CBSE EXAMINATION PAPER-2022

SCIENCE

(Solved)

Time allowed : 3 hours | Maximum Marks : 30

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **15 questions.** All questions are **compulsory.**

ii. This question paper is divided into **3 sections.**

iii. **Section A** – questions number **1 to 2** are case based questions

iv. **Section B** – questions number **3 to 11** are very short answer

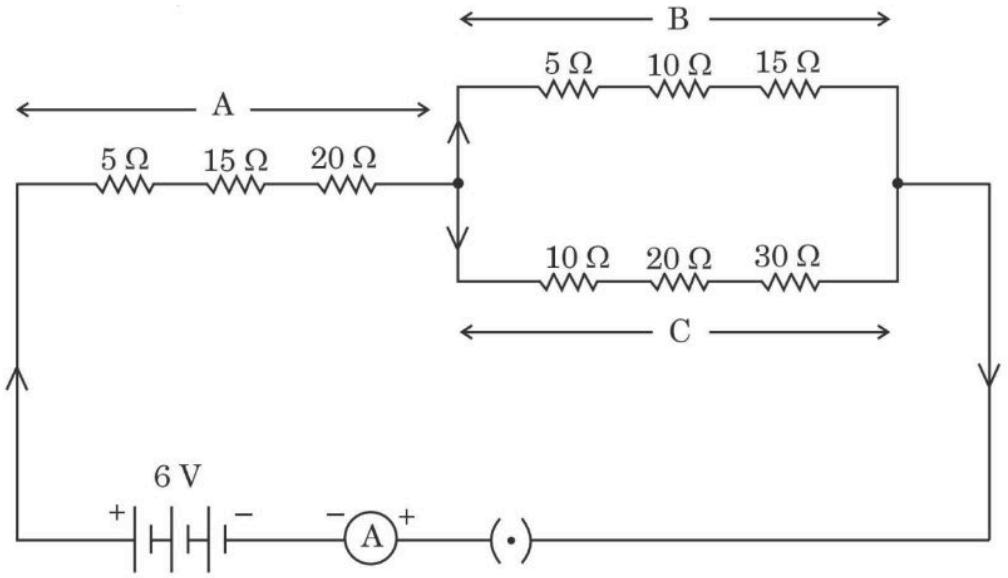
v. **Section C** – questions number **12 to 15** are short answer

vi. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

vii. Use of calculator is NOT allowed.

Section A

Question 1. Study the following electric circuit in which the resistors are arranged in three arms A, B and C:



(1) Find the equivalent resistance of arm A.

[1 Marks]

(2) Determine the current that flows through the ammeter.

[2 Marks]

(3) Calculate the equivalent resistance of the parallel combination of the arms B and C.

[1 Marks]

(4)

Determine the current that flows in the ammeter when the arm B is withdrawn from the circuit.

[2 Marks]

Question 2.

The modes by which various organisms reproduce depend on the body design of the organisms. In asexual reproduction , a single individual parent produces offsprings without the involvement of gametes. This method is a common means of increasing the offsprings

rapidly under favorable conditions. Asexual reproduction occurs mostly in unicellular organisms, some plants and certain simple multicellular animals.

(1)

State the name of the organism in which binary fission takes place in a definite orientation. Also name the disease caused by this organism.

[1 Marks]

(2)

List any two advantages of producing plants through vegetative propagation.

[1 Marks]

(3)

Explain the process of budding in Hydra.

[2 Marks]

(4)

What happens when

(i) a spirogyra filament matures and attains a considerable length, and

(ii) a spirogyra in Rhizopus bursts on maturation ?

[2 Marks]

Section B

Question 3.

Kulhads (disposable cups made of clay) and disposable paper cups both are used as an alternative for disposable plastic cups. Which one of these two can be considered as a better alternative to plastic cups and why ?

[2 Marks]

Question 4.

Human beings are most adversely affected by the Biological Magnification. State the reason. Why can ordinary washing of the edibles (fruits and vegetables) not reduce the effect of biological magnification ?

[2 Marks]

Question 5.

Draw the electron dot structure of the following:

(a) Cyclohexane

(b) Butane

[2 Marks]

Question 6.

State the criteria used by Mendeleev for creating his Periodic Table. Compare the position of isotopes of elements in the Mendeleev's Periodic Table and in the Modern Periodic Table.

[2 Marks]

Question 7.

An electric heater rated 1100 W operates at 220 V. Calculate

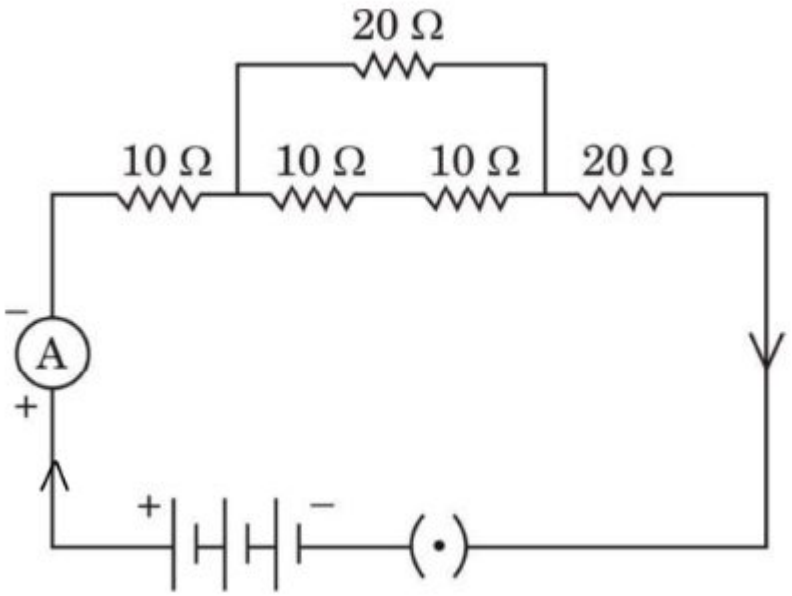
(i) its resistance, and (ii) the current drawn by it.

[2 Marks]

Question 8.

Calculate the equivalent resistance of the following electric circuit:

[2 Marks]



Question 9.

Suggest any two contraceptive methods to control the size of human population and explain them.

[2 Marks]

Question 10.

Justify the statement "Sex of the children will be determined by what they inherit from their father".

[2 Marks]

Question 11.

Name the part/organ of the human female reproductive system

(a) where contraceptive devices such as loop or copper-T are placed to prevent pregnancy.

(b) which is blocked to prevent the transfer of eggs.

(c) where formation of green cells as ova takes place.

(d) from where the embryo gets nutrition from the mother's blood.

[2 Marks]

Section C

Question 12.

What are human-made ecosystems ? Give an example. Can a human-made ecosystem become a self-sustaining ecosystem ? Give reason to justify your answer.

[3 Marks]

Question 13.

State the reason why

(i) carbon compounds have low melting and boiling points.

(ii) carbon compounds do not conduct electricity.

(iii) carbon can form only covalent compounds.

[3 Marks]

Question 14.

What is a homologous series ? Find the difference in molecular mass between the two consecutive members of a homologous series. State how in a homologous series of carbon compounds the following properties vary with increase in molecular mass:

(i) Melting and boiling points

(ii) Chemical properties

[3 Marks]

Question 15.

How do Mendel's experiments show that the traits are inherited independently ? Explain.

[3 Marks]