

ಕರ್ನಾಟಕ ಶಾಲಾ ಪರೀಕ್ಷೆ ಮತ್ತು ಮೌಲ್ಯನಿರ್ಣಯ ಮಂಡಲಿ
ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು-560003

KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD
Malleswaram, Bengaluru-560003

S.S.L.C. MODEL QUESTION PAPER 2022-23

Subject : SCIENCE

Medium : English

Time : 3 hours 15 minutes
Max. Marks : 80

Subject Code : 83E

CCE-RF
Regular Fresh

General Instructions to the Candidate :

1. There are three parts in the question paper Part-A : Physics, Part-B : Chemistry, Part-C : Biology.
2. This question paper consists of objective and subjective types of 38 questions.
3. This question paper has been sealed by reverse jacket. You have to cut on the right side to open the paper at the time of commencement of the examination. Check whether all the pages of the question paper are intact.
4. Follow the instructions given against both the objective and subjective types of questions.
5. Figures in the right hand margin indicate maximum marks for the questions.
6. The maximum time to answer the paper is given at the top of the question paper. It includes 15 minutes for reading the question paper.

PART-A
(PHYSICS)

I. Four alternatives are given for each of the following questions / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.

3 x 1 = 3

1. The device used to change the resistance at many times in the electric circuit is

(A) Electric generator	(B) Electric motor
(C) Galvanometer	(D) Rheostat

2. The correct statement among the following related to the Concave lens is,

(A) Converges the light rays	(B) forms inverted image
(C) forms real image	(D) diverges the light rays

3. The resistivity (Ωm) of four materials A, B, C and D are 6.84×10^{-8} , 1.62×10^{-8} , 5.20×10^{-8} and 2.63×10^{-8} respectively. Which of these materials has very less electric conductivity?

(A) Material B	(B) Material C
(C) Material A	(D) Material D

II. Answer the following questions.

2 x 1 = 2

4. Draw the symbol diagram of two electric cells that are connected in series in an electric circuit.

5. What is 'Optic centre' of spherical lens?

III. Answer the following questions.**3x2=6**

6. What is solenoid? List the properties of the magnetic field due to the flow of electric current in a solenoid.
7. How does rainbow form in nature? Explain.
8. Ray of light travelling in air enters obliquely into water. Does the light ray bend towards the normal or away from the normal? Why?

OR

Convex mirror is commonly used as a rear-view mirror in vehicles. Why? Write the relationship between the focal length and radius of curvature of a convex mirror.

IV. Answer the following questions.**3x3=9**

9. Explain the method of production of biogas in biogas plant and write any two characteristics of biogas.

OR

How power is generated from nuclear energy? Explain. Write any two hazards of nuclear power generation.

10. Draw the ray diagram of image formation when the object is kept at 'C' of the concave mirror. With the help of the ray diagram mention the position and the nature of the image formed. (F: Principal focus of the mirror, C: Centre of curvature of mirror)
11. Stars appear to be twinkling. Why? Explain. What are the reasons for the appearance of the sun in red colour during sunrise?

OR

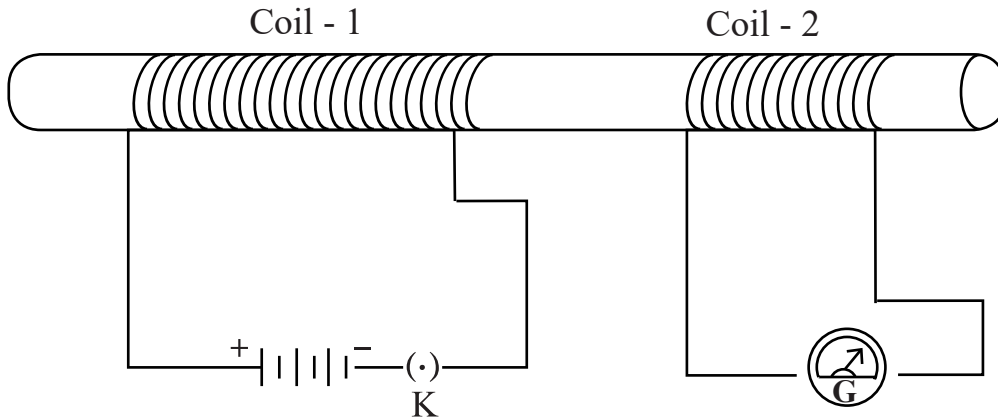
- a) What is meant by power of accommodation of the eye ?
- b) What is myopia (near sightedness)? What are the reasons that cause this defect ?

[Turn over

V. Answer the following questions.

2x4=8

12. a) Two resistors of resistance 5Ω and 20Ω are connected in parallel and connected to a 12V battery. Calculate the total resistance in the electric circuit and the total current flowing in this circuit.
- b) 200 J of heat is produced in two seconds in a 8Ω resistance. Find the potential difference across the resistor.
13. a) Coil-1 is connected to the battery and plug key and Coil-2 with a galvanometer are kept close to each other as shown in the diagram.



Write your observation in the galvanometer. When

- i) plug key K is closed and ii) plug key K is opened

Give reasons for your observations.

- b) Write the functions of the following.

- i) Earthing wire ii) Electric fuse

PART-B
(CHEMISTRY)

VI. Four alternatives are given for each of the following statements / incomplete statements. Choose the correct alternative and write the complete answer along with its letter of alphabet.

3 x 1 = 3

14. The Chemical equation that represents neutralisation reaction among the following is

(A) Sodium Hydroxide + Hydrochloric acid \rightarrow
Sodium Chloride + Water

(B) Barium Chloride + Sulphuric acid \rightarrow
Barium sulphate + Hydro Chloric acid

(C) Manganese dioxide + Hydrochloric acid \rightarrow
Manganese chloride + Water + Chlorine

D) Silver nitrate + Hydrochloric acid \rightarrow
Silver chloride + Nitric acid

15. "Properties of elements are periodic function of their atomic number".
This law was proposed by

(A) Dobereiner

(B) Mendeleev

(C) Newlands

(D) Henry Moseley

16. The substance that converts red litmus paper into blue colour is

(A) KOH Solution

(B) distilled water

(C) dilute solution of HCl

(D) concentrated solution of HNO₃

[Turn over

VII. Answer the following questions.**3 x 1 = 3**

17. Mention the number of single bonds and double bonds present in the structure of C_2H_5COOH molecule.
18. Write the electron dot structure of methane.
19. Draw the diagram of the arrangement of apparatus to show electrolysis of water.

VIII. Answer the following questions.**3 x 2 = 6**

20. Calcium oxide reacts with water to form slaked lime. What type of Chemical reaction is this? Write the balanced chemical equation for this reaction.
21. What is the chemical name of bleaching powder ? Write any two uses of it.

OR

What is concentrated acid? Name the acid present in the stinging hair of nettle leaves.

22. Give reason.
 - i) Ionic compounds have high melting and boiling points.
 - ii) Ionic compounds in solid state do not conduct electricity.

IX. Answer the following questions.**3 x 3 = 9**

23. Draw the diagram of the arrangement of apparatus to show the action of steam on metals.
 - i) Metal piece
 - ii) Delivery tube

24. The electronic configuration of four elements are given in the below table. Write the elements in the increasing order of their electropositivity and give reason.

Elements	Electronic Configuration
Na	2, 8, 1
S	2, 8, 6
Al	2, 8, 3
K	2, 8, 8, 1

25. Silver chloride exposed to the sunlight turns grey colour. Why? Write the balanced chemical equation for this reaction and mention the type of reaction.

OR

Why does the colour of copper sulphate solution change when an iron nail is dipped into it? Write the balanced chemical equation for this reaction.

X. Answer the following question.

1 x 4 = 4

26. a) The conversion of ethanol to ethanoic acid is an oxidation reaction. Why?
- b) What are structural isomers? Write the structural isomers of butane.

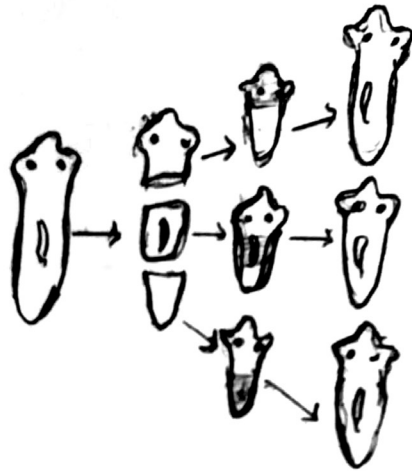
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XIII. Answer the following questions.

2 x 2 = 4

32. What needs of the local people are fulfilled by the forest?

33.

**SPIROGYRA****PLANARIA**

The reproduction methods expressed in both of the above figures are similar or different from each other? Write the justification to your answer.

XIV. Answer the following questions.

3 x 3 = 9

34. a) How is the vegetative propagation in plants useful to the field of agriculture?
 b) Consistency of the DNA copying is important during reproduction. Why?

OR

- a) How do germ cells receive half the amount of DNA? What is the need of this process?
 b) How does menstruation in women occur?

[Turn over

35. How phototropism, thigmotropism and chemotropism are co-ordinated in the apparent movement of creepers (climbing-up plants) towards particular direction?

36. Draw the diagram showing the structure of the human brain. Label the following parts.

- i) Cerebrum ii) Cerebellum

XV. Answer the following question.

1 x 4 = 4

37. a) What is the important function of 'villi' and 'alveoli' in our body?
b) Explain the structure and function of nephron.

OR

- a) What is the importance of transpiration in plants?
b) How does translocation of materials take place by phloem tissue?

XVI. Answer the following question.

1 x 5 = 5

38. a) Tall pea plant (TT) is crossed with short pea plant (tt). What type of the plants will obtain in F_1 generation? Write the genetic make up of this progeny.
b) Forelimbs of frog, wings of bird, wings of bat, forelimbs of lizard pair them as analogous and homologous organs. Give reason for your pairing.