V10S

Virudhunagar District Common Examinations
Common Half Yearly Examination - December 2022

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Time: 2.30 Hrs.

Standard 10
SCIENCE

Maximum Marks: 75

PART - I

Note: i) Answer all questions.   12×1=12
ii) Choose the most suitable answer.

1) The project the rockets which of the following principle(s) is / are required?
   a) Newton's third law of motion
   b) Newton's law of gravitation
   c) Law of conservation of linear momentum
   d) Both a and c

2) Kilowatt hour is the unit of
   a) resistivity   b) conductivity
   c) electrical energy   d) electrical power

3) Artificial radioactivity was discovered by _____.
   a) Bequerel   b) Irene Curie   c) Roentgen   d) Neils Bohr

4) _____ is an important metal to form amalgam.
   a) Ag   b) Hg   c) Mg   d) Al

5) The number of components in a binary solution is _____.
   a) 2   b) 3   c) 4   d) 5

6) Rectified spirit is an aqueous solution which contains about _____ of ethanol.
   a) 95.5%   b) 75.5%   c) 55.5%   d) 45.5%

7) The endarch condition is the characteristic feature of
   a) root   b) stem   c) leaves   d) flower

8) 'Heart of heart' is called
   a) SA node   b) AV node   c) Purkinje fibres   d) Bundle of His

9) _____ hormone is known as a 'time messenger'.
   a) Oxytocin   b) Thyroxine   c) Adrenaline   d) Melatonin

10) Syngamy results in the formation of _____.
    a) Zoospores   b) Conidia
    c) Zygote   d) Chlamydospores

11) Vomiting centre is located in
    a) medulla oblongata   b) stomach   c) cerebrum   d) hypothalamus

12) World 'No Tobacco Day' is observed on
    a) May 31   b) June 6   c) April 22   d) October 2

PART - II
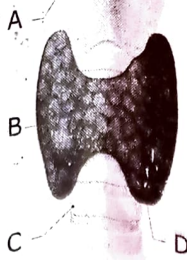
Answer any 7 questions: [Q.No. 22 is compulsory]   7×2=14

13) Draw a ray diagram to show the image formed by a convex lens when the object is placed between F and 2F.

14) State Boyle's law.

15) a) What is the audible range of frequency?
    b) What is the minimum distance needed for an echo?

16) How is ethanoic acid prepared from ethanol? Give the chemical equation.

17) a) Write the dental formula of rabbit.
    b) How is diastema formed in rabbit?

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18) Identify the parts A, B, C and D in the given figure.

A
B
C   D

19) What is the importance of valves in the heart?
20) What are allosomes?
21) How are e-wastes generated?
22) The workdone in moving a charge of 10c across two points in a circuit is 100J. What is the potential difference between the points?

PART - III

Answer any 7 questions: [Q.No. 32 is compulsory]   7×4=28

23) Describe rocket propulsion.
24) Derive the ideal gas equation.
25) a) Mention two cases in which there is no Doppler effect in sound?
    b) Explain why, the ceilings of concert halls are curved?
26) a) What are the methods of preventing corrosion?
    b) State two conditions necessary for rusting of iron.
27) a) Differentiate Aerobic and Anaerobic respiration.
    b) What is respiratory quotient?
28) Illustrate structure and functions of brain.
29) a) What is bolting? How can it be induced artificially?
    b) Why are thyroid hormones refered as personality hormone?
30) Define Ethnobotany and write its importance.
31) How does rainwater harvesting structures recharge ground water?
32) a) What happens when $MgSO_4.7H_2O$ is heated?
    b) A solution is prepared by dissolving 45g of sugar in 180g of water. Calculate the mass percentage of solute.

PART - IV

Answer ALL questions. Each question carries seven marks: 3×7=21
[Draw diagram wherever necessary]

33) Explain the construction and working of a 'compound microscope'.
                                    (OR)
    a) Compare the properties of alpha, beta and gamma radiations.
    b) Define one roentgen.
34) a) Give the salient features of 'Modern Atomic Theory'.
    b) Define Atomicity.
    c) Give any two examples for heterodiatomic molecules.
                                    (OR)
    a) Differentiate reversible and irreversible reactions.
    b) A solid compound 'A' decomposes on heating into 'B' and a gas 'C'. On passing the gas 'C' through water, it becomes acidic. Identify A, B, C.
35) a) What is transpiration? Give the importance of transpiration.
    b) Enumerate any four functions of blood.
                                    (OR)
    a) Give the harmful effects of alcohol.
    b) What is metastasis?