KENDRIYA VIDYALAYA SANGATHAN, PATNA REGION

SUMMATIVE ASSESSMENT –II (2013-14)

SCIENCE

CLASS- X

TIME: 3 hrs. Max. Marks = 90

GENERAL INSTRUCTION:

i. The question paper comprises of two sections, A and B, you are to attempt both sections.
ii. All questions are compulsory.
iii. There is no overall choice. However internal choice has been provided in all the five questions of five marks category. Only one option in such questions is to be attempted.
iv. All questions of section A and 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 one sentence.
vi. Question numbers 4 to 7 in section A are two mark questions. These are to be answered in about 30 words each.
vii. Question numbers 8 to 19 in section A are three mark questions. These are to be answered in about 50 words each.
viii. Question numbers 20 to 24 in section A are five mark questions. These are to be answered in about 70 words each.
ix. Question numbers 25 to 42 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.

SECTION - A

1. Identify the functional group in CH_3OH and HCOOH?

2. Give botanical name of the plant on which Mendel performed his experiments.

3. A concave lens of refractive index n is submerged in a fluid of refractive index n? How will the lens behave in the fluid?

4. Define sperm? Where is it produced?

5. Why does the clear sky appears blue? What will be the colour of sky in absence of atmosphere?

6. Which among given will have more atomic radii and why? Na, Na^+ .

7. Give any two ways in which non-biodegradable substances would affect the environment.

8. What is contraception? What does the term tubectomy and vasectomy means?

9. (a) What is the power of lens? Write its mathematical expression.(b) Write down the equation connecting the object distance, image distance and focal length of a lens.(c) Where an object be placed in front of a concave mirror to produce image of equal size?

10. (a) What is monohybrid cross? Explain.(b) If a trait A exist in 10% of a population of an asexually reproducing species and trait B exists in 60% of the same population, which trait is likely to have arisen earlier?

11. (a) Define critical angle.

(b) With the help of ray diagram, show the phenomenon of total internal reflection of light.

12. Draw all structural isomers of Pentane and also write their IUPAC name.

13. Explain three R's.

14. The atomic number of an element is 11. (a) What is its valency? (b) Whether it is a metal or non-metal. (c) What type of bond will it form with halogens?

15. The atomic number of three elements A,B,C are given below:

Element	Atomic number
A	7
B	10
C	12

(a) Which element belong to group 18?

(b) Which one of these loose electron easily?

(c) Write the electronic configuration of A.

16. A ray of light falls obliquely on a glass slab. Draw ray diagram to show the path of light ray . Mark angle of incidence, angle of refraction, angle of emergence and lateral displacement of the ray. Give a formula to find refractive index of glass slab in terms of angle of incidence and angle of refraction.

17. (a) What are sexually transmitted diseases? (b) Name any one which is caused by viruses.(c) Mention any two methods to avoid such diseases.

18. Why is variation beneficial in a species but not necessarily for the individual?

19. Comment on the statement, " The flow of energy is unidirectional".

20. (a) Draw L. S. Of a typical flower and label their different parts.

(b) Differentiate between complete and incomplete flower.

(c) What is double fertilisation?

OR

(a) Draw a labelled diagram of female reproductive system of human being.

(b) What is the function of uterus?

(c) Define placenta.

21. (a) What is soap? Explain the cleansing action of soap.

(b) Why have detergents replaced soaps as washing agents?

(c) State one advantage of soap over detergent.

OR

(a) What is homologous series of compounds? List any two characteristics of homologous series.

(b) What would be observed on adding 50% solution of alkaline $KMnO_4$ drop by drop to warm ethanol taken in a test tube? Write the name of compound formed during chemical reaction.

22. (a) Define real image.

(b) In what condition, a concave mirror can produce virtual image. Draw ray diagram to justify your answer.

(c) Write one use of concave and convex mirror both.

OR

(a) If the image formed by a lens is diminished size and erect for all position of the object, what type of lens is it?

(b) Name a point on a lens through which light ray passes undeviated.

(c) Draw ray diagram to show the position and nature of the image formed when the object is placed

(i) between optical centre and focus of a convex lens.

(ii) between F and 2F of a convex lens.

23. (a) Define Genetics.

(b) Discuss law of purity if gametes.

(c) Describe any one dihybrid cross performed by Mendel. What is the phenotype ratio of F_2 generation.

OR

(a) Define with examples-

(i) Homologous organ

(ii) Analogous organ

(iii) Vestigial organ

(b) What are fossils? What do they tell us about process of evolution.

24. A boy of 14 years cannot see questions on the board clearly.

(a) What would be the defect in his eye?

(b) What would be the reason for this defect?

(c) What type of corrective lens should be used in his spectacles?

(d) With the help of ray diagram show how this defect can be corrected.

OR

(a) Explain the phenomenon of dispersion of white light through a glass prism, using suitable ray diagram.

(b) Write the phenomena of light responsible for-

(i) formation of rainbow

(ii) twinkling of stars

(iii)advance sunrise and delayed sunset

(iv)Tyndall effect

SECTION B

25. Oxidising agents are:

(a) Electron acceptor (b)Electron donor

(c) Catalyst (d) None of the above

26. On adding $NaHCO_3$ to acetic acid, one immediately:

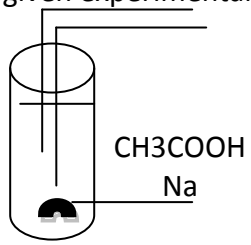
(a) observes strong effervescence
(b) hears a hissing sound
(c) gets pungent smell
(d) observes the evolution of a coloured gas

27. The odour of acetic acid resembles that of :

(a) rose (b) burning plastic

(c)vinegar (d) kerosene

28. Name the gas evolved in the given experimental set up



(a) hydrogen (b) Methane

(c) Carbon monoxide (d) Carbon dioxide

29. In which of the following water sample soap will show maximum cleaning capacity?

a) Distilled water
b) Well water
c) Distilled water in which Calcium sulphate is dissolved
d) Distilled water in which Calcium bicarbonate is dissolved

30.Total number of covalent bonds in a molecule of ethane is:

(a)2 (b)3 (c)5 (d)7

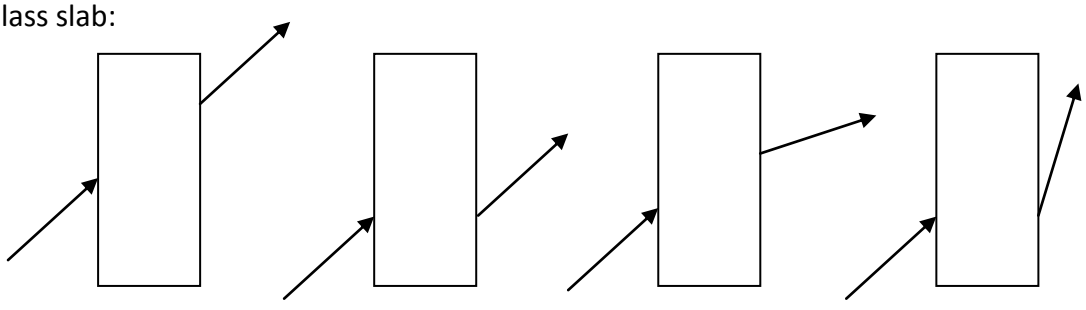
31. A student obtains a blurred image of an object on a screen by using a concave mirror. In order to obtain a sharp image on the screen he has to shift the mirror

(a) towards the screen
(b) away from the screen
(c) either towards or away from the screen depending on position of the object
(d) in a position very far away from the screen

32. A student is to find the focal length of (i) a concave mirror (ii) a convex lens by focusing the image of a distant object on a screen. He will observe that on the same side as that of the object in

a) Both cases b) Case (i) but not in case (ii)
c) Case (ii) but not in case (i) d) Neither case (ii) nor in case (i)

33. Four students showed thefollowing traces of the path of a ray of light through arectangular glass slab:

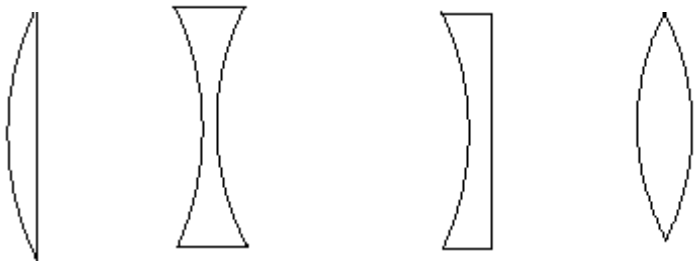


A B C D

The trace is most likely to be correct is that of student

(a) A (b) B (c) C (d) D

34. A student is provided following lenses to burn a piece of paper. Which lens he should select:



I II III IV

a) II (b)I (c)IV (d)III

35. If the angle of incidence is zero, then angle of reflection will be:

(a) 90^0 (b) 30^0 (c) 60^0 (d) 0^0

36.The law of reflection are applicable to :

(a) plane mirror (b)concave mirror

(c)convex mirror (d)all of the above

37. A basket of vegetables contain carrot, potato, radish and tomato. Which of them represent the correct homologous structures?

a) Carrot and potato b) Carrot and tomato

c) Radish and carrot d) Radish and potato

38. Amphibians, reptiles , birds and mammals indicate a common ancestry as they have

(a) two eyes (b) a tail in embryo stage

(c) four limbs (d) dry skin

39. By which process dry gram gain water and swell

(a) Osmosis (b) Exosmosis

(c) Plasmolysis (d) Imbibition

40. The figure given below shows

(a)Amoeba undergoing binary fission 

(b)Yeast undergoing binary fission

(c) Yeast undergoing budding

(d) Amoeba undergoing budding

41. In evolutionary terms, we have more in common with:

(a) a Chinese school boy (b)a chimpanzee

(c)a bacterium (d)all of the above

42. A student soaked 10 g of raisin in 50ml of distilled water in two beakers A and B. Beaker A is maintained at 25^0Cand beaker B at 50^0C. After an hour, the percentage of water absorbed will be:

(a) the same in both A and B (b)more in A than in B

(c)more in B than in A (d)exactly twice as much in B as in A.

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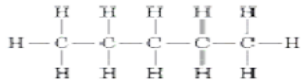
SET - 1

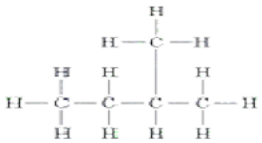
MARKING SCHEME -SCIENCE

1- Alcoholic-OH	1/2
Carboxylic-COOH	1/2
2. *Pisum sativum*	1
3. Lens will disappear	1
4. Sperm is male gamete. It is produced in testes.	2
5. Due to scattering of light. In absence of atmosphere the sky appears dark.	1+1
6. Na . Due to greater attraction of electron	1+1
7. (i) the persist in our environment for long time & damage the environment.	1
(ii) They cause land and water pollution.	1
8. Prevention of pregnancy is called contraception.	1
Tubectomy- section of fallopian tube is removed	1
Vasectomy- section of vas deference is removed	1
9. (a) The degree of convergence or divergence of light ray is called power.	1
P=1/f (m)	½
(b) 1/v-1/u=1/f	½
(c) When object is at C	1
10. (a) An experiment dealing with one character is monohybrid cross.	1
Explanation –Refer NCERT text book page -144	1
(b) Trait B	1
11.(a) The angle of incidence for which angle of refraction is 90^0	1
(b) Correct ray diagram	2

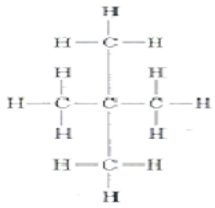
12. 3



pentane



isopentane



neopentane

Pentane Methyl butane Dimethyl propane

13. NCERT Text book Pg -268 3

14. (a) one 1

(b) Metal 1

(c) Ionic or electrovalent 1

15. (a) –B , Noble gas 1

(b) C 1

(C) K,L=2,5 1

16. NCERT text book page 173 2

R.I= sin i /sin r 1

17. (a) The disease that are transmitted by sexual activity are called STD. 1

(b) AIDS 1

(C) (i) using barrier such as condom.

(ii) Avoiding sexual activity with many partners . 1

18. NCERT text book page 128. 3

19. Explanation of food chain. 3

20. (a) NCERT textbook page 134. 3

(b) Flower having all whorls present are complete flower .if any one whorl is absent the flower is incomplete . 1

(b) In angiosperm plant one male gamete fuse with female gamete and other male gamete fuses with polar nuclei .here fertilization occurs twice hence called double fertilization . 1

OR

(a) NCERT text book page 137. 3

(b) NCERT text book page 138. 1

(c) NCERT text book page 138 1

21. (a) NCERT text book page 74. 3

(b) Detergent works in hard water also. 1

(c) Soaps do not form scum. 1

OR

(a) NCERT text book page 66. 1+2

(b) Sweet smell comes out .

Acetic acid 2

22. (a) Image that can be obtained on screen is real image . 1

(b) When object is placed between F& P.

For ray diagram NCERT text book page 166. 2

(c) For correct answer 2

OR

(a) Concave lens 1

(b) Optical centre 1

(c) NCERT text book page 180. 1 ½ +1 ½

23. (a) Branch of science dealing with inheritance of characters from one generation to another is called genetics. 1

(b) & (c) NCERT text book page 144. 2+2

OR

(a) (i) & (ii) NCERT text book page 152. 2

(iii) Vestigial organs are those organs that are presenting in body but are of no use. 1

(b) NCERT text book page 153. 2

24. (a) Myopia 1

(b) (i) Excessive curvature of eye lens.

(ii) Elongated eye ball. ½ + ½

(c) Concave lens. 1

(d) NCERT text book page 189. 2

OR

(a) Ray diagram NCERT text book page 193. 1 ½

Correct explanation. 1 ½

(b) (i) Dispersion ½

(ii) Refraction ½

(iii) Refraction ½

(iv) Scattering ½

25. B 1

26. A 1

27. C 1

28. D 1

29. A 1

30. D 1

31. C 1

32. B 1

33. B 1

34. C 1

35. D 1

36. D 1

37. C 1

38. B 1

39. D	1
40. C	1
41. A	1
42. C	1

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(Set 1)

Blue print
Science
Class x

Slno	Subject	Theory(marks)	MCQ	Total
1	Chemical Substance (i) Carbon And Its Compounds (ii) Periodic Classification Of Elements	 9 8	06	23
2	Natural Phenomena (i) Light- Reflection and Refraction (ii) Human Eye and Colourful World	 12 10	06	28
3.	World of living (i)How do Organism Reproduce (ii) Heredity and Evolution	 14 11	06	31
4.	Conservation of Natural Resources (i) Our Environment (ii)Management of Natural Resources	 6 2		8
	Grand Total	72	18	90

Slno	Type of questions	Marks for each question	No. of questions	Total Marks
1	VSA	1	3	03
2	SA(I)	2	4	08
3	SA(II)	3	12	36
4	LA	5	5	25
5	MCQ	01	18	18
	TOTAL			**90**