

V10S

Virudhunagar District
Common Half Yearly Examination - December 2025



Standard 10

SCIENCE

Time: 3.00 Hrs.

Marks: 75

Part - I

12×1=12

1. Answer all the questions.

2. Choose the correct answer.

- 1) Magnification of a convex lens is
 - a) positive
 - b) negative
 - c) either positive or negative
 - d) zero
- 2) Velocity of sound in the atmosphere of a planet is 500 ms^{-1} . The minimum distance between the sources of sound and the obstacle to hear the echo, should be
 - a) 17m
 - b) 20m
 - c) 25 m
 - d) 50m
- 3) In which of the following reaction, the mass number decreases by four of the daughter nucleus?
 - a) α decay
 - b) β decay
 - c) γ decay
 - d) neutron decay
- 4) _____ group contains the member of halogen family.
 - a) 17th
 - b) 15th
 - c) 18th
 - d) 16th
- 5) The chemical formula for marble is
 - a) $\text{Ca}(\text{OH})_2$
 - b) CaCO_3
 - c) CaCl_2
 - d) $\text{Ca}_3(\text{PO}_4)_2$
- 6) Which is formed during anaerobic respiration?
 - a) Carbohydrate
 - b) Ethyl alcohol
 - c) Acetyl CoA
 - d) Pyruvate
- 7) Which one is referred as "Master gland"?
 - a) Pineal gland
 - b) Pituitary gland
 - c) Thyroid gland
 - d) Adrenal gland
- 8) The heart of amphibians possess _____ chambers.
 - a) 5
 - b) 2
 - c) 4
 - d) 3
- 9) The large elongated cells that provide nutrition to developing sperms are
 - a) Primary germ cells
 - b) Sertoli cells
 - c) Leydig cells
 - d) Spermatogonia
- 10) We can cut the DNA with the help of
 - a) Scissors
 - b) Restriction endonucleases
 - c) Knife
 - d) RNAase
- 11) TFM in soaps represents _____ content in soap.
 - a) mineral
 - b) vitamin
 - c) fatty acid
 - d) carbohydrate
- 12) Cancer of the epithelial cells is called
 - a) Leukemia
 - b) Sarcoma
 - c) Carcinoma
 - d) Lipoma

Part - II

Answer any seven questions: [Question No. 22 is compulsory]

7×2=14

- 13) State Newton's second law.
- 14) Name three animals which can hear ultrasonic vibrations.
- 15) Define one roentgen.
- 16) Why does the reaction rate of a reaction increase on raising the temperature?
- 17) Draw and label the structure of oxysomes.
- 18) Why are thyroid hormones referred as personality hormone?



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- 19) Write any 2 uses of Ethanol.
- 20) Define genetic engineering.
- 21) What are the contributing factors of obesity?
- 22) An electric heater of resistance 5Ω is connected to an electric source. If a current of 6A flows through the heater, then find the amount of heat produced in 5 minutes.

Part - III**Answer any seven questions: [Question No. 32 compulsory]****7×4=28**

- 23) What are the types of inertia? Give an example for each type.
- 24) Differentiate the eye defects: Myopia and Hypermetropia
- 25) What is an echo?
 - a) State two conditions necessary for hearing an echo.
 - b) What are the medical applications of echo?
 - c) How can you calculate the speed of sound using echo.
- 26) In what way hygroscopic substances differ from deliquescent substances.
- 27) a) What is respiratory quotient?
b) Write the dental formula of rabbit.
- 28) With a neat diagram explain the structure of a neuron.
- 29) With a neat labelled diagram describe the parts of a typical angiospermic ovule.
- 30) How do you differentiate homologous organs from analogous organs?
- 31) How does rain water harvesting structures recharge ground water?
- 32) a) Calculate the gram molecular mass of H_2O .
b) The hydroxyl ion concentration of a solution is $1 \times 10^{-9}M$. What is the pOH of the solution?

Part - IV**Answer all the questions. Draw diagrams wherever necessary:****3×7=21**

- 33) a) Define one calorie.
b) An alloy of nickel and chromium is used as the heating element. Why?
c) List the merits of LED bulb.

(OR)

- a) What is a nuclear reactor? Explain its essential parts with their functions.
- b) Give any two uses of radio isotopes in the field of agriculture.
- c) Who discovered natural radioactivity?
- 34) a) Give the salient features of "Modern atomic theory".
b) Define: Atomicity
c) State two conditions necessary for rusting of iron.

(OR)

- a) Differentiate soaps and detergents.
- b) How is ethanoic acid prepared from ethanol? Give the chemical equation.
- 35) a) Enumerate the functions of blood.
b) Write the physiological effects of gibberellins.

(OR)

- a) What are allosomes?
- b) Define Ethnobotany and write its importance.
- c) Enumerate the importance of forest.