

INDIAN SCHOOL SOHAR
FORMATIVE ASSESSMENT 3
SCIENCE

CLASS: X
DATE: 20/1/2015

TIME: 40 MINUTES
MAX. MARKS: 20

Answer the following questions:

1. What is the nature of the image formed by a concave mirror if the magnification produced by the mirror is +3? (1)
2. The refractive index of water is 1.33 and speed of light in air is 3×10^8 m/s. Calculate the speed of light in water. (1)
3. How does fission in *Leishmania* differ from that of *Plasmodium*? (1)
4. Depict with a cross, how equal genetic contribution of male and female parents are ensured in the progeny. (2)
5. Name the type of mirror used in the following situations:
 (a) solar furnace, (b) rear-view mirror of vehicles. Support your answer with reason. (2)
6. How will you convert:
 (a) ethanol to ethanoic acid. (b) ethanol to ethene. (2)

PTO

SET 2

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Answer the following questions:

1. What is the nature of the image formed by a concave mirror if the magnification produced by the mirror is $-\frac{1}{3}$? (1)
2. The refractive index of glass is 1.50 and speed of light in air is 3×10^8 m/s. Calculate speed of light in glass. (1)
3. How does self-pollination differ from cross-pollination? (1)
4. In Mendel's monohybrid cross between tall and short pea plants, all offspring of the F_1 generation were tall. Work out the pattern of inheritance.
 (i) What does this tell us about the trait?
 (ii) What is the phenotypic and genotypic ratio of tall and short plants in the F_2 generation? (2)
5. Name the type of mirror used in the following situations:
 (a) headlights of a car, (b) rear-view mirror of vehicles. Support your answer with reason. (2)
6. How will you convert:
 (a) ethanol to ethyl ethanoate. (b) ethene to ethane. (2)

SET 1

7. (a) Write any two limitations of Newlands' classification. (b) Define Mendeleev's Periodic law. (2)
8. (a) Draw a neat diagram of female reproductive system, and label the following parts:
 (i) that produces eggs and (ii) where implantation occurs.
 (b) Enumerate the changes that occur in uterus of a female if an egg is not fertilized. (3)
9. (a) Write the IUPAC names of the following.
 (i) $\text{CH}_3\text{-CH}(\text{Br})\text{-CH}_3$ (ii) $\text{CH}_3\text{-CH}(\text{H}_3\text{C})\text{-CH}(\text{CH}_3)\text{-CH}_2\text{-CH}_3$
 (b) Draw the electronic dot structures of the following. (i) Carbon dioxide (ii) Propanone (3)
10. (a) Define power of a lens. (b) Draw a ray diagram to show the formation of image when an object is placed between centre of curvature and principal focus of a concave mirror. (3)

SET 2

7. (a) Write any two merits of Mendeleev's classification. (b) State Newlands' law of octaves. (2)
8. (a) Draw a neat diagram showing the germination of pollen on stigma and label the part that.
 (i) Develops into the fruit and (ii) produces the male germ cell.
 (b) Some crop plants can be grown from seeds as well as vegetatively from stem cuttings.
 List any two advantages of vegetative propagation in such cases. (3)
9. (i) Write the IUPAC names of the following.
 (a) $\text{CH}_3\text{-CH}(\text{OH})\text{-CH}_3$ (b) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}(\text{CH}_3)\text{-CH}(\text{CH}_3)\text{-CH}_3$
 (ii) Draw the electron dot structures of the following.
 (a) Ethene (b) Propanal. (3)
10. (a) State Snell's law of refraction of light. (b) Draw a ray diagram to show the formation of image when an object is placed between principal focus and optical centre of a convex lens. (3)

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Answer the following questions:

1. The refractive index of diamond is 2.42. What is the meaning of the statement in relation to speed of light? (1)
2. Define the principal focus of a concave mirror. (1)
3. How does the function of the male and female reproductive organs in the human body differ from each other? (1)
4. Draw the electron dot structures of
(a) Ethyne (b) Hydrogen chloride. (2)
5. (i) Write any two limitations of Mendeleev's classification. (2)
(ii) Give two examples of Dobereiner's triads. (2)
6. List the four properties of the image formed by a convex mirror. (2)

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(b) Ethyne (b) Hydrogen chloride (2)
5. (i) Write any two limitations of Mendeleev's classification. (2)
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6. List the four properties of the image formed by a convex mirror. (2)

SET III

7. The genotype of green stemmed tomato plants is denoted by GG and that of purple stemmed tomato plants as gg. When these two plants are crossed:
 (a) What colour of stem would you expect in their F1 progeny?
 (b) What percentage of plants in the F2 generation would be purple stemmed and greenstemmed? (2)
8. (a) Draw the longitudinal section of a flower and label the following parts:
 (i) the female reproductive part that contains germ cells.
 (ii) the male reproductive part that contains germ cells.
 (b) List two changes seen in the flower after fertilization. (3)
9. (a) What are unsaturated hydrocarbons? Write the general formula of alkane and alkene.
 (b) What is allotropy? Why diamond is a bad conductor of electricity? Explain. (3)
10. Draw a ray diagram to show the position and nature of the image formed when an object is placed between focus F and P of a concave mirror. (3)

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INDIAN SCHOOL SOHAR
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SCIENCE ACTIVITY

SET I

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Choose the appropriate answer :

1. In a litmus test it is observed that an aqueous solution of acetic acid turns:
(a) Blue litmus colourless (b) Red litmus colourless (c) Red litmus blue (d) Blue litmus red
2. The soap molecules has a:
(a) hydrophilic head and a hydrophobic tail (b) hydrophobic head and a hydrophilic tail
(c) hydrophobic head and a hydrophobic tail (d) hydrophilic head and a hydrophilic tail
3. The law of octaves was proposed by:
(a) Dobereiner (b) Newlands (c) Mendeleev (d) Lothar Meyer
4. Which of the following will give a pleasant smell of ester when heated with ethanol and a small quantity of sulphuric acid?
(a) CH_3COOH (b) $\text{CH}_3\text{CH}_2\text{OH}$ (c) CH_3OH (d) CH_3CHO
5. Number of covalent bonds present in Oxygen molecule is:
(a) 3 (b) 2 (c) 0 (d) 1
6. Insoluble substance formed by a soap in hard water is:
(a) Foam (b) lather (c) scum (d) froth
7. Give the name of the functional group -- CHO:
(a) Aldehydic (b) ketonic (c) alcoholic (d) carboxylic acid
8. A sexually transmitted bacterial disease is :
(a) Syphilis (b) Typhoid (c) Trichomoniasis (d) Warts.
9. A surgical technique of reversible but permanent contraception in females is:
(a) Vasectomy (b) Norplant (c) Tubectomy (d) IUCD.
10. When an allele fails to express itself in the presence of the other allele, the former is said to be:
(a) Recessive (b) dominant (c) Co dominance (d) Pseudoalleles.
11. Percentage of heterozygous individuals obtained from selfing of Rr individuals is:
(a) 25 (b) 50 (c) 75 (d) 100.
12. The hormone responsible for the development of male secondary sex characters are:
(a) Estrogen (b) Progesterone (c) Follicle stimulating hormone (d) testosterone.
13. The process of release of the ripe female gamete from the ovary is called
(a) Ovulation (b) Parturition (c) Implantation (d) Fertilization.
14. The radius of curvature of a convex mirror is 20cm. Its focal length is:
(a) 40cm (b) 10cm (c) 30cm (d) 5cm
15. When an object is placed between the focus and the pole of a concave mirror, the image formed is:
(a) real, inverted and small (b) real, inverted and same size
(c) real, inverted and enlarged (d) virtual, erect and enlarged.
16. The ratio of the sine of the angle of incidence to the sine of angle of refraction is a constant and is called:
(a) reflection (b) refractive index (c) optical density (d) relative density.
17. The lens formula is given by:
(a) $(1/u) + (1/v) = (1/f)$ (b) $(1/u) - (1/v) = (1/f)$ (c) $(1/f) = (1/v) - (1/u)$ (d) $(-1/f) = (1/v) - (1/u)$
18. The SI unit of power of a lens is:
(a) Newton (b) Joule (c) Kelvin (d) dioptre
19. Where should an object be placed so that a real and inverted image of same size is obtained using a convex lens?
(a) between the lens and its focus (b) at twice the focal length (c) at the focus (d) at infinity.
20. The image formed by a concave lens is always
(a) magnified (b) highly enlarged (c) of the same size (d) diminished.

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SET II
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Choose the appropriate answer :

1. A sexually transmitted viral disease is :
(a) Syphilis (b) Typhoid (c) Trichomoniasis (d) Warts.
2. A surgical technique of reversible but permanent contraception in males is:
(a) Vasectomy (b) Norplant (c) Tubectomy (d) IUCD.
3. The fusion of the germ-cells resulting in the formation of zygote:
(a) Ovulation (b) parturition (c) Implantation (d) fertilization.
4. A child of O blood group has a B group father. The genotype of the father will be:
(a) I^O (b) $I^B I^B$ (c) $I^A I^B$ (d) $I^B I^O$.
5. The hormone responsible for the development of male secondary sex characters are:
(a) Estrogen (b) Progesterone (c) Follicle stimulating hormone (d) testosterone.
6. Ripened ovary is called :
(a) Seed (b) thalamus (c) fruit (d) endosperm.
7. To obtain a real and inverted image of an object we need:
(a) a concave mirror or a concave lens (b) a concave mirror or a concave lens
(c) a concave mirror or a convex lens (d) a convex mirror or a concave lens
8. A virtual, erect and magnified image of an object is formed by a convex lens. The position of the object is:
(a) between F and 2F (b) at the focus (c) beyond 2F (d) between F and optical centre of the lens.
9. Linear magnification produced by a spherical mirror is given by:
(a) $m = v/u$ (b) $m = -(v/u)$ (c) $m = -vu$ (d) $m = uv$
10. The image formed by a convex mirror always:
(a) magnified (b) highly enlarged (c) of the same size (d) diminished.
11. The mirror formula is given by:
(a) $(1/f) = (1/v) + (1/u)$ (b) $(1/f) = (1/u) - (1/v)$ (c) $(1/f) = (1/v) - (1/u)$ (d) $(-1/f) = (1/v) - (1/u)$
12. Where should an object be placed so that a real and inverted image of same size is obtained using a concave mirror?
(a) between mirror and its focus (b) at the focus (c) at the centre of curvature (d) at infinity.
13. The light travelling from air enters the diamond and water. The refractive index of diamond is 2.42 and that of water is 1.33. In which medium the light travels slowly?
(a) air (b) water (c) diamond (d) light travels with same speed in diamond and water.
14. The concept of triads of elements was given by:
(a) Dobereiner (b) Newlands (c) Mendeleev (d) Lothar Meyer
15. Acetic acid smells like:
(a) An orange (b) an onion (c) lemon juice (d) vinegar
16. Soap solution is
(a) Acidic in nature (b) basic in nature (c) neutral in nature (d) both acidic & basic in nature
17. When ethanoic acid is treated with NaHCO_3 , the gas evolved is:
(a) H_2 (b) CO_2 (c) CH_4 (d) CO
18. The number of covalent bonds in nitrogen molecule is:
(a) 2 (b) 3 (c) 1 (d) 0
19. The ionic part of detergent is:
(a) $\text{---SO}_3^-\text{Na}^+$ (b) $\text{---COO}^-\text{Na}^+$ (c) ---COOH^+ (d) $\text{---COO}^-\text{CH}_3^+$
20. Give the name of the functional group ---OH
(a) Aldehydic (b) ketonic (c) alcoholic (d) carboxylic acid.
