

# COMMON HALF-YEARLY EXAMINATION - 2019

Standard X  
SCIENCE

Reg.No. :

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Marks: 75

Time: 3.00 hours.

- Instructions :
- Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.
  - Use blue or black ink to write and pencil to draw diagrams.

## Part - I

Note : i) Answer all questions.

12 x 1 = 12

ii) Choose the correct answer from the four alternatives and write the option code and the corresponding answer

- The value of universal gas constant
  - 3.81 J mol<sup>-1</sup> K<sup>-1</sup>
  - 8.03 J mol<sup>-1</sup> K<sup>-1</sup>
  - 1.38 J mol<sup>-1</sup> K<sup>-1</sup>
  - 8.31 J mol<sup>-1</sup> K<sup>-1</sup>
- Kilowatt hour is the unit of
  - resistivity
  - conductivity
  - electrical energy
  - electrical power
- When a sound wave travels through air, the air particles
  - vibrate along the direction of the wave motion
  - vibrate but not in any fixed direction
  - vibrate perpendicular to the direction of the wave motion
  - do not vibrate
- The isotope which cures anaemia
  - Sodium-24
  - Iodine-131
  - Iron-59
  - Cobalt-60
- \_\_\_\_\_ group contains the member of halogen family.
  - 17<sup>th</sup>
  - 15<sup>th</sup>
  - 18<sup>th</sup>
  - 16<sup>th</sup>
- Match the following:
  - Pollination by wind
  - Pollination by insects
  - Pollination by water
  - Pollination by animals
  - Hydrophily
  - Anemophily
  - Zoophily
  - Entomophily
  - (1)-(ii), (2)-(i), (3)-(iii), (4)-(iv)
  - (1)-(i), (2)-(iii), (3)-(ii), (4)-(iv)
  - (1)-(ii), (2)-(iv), (3)-(i), (4)-(iii)
  - (1)-(iv), (2)-(i), (3)-(ii), (4)-(iii)
- Powdered CaCO<sub>3</sub> reacts more rapidly than flaky CaCO<sub>3</sub> because of \_\_\_\_\_.
  - large surface area
  - high pressure
  - high concentration
  - high temperature
- Kreb's cycle takes place in
  - chloroplast
  - mitochondrial matrix
  - stomata
  - inner mitochondrial membrane
- The outermost of the cranial meninges is
  - arachnoid membrane
  - piamater
  - duramater
  - myelin sheath

(2)

10. Bipolar neurons are found in
- retina of eye
  - cerebral cortex
  - embryo
  - respiratory epithelium
11. Anemophilous flowers have \_\_\_\_\_.
- Sessile stigma
  - Small smooth stigma
  - Coloured flower
  - Large feathery stigma
12. The centromere is found at the centre of \_\_\_\_\_ chromosome.
- telocentric
  - metacentric
  - sub-metacentric
  - acrocentric

**Part - II**

**Note: Answer any seven questions: Q.No.22 is compulsory:** 7 x 2 = 14

13. When and where was the first nuclear reactor built?
14. What is the action of copper with dil. HCl and  $H_2SO_4$ ? Write the equation.
15. Calculate the molar mass of  $Ca_3(PO_4)_2$ .
16. How does pH play an important role in everyday life?
17. i) What does ANS stands for?  
ii) What does ANS comprise of?
18. Write a note about any two methods of preventing corrosion.
19. Mention any two importance of fossils.
20. Define genetic engineering.
21. What are the main parts of Script Editor?
22. Calculate the resistance of a conductor through which a current 2 A passes, when the potential difference between its ends is 30 V.

**Part - III**

**Note: Answer any seven questions: Q.No.32 is compulsory:** 7 x 4 = 28

23. i) State Boyle's law.  
ii) Distinguish between ideal gas and real gas.
24. i) What is the role of the earth wire in domestic circuits?  
ii) List the merits of LED bulb.
25. a) Write the IUPAC names and its structural formula for the following:  
i)  $CH_3CH_2OH$       ii)  $CH_3COOH$   
b) Calculate the volume of ethanol in 200 ml solution of 20% V/V aqueous solution of ethanol.
26. i) What are oxysomes? Draw its structure.  
ii) What is photosynthesis? Write the reaction for photosynthesis.
27. i) Explain how locomotion take places in Leech.  
ii) What are the medicinal values of Leech?
28. What is Reflex action? Explain the types of Reflex action.
29. A pure tall plant (TT) is crossed with pure dwarf plant (tt), what would be the  $F_1$  and  $F_2$  generations? Explain.

30. Define Ethnobotany and write its importance.
31. How are stem cells useful in regenerative process?
32. An organic compound 'A' is widely used as a preservative and has the molecular formula  $C_2H_4O_2$ . This compound reacts with ethanol to form a sweet smelling compound 'B'.
- Identify the compounds 'A' and 'B'
  - Write the chemical equation for its reaction with ethanol to form compound 'B'.
  - Name the process.

#### Part - IV

**Note : Answer all the questions.**

3 x 7 = 21

**(Draw diagram wherever necessary)**

33. a) i) State and prove the Law of Conservation of Momentum.  
 ii) Calculate the velocity of a moving body of mass 5 kg whose linear momentum is  $2.5 \text{ kgms}^{-1}$ .

(or)

- b) Differentiate the following:
- Myopia and Hypermeteropia
  - Convex lens and Concave lens.

34. a) i) Mention the ores of Aluminium with its formula.  
 ii) Explain the extraction of Aluminium from its ore by Baeyer's process and Hall's process.

(or)

- b) i) In what way hygroscopic substances differ from dilliquescent substances?  
 ii) Classify the following substances into dilliquescent, hygroscopic.  
 Conc. Sulphuric acid, Copper sulphate pentahydrate, Silica gel, Calcium chloride and gypsum salt.  
 iii) A solution is prepared by dissolving 45 g of sugar in 180 g of water. Calculate the mass percentage of solute.

35. a) i) Which is 'Life saving' hormone? Why it is called so?  
 ii) Write any two physiological effects of gibberellins.  
 iii) Enumerate the functions of blood.

(or)

- b) i) How does rainwater harvesting structures recharge ground water?  
 ii) What is POCSO Act? What are the objectives of this Act?

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