3". List four informations you obtain from this statement about the mirror/image.   [2]

Q.5   Forests are "biodiversity hot spots". Justify this statement.   [2]

Q.6   What is water harvesting ? How can this technique help in the conservation of water ?   [2]

Q.7   On dropping a small piece of sodium in a test tube containing carbon compound `X' with molecular formula $C_2H_6O$, a brisk effervescence is observed and, a gas is produced. On bringing a burning splinter at the mouth of the test tube the gas evolved burns with a pop sound. Identify `X' and 'Y'. Also vvrite the chemical equation for the reaction. Write the name and structure of the product formed, when you heat `X' with excess conc. sulphuric acid.   [3]

Q.8   An aldehyde as well as a ketone can be represented by the same molecular formula, say C_3H_6O. Write their structures and name them, State the relation between the two in the language of science.   [3]

Q.9   An element `X' belongs to 3rd period and group 16 of the Modern Periodic Table.   [3]
    (a)   Determine the number of valence electrons and the valency of T.
    (b)   Molecular formula of the compound when `X' reacts with hydrogen and write its electron dot structure.
    (c)   Name the element `X' and state whether it is metallic or non-metallic.

Q.10   Three elements `X', `Y' and `Z' have atomic numbers 7, 8 and 9 respectively.   [3]
    (a)   State their positions (Group number and period number both) in the Modern Periodic Table.
    (b)   Arrange these elements in the decreasing order of their atomic radii.
    (c)   Write the formula of the compound formed when `X' combines with `Z'.

Q.11   Explain the term "Regeneration" as used in relation to reproduction of organisms. Describe briefly how regeneration is carried out in multicellular organisms like Hydra.   [3]

Q.12   In the context of reproduction of species state the main difference between fission and fragmentation. Also give one example of each.   [3]

Q.13   (a)   List two reasons for the appearance of variations among the progeny formed by sexual reproduction.   [3]
    (b)
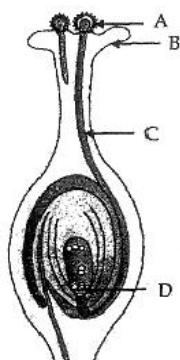
(i) Name the part marked. `A' in the diagram.
(ii) How does `A' reaches part B' ?
(iii) State the importance of the part `C'.
**(iv)** What happens to the part marked `D' after fertilisation is over ?

Q.14 "Two areas of study namely `evolution' and `classification' are interlinked". Justify this statement. [3]

Q.15 With the help of an example justify the following statement : [3]
"A trait may be inherited, but may not be expressed".

Q.16 The image of an object formed by a lens is of magnification - 1 If the distance between the object and its image is 60 cm, what is the focal length of the lens ? If the object is moved 20 cm towards the lens, where would the image be formed ? State reason and also draw a ray diagram in support of your answer. [3]

Q.17 Describe an activity to show that the colours of white light splitted by a glass prism can be recombined to get white light by another identical glass prism. Also draw ray diagram to show the recombination of the spectrum of white light. [3]

Q.18 The activities of man had adverse effects on all forms of living organisms in the biosphere. Unlimited exploitation of nature by man disturbed the delicate ecological balance between the living and non-living components of the biosphere. The unfavourable conditions created by man himself threatened the survival not only of himself but also of the entire living organisms on the mother earth. One of your classmates is an active member of `Eco club' of your school which is creating environmental awareness amongst the school students, spreading the same in the society and also working hard for preventing environmental degradation of the surroundings. [3]
(a) Why is it necessary to conserve our environment ?
(b) State the importance of green and blue dust-bins in the safe disposal of the household waste.
(c) List two values exhibited by your classmate who is an active member of Eco-club of your school.

Q.19 (a) Define focal length of a spherical lens. [5]
(b) A divergent lens has a focal length of 30 cm. At what distance should an object of height 5 cm from the optical centre of the lens be placed so that its image is formed 15 cm away from the lens ? Find the size of the image also.
(c) Draw a ray diagram, to show the formation of image in the above situation.

Q.20 It is desired to obtain an erect image of an object, using concave mirror of focal length of 12 cm. [5]
(i) What should be the range of distance of an object placed in front of the mirror. ?
(ii) Will the image be smaller or larger than the object. Draw ray diagram to show the formation of image in this case.
(iii) Where will the image of this object be, if it is placed 22 cm in front of the mirror Draw ray diagram for this situation also to justify your answer. Show the positions of pole, principal focus and the centre of curvature in the above ray diagrams.

Q.21 What is atmospheric refraction ? Use this phenomenon to explain the following natural events. [5]
(a) Twinkling of stars
(b) Advanced sun-rise and delayed sun-set.
Draw diagrams to illustrate your answers.

Q.22 What is placenta ? Describe its structure. State its functions in case of a pregnant human female. [5]

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Q.23 Define evolution. How does it occur ? Describe how fossils provide us evidences in support of evolution. [5]

Q.24 A carbon compound `P' on heating with excess conc. $H_2SO_4$ forms another carbon compound `Q' which on addition of hydrogen in the presence of nickel 'catalyst forms a saturated carbon compound `R'. One molecule of `R' on combustion forms two molecules of carbon dioxide and three molecules of water. Identify P, Q and R and write chemical equations for the reactions involved. [5]

SECTION # B

Q.25 In the following ray diagram the correctly marked angle are [1]
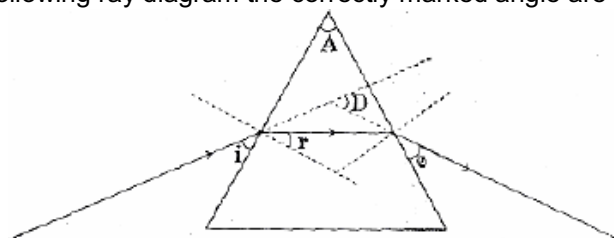
(a) $\angle$ i and $\angle$ e   (b) $\angle$ A and $\angle$ D

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

Q.26 Suppose you have focused on a screen the image of candle flame placed at the farthest end of the laboratory table using a convex lens. If your teacher suggests you to focus the parallel rays of the sun, reaching your laboratory table, on the same screen, what you are expected to do is to move the : [1]
   (a)   lens slightly towards the screen
   (b)   lens slightly away from the screen
   (c)   lens slightly towards the sun
   (d)   lens and screen both towards the sun

Q.27 To determine the approximate value of the focal length of a given concave mirror, you focus the image of a distant object formed by the mirror on a screen. The image obtained on the screen, as compared to the object is always : [1]
   (a)   Laterally inverted and diminished
   (b)   Inverted and diminished
   (c)   Erect and diminished
   (d)   Erect and highly diminished

Q.28 In your laboratory you trace the path of light rays through a glass slab for different values of angle of incidence ($\angle$ i) and in each case measure the values of the corresponding angle of refraction ($\angle$ r) and angle of emergence ($\angle$ e). On the basis of your observations your correct conclusion is : [1]
   (a) $\angle$ i is more than $\angle$ r, but nearly equal to $\angle$ e
   (b) $\angle$ i is less than $\angle$ r, but nearly equal to $\angle$ e
   (c) $\angle$ i is more than $\angle$ e, but nearly equal to $\angle$ r
   (d) $\angle$ i is less than $\angle$ e, but nearly equal to $\angle$ r

Q.29 In the neighbourhood of your school, hard water required for an experiment is not available. Select from the following groups of salts available in your school, a group each member of which, if dissolved in distilled water, will make it hard : [1]
   (a)   Sodium chloride, calcium chloride
   (b)   Potassium chloride, sodium chloride
   (c)   Sodium chloride, magnesium chloride
   (d)   Calcium chloride, magnesium chloride

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Q.30 A student puts a drop of reaction mixture of a Saponification reaction first an a blue litmus paper and then on a red litmus paper, He may observe that : [1]
(a) There is no change in the blue litmus paper and the red litmus paper turns white.
(b) There is no change in the red litmus paper and the blue litmus paper turns red.
(c) There is no change in the blue litmus paper and the red litmus paper turns blue.
(d) No change in colour is observed in both the litmus papers.

Q.31 For preparing soap in the laboratory we require an oil and a base. Which of the following combinations of an oil and a base would be best suited for the preparation of soap ? [1]
(a) Castor oil and calcium hydroxide
(b) Turpentine oil and sodium hydroxide
(c) Castor oil and sodium hydroxide
(d) Mustard oil and calcium hydroxide

Q.32 If you are asked to select a group of two vegetables, out of the following having homologous structures which one would you select ? [1]
(a) Carrot and radish   (b) Potato and sweet potato
(c) Potato and tomato   (d) Lady finger and potato

Q.33 A student while observing an embryo of a pea seed in the laboratory listed various parts of the embryo as given below [1]
Testa, Tegmen, Radicle, Plumule, Micropyle, Cotyledon.
on examining the list the teacher remarked that only three parts are correct. Select three correct parts from the above list
(a) Testa, Radicle, Cotyledon   (b) Tegmen, Radicle, Micropyle
(c) Cotyledon, Plumule, Testa   (d) Radicle, Cotyledon, Plumule

Q.34 An object of height 2.5 cm is placed at a distance of 15 cm from the optical centre `O' of a convex lens of focal length 10 cm Draw a ray diagram to find the position and size of the image formed. Mark optical centre `O', principal focus F and height of the image on the diagram. [2]

Q.35 A student adds a spoon full of powdered sodium hydrogen carbonate to a flask containing ethanoic acid. List two main observations, he must note in his note book, about the reaction that takes place. Also write chemical equation for the reaction. [2]

Q.36 A student is observing a permanent slide showing sequentially the different stages of asexual reproduction taking place in yeast. Name this process and draw diagrams of what he observes in a proper sequence. [2]

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