

9

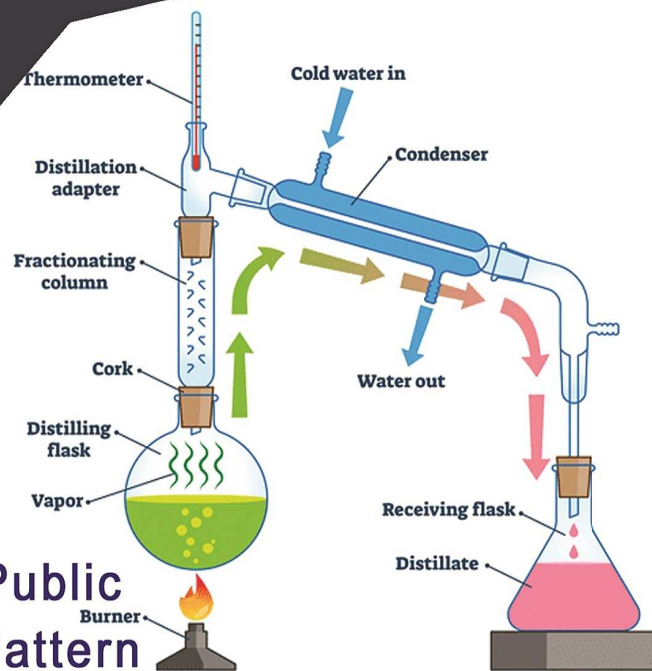
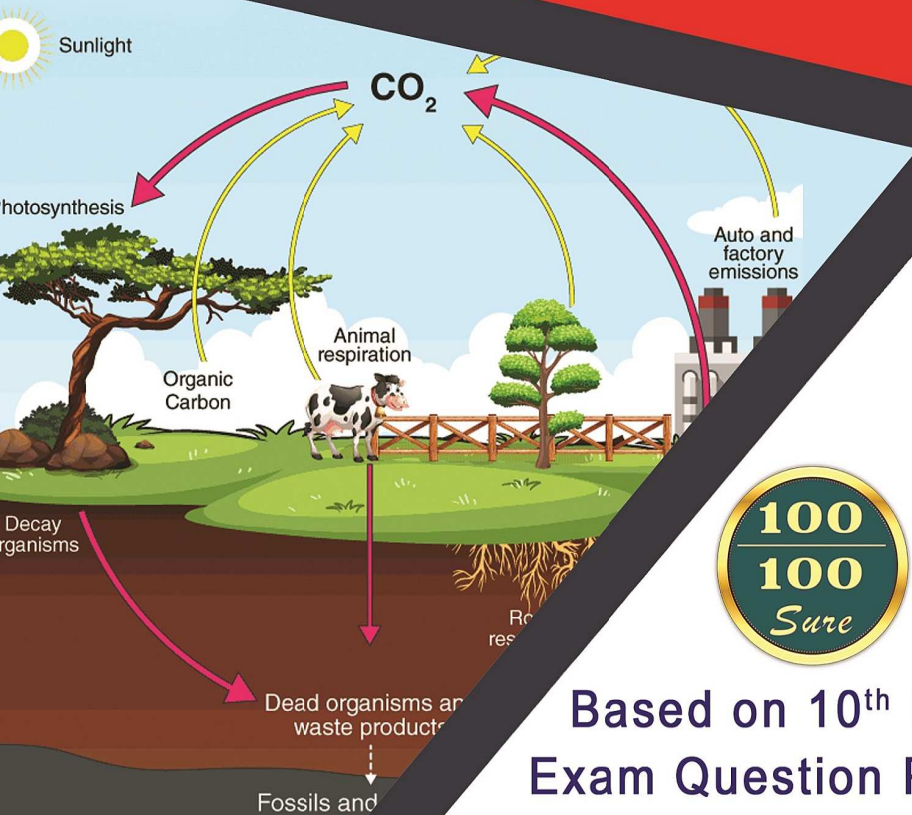
Revised
Edition

DOLPHIN[®]

UNNAL MUDIYUM

SCIENCE

Attached
Practical Manual



100
100
Sure

Based on 10th Public
Exam Question Pattern



DOLPHIN PUBLICATIONS[®]

DOLPHIN[®]

UNNAL MUDIYUM

SCIENCE

9

Revised
Edition

Based on 10th Public Exam
Question Pattern

For copies and bulk orders please contact:



☎ 98653 06197 | 89256 77710 | 99435 67646

DOLPHIN PUBLICATIONS[®]

239, Keelappatti Street, Srivilliputtur - 626 125. Virudhunagar Dt. TN.

Mail us : dolphin.pub2005@gmail.com | Visit us : www.kalvidolphin.com

© All Copyrights reserved

MRP Rs. 189



Preface

Welcome to Dolphins Science Notes !

This compilation is designed to serve as a comprehensive resource for students, educators and enthusiasts alike who are eager to explore the wonders of science. This guide has been meticulously crafted to provide clarity, insight and a deeper understanding of various scientific concepts across different disciplines. Whether you're delving into physics, chemistry, biology and computer science or any other branch of science, I hope this guide will serve as a valuable companion on your journey of discovery. Enjoy the exploration!

Salient features :

- * **Book back solutions**
- * **Comprehensive coverage**
- * **Clear and concise explanation**
- * **Illustrative diagrams and visuals**
- * **Practicals**

Best Wishes From
The Publisher



TO ORDER BOOKS

Respected Head of the Institutions and Teachers,

Thank you for your support to Dolphin Publications.

You are the reason for our grand success.

Now you can order your needed copies by sending the same in your school letter pad.

For order please

Mobile No : 9865306197 / 8925677710 / 9943567646

Whatsapp No : 9345314146

Sms : 9345330937

Website : www.kalvidolphin.com

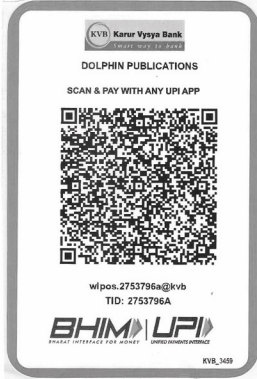
E-mail ID : dolphin.pub2005@gmail.com

BANK DETAILS (FOR DIRECT DEPOSIT)

D.D. / Cheque :

Should be drawn in favour of 'Dolphin Publications'
payable at Srivilliputtur.

ACCOUNT DETAILS



63743 17883

KARUR VYSYA BANK

A/C No : 1804135000006000

IFSC CODE : KVBL0001804

BRANCH : Srivilliputtur

CITY UNION BANK

A/C No : 328109000204092

IFSC CODE : CIUB0000328

BRANCH : Srivilliputtur

ICICI BANK

A/C No : 446005500030

IFSC CODE : ICIC0004460

BRANCH : Srivilliputtur

TAMILNADU MERCANTILE BANK

A/C No : 328150310875103

IFSC CODE : TMBL0000328

BRANCH : Srivilliputtur

* பணம் செலுத்திய பின் கீழ்க்கண்ட தொலைபேசி
எண்களில் கண்டிப்பாக தகவல் தெரிவிக்கவும் *

98653 06197, 89256 77710, 99435 67646

Table Of Contents

UNIT	TITLE	PAGE NO.	MONTH
1.	Measurement	1	June
2.	Motion	7	July
3.	Fluids	15	August
4.	Electric charge and Electric current	23	October
5.	Magnetism and Electromagnetism	28	November
6.	Light	35	December
7.	Heat	44	January
8.	Sound	51	February

UNIT	TITLE	PAGE NO.	MONTH
9.	Universe	57	March
10.	Matter Around Us	64	June
11.	Atomic Structure	70	July
12.	Periodic Classification of Elements	76	August
13.	Chemical Bonding	79	October
14.	Acids, Bases and Salts	86	November
15.	Carbon and its Compounds	90	January
16.	Applied Chemistry	96	February
17.	Animal Kingdom	101	June
18.	Organisation of Tissues	108	July

UNIT	TITLE	PAGE NO.	MONTH
19.	Plant Physiology	115	August
20.	Organ Systems in Animals	123	October
21.	Nutrition and Health	132	November
22.	World of Microbes	140	November
23.	Economic Biology	147	January
24.	Environmental Science	155	February
25.	Libre Office Impress	162	September
	Practical's	164 -186	
	Question Bank	187	

UNIT

1

MEASUREMENT


 Learning Objectives

After completing this lesson, students will be able to

- understand the fundamental and derived quantities and their units.
- know the rules to be followed while expressing physical quantities in SI units.
- get familiar with the usage of scientific notations.
- know the characteristics of measuring instruments.
- use Vernier caliper and screw gauge for small measurements.
- find the weight of an object using a spring balance.
- know the importance of accurate measurements.



Textbook Exercises

PAGE - 11

I. CHOOSE THE CORRECT ANSWER

1. Choose the correct one.

- | | | |
|---|---|--|
| a) $\text{mm} < \text{cm} < \text{m} < \text{km}$ | b) $\text{mm} > \text{cm} > \text{m} > \text{km}$ | |
| c) $\text{km} < \text{m} < \text{cm} < \text{mm}$ | d) $\text{mm} > \text{m} > \text{cm} > \text{km}$ | [a] $\text{mm} < \text{cm} < \text{m} < \text{km}$ |

2. Rulers, measuring tapes and metre scales are used to measure

- | | | | | |
|---------|-----------|---------|-----------|------------|
| a) mass | b) weight | c) time | d) length | [d] length |
|---------|-----------|---------|-----------|------------|

3. 1 metric ton is equal to

- | | | | | |
|-----------------|----------------|------------------|--------------------|------------------|
| a) 100 quintals | b) 10 quintals | c) 1/10 quintals | d). 1/100 quintals | |
| | | | | [b] 10 quintals] |

4. Which among the following is not a device to measure mass?

- a) Spring balance b) Beam balance c) Physical balance d) Digital balance

[a) Spring balance]

II. FILL IN THE BLANKS

1. Metre is the unit of _____ [Length]
2. 1 kg of rice is weighed by _____ [Common beam balance]
3. Thickness of a cricket ball is measured by _____ [vernier caliper]
4. Radius of a thin wire is measured by _____ [screw gauge]
5. A physical balance measures small differences in mass up to _____ [1 milligram]

iii. State whether true or false. If false, CORRECT THE STATEMENT.

1. The SI unit of electric current is kilogram.

Ans : **False.**

Correct Statement : The Si unit of electric current is **ampere**

2. Kilometre is one of the SI units of measurement.

Ans : **False.**

Correct Statement : **Metre** is the SI Base units of measurement

3. In everyday life, we use the term weight instead of mass.

Ans : **True**

4. A physical balance is more sensitive than a beam balance.

Ans : **True**

5. One Celsius degree is an interval of 1K and zero degree Celsius is 273.15 K.

Ans : **True**

6. With the help of Vernier caliper we can have an accuracy of 0.1 mm and with screw gauge we can have an accuracy of 0.01 mm.

Ans : **True**

IV. Match the Following

	Column - I	Column - II	
1	Length	a)	Kelvin
2	Mass	b)	metre
3	Time	c)	kilogram
4	Temperature	d)	Second

Answer	
b)	metre
c)	Kilogram
d)	Second
a)	Kelvin

	Column - I	Column - II		Answer
1	Screw gauge	a)	Vegetables	b) coins
2	Vernier caliper	b)	Coins	d) cricket ball
3	Beam balance	c)	Gold ornaments	a) vegetables
4	Digital balance	d)	Cricket ball	c) Gold ornaments

V. ASSERTION AND REASON TYPE QUESTIONS.

Mark the correct answer as:

- Both A and R are true but R is not the correct reason.
- Both A and R are true and R is the correct reason.
- A is true but R is false.
- A is false but R is true.

1. **Assertion (A)** : The scientifically correct expression is “ The mass of the bag is 10 kg”

Reason (R) : In everyday life, we use the term weight instead of mass.

[a] Both A and R are true but R is not the correct reason]

2. **Assertion (A)** : $0\text{ }^{\circ}\text{C} = 273.16\text{ K}$. For our convenience we take it as 273 K after rounding off the decimal.

Reason (R) : To convert a temperature on the Celsius scale we have to add 273 to the given temperature.

[b] Both A and R are true and R is the correct reason]

3. **Assertion (A)** : Distance between two celestial bodies is measured in terms of light year.

Reason (R) : The distance travelled by the light in one year is one light year.

[b] Both A and R are true and R is the correct reason]

VI. Answer Very briefly

1. **Define measurement.**

- Measurement is about assigning a number to a characteristic of an object or event which can be compared with other objects or events.
- It is defined as the determination of the size or magnitude of a quantity.

2. **Define standard unit.**

- SI system of units is the modernised and improved form of the previous system of units.
- It is accepted in almost all the countries.

3. **What is the full form of SI system?**

- International System of Units is the full form of SI system.

4. **Define least count of any device.**

- The smallest length which can be measured by a measuring instrument is called least count.

5. What do you know about pitch of screw gauge?

- The distance moved by the tip of the screw for one complete rotation of the head. It is equal to 1 mm in typical screw gauges.

6. Can you find the diameter of a thin wire of length 2 m using the ruler from your instrument box?

- We can't find the diameter of a thin wire using the ruler from our instrument box.
- The diameter of a thin wire can be measured using a screw gauge.

VII. Answer briefly**1. Write the rules that are followed in writing the symbols of units in SI system.**

- The units named after scientists are not written with a capital initial letter. E.g. newton, henry.
- The symbols of the units named after scientists should be written by the initial capital letter. E.g. N for newton, H for henry.
- Small letters are used as symbols for units not derived from a proper noun. E.g. m for metre, kg for kilogram.
- No full stop or other punctuation marks should be used within or at the end of symbols. **Eg.** 50m and not as 50 m.
- The symbols of the units are not expressed in plural form. **Eg.** 10 kg not as 10 kgs.

2. Write the need of a standard unit.

- Earlier, different unit systems were used by people from different countries.
- At the end of the Second World War there was a necessity to use worldwide system of measurement.
- Hence, SI (International System of Units) system of units was developed and recommended by General Conference on Weights and Measures at Paris in 1960 for international usage.

3. Differentiate mass and weight.

Sl. No.	Mass	Weight
1.	It is a fundamental quantity	It is a derived quantity
2.	It is a scalar quantity	It is a vector quantity
3.	Remains the same everywhere	Varies from place to place
4.	It is measured using physical balance	It is measured using spring balance
5.	Its unit is kilogram	Its unit is newton.

4. How will you measure the least count of Vernier caliper?

- In vernier caliper the main scale division will be in centimeter, further divided into millimetre.
- The value of the smallest main scale division is 1 mm.
- In the Vernier scale there will be 10 divisions.

$$L.C = \frac{\text{Value of one main scale division}}{\text{Total number of vernier scale divisions}}$$

$$L.C = \frac{1 \text{ mm}}{10} \\ = \mathbf{0.1 \text{ mm}}$$

VIII. Answer in detail

1. Explain a method to find the thickness of a hollow tea cup.

- The Pitch, Least count and the type of zero error of the screw gauge are determined.
- The given cup is placed in between two studs.
- The head screw using the ratchet arrangement is freely rotated until the given cup is held firmly, but not tightly.
- Pitch scale reading (PSR) by the head scale and head scale coincidence (HSC) with the axis of the pitch scale, are found.
- The readings are recorded and the experiment for different positions of the given cup is repeated.
- The thickness of the cup is calculated using the formula $P.S.R + (HSC \times L.C)$
- Then the average of the last column of the table is found.
- Hence the thickness of a hollow tea cup = _____ mm.

S.no	P.S.R (mm)	HSC (division)	CHSC = HSC \pm ZC (division)	CHSR = CHSC \times LC(mm)	Total Reading =PSR+ CHSR(mm)
1.					
2.					
3.					

Average = _____ mm

2. How will you find the thickness of a one rupee coin?

- The Pitch, Least count and the type of zero error of the screw gauge are determined.
- The given coin is placed in between two studs.
- The head screw using the ratchet arrangement is freely rotated until given one rupee coin is held firmly, but not tightly.
- Pitch scale reading (PSR) by the head scale and head scale coincidence (HSC) with the axis of the pitch scale are found.
- The reading are recorded and the experiment for different positions of the given coin is repeated.
- The thickness of the coin is computed using the formula $P.S.R + (HSC \times L.C)$
- Then the average of the last column of the table is found.

S.no	P.S.R (mm)	HSC (division)	CHSC = HSC \pm ZC (division)	CHSR = CHSC \times LC(mm)	Total Reading =PSR+ CHSR(mm)
1.					
2.					
3.					

Average = _____ mm

IX. Numerical problems

1. Inian and Ezhilan argue about the light year. Inian tells that it is 9.46×10^{15} m and Ezhilan argues that it is 9.46×10^{12} km. Who is right? Justify your answer.

Solution:

Inian is correct

Light travels 3×10^8 m in one second

In one year we have 365 days.

The total number of second in one year = $365 \times 24 \times 60 \times 60 = 3.153 \times 10^7$

Distance travelled by light in 1 year = $(3.153 \times 10^7) \times (3 \times 10^8) = 9.46 \times 10^{15}$ m.

2. The main scale reading while measuring the thickness of a rubber ball using Vernier caliper is 7 cm and the Vernier scale coincidence is 6. Find the radius of the ball.

Solution:

$$\text{MSR} = 7 \text{ cm} = 70\text{mm}$$

$$\text{VC} = 6$$

$$\text{LC} = 0.1 \text{ mm}$$

$$\text{Diameter} = \text{DR} = \text{MSR} + (\text{VC} \times \text{LC}) = 70 + (6 \times 0.1) = 70+0.6$$

$$\text{Diameter D} = 70.6 \text{ mm}$$

$$\text{Radius R} = (D/2) = (70.6/2) = 35.3 \text{ mm}$$

$$\text{The radius of the ball} = 35.3 \text{ mm.}$$

3. Find the thickness of a five rupee coin with the screw gauge, if the pitch scale reading is 1 mm and its head scale coincidence is 68.

Solution :

$$\text{PSR} = 1\text{mm}$$

$$\text{HSC} = 68$$

$$\text{LC} = 0.01\text{mm}$$

$$\text{Total reading} = \text{PSR} + (\text{HSC} \times \text{LC})$$

$$\therefore \text{Thickness of the five rupee coin} = 1 + (68 \times 0.01\text{mm}) = 1 + 0.68 \text{ mm}$$

$$\therefore \text{Thickness of the five rupee coin} = 1.68 \text{ mm}$$

4. Find the mass of an object weighing 98 N.

Solution:

$$W = mg$$

$$W = 98 \text{ N}$$

$$g = 9.8\text{ms}^{-2}$$

$$m = W/g$$

$$= (98/9.8)$$

$$= 10\text{kg.}$$



PRACTICALS

PRACTICAL - TABLE OF CONTENTS

SI. No.	Name of the Experiment	Time	Month
1.	To find the diameter of a spherical body	40 minutes	June
2.	To find the thickness of given iron nail	40 minutes	October
3.	Melting point of wax	40 minutes	January
4.	Measurement of volume of liquids	40 minutes	July
5.	Identification of adaptations in animals	40 minutes	August
6.	Identification of plant and animal tissues	40 minutes	August
7.	To detect the adulterants in food samples	40 minutes	November
8.	Identification of microbes	40 minutes	November
9.	Economic biology	40 minutes	February
10.	Identification of adaptations in plants	40 minutes	February

1. To find the Diameter of a spherical body

Aim :

To determine the diameter of a spherical body using Vernier Caliper.

Apparatus required :

Vernier Caliper, given spherical body (cricket ball).

Formula:

(i) Least count (LC) = 1 Main scale division - 1 Vernier scale division .

$$LC = 1\text{mm} - 0.9\text{ mm}$$

$$LC = 0.1\text{ mm (or) } 0.01\text{ cm}$$

(ii) Diameter of the spherical object (d) = M.S.R. + (VC x LC) ± ZC cm

MSR - Main Scale Reading VC - Vernier Coincide

LC - Least Count. (0.01 cm) ZC - Zero Correction.

Procedure :

- The least count of the Vernier caliper is found.
- The zero correction of the Vernier caliper is calculated.
- The object is firmly fixed in between the two lower jaws.
- The main scale reading and the Vernier scale coincidence are measured.
- The experiment is repeated by placing the jaws of the Vernier at different position of the object.

Least count (LC) = 0.01cm. Zero correction = 0

S.NO	Main Scale Reading (MSR) cm	Vernier Coincide vc	Diameter of object (d) = M.S.R. + (VC x LC) ± ZC cm
1	7.4	4	$= 7.4 + (4 \times 0.01) + 0 = 7.44$
2	7.4	5	$= 7.4 + (5 \times 0.01) + 0 = 7.45$
3	7.4	6	$= 7.4 + (6 \times 0.01) + 0 = 7.46$

$$\text{Average} = \frac{7.44+7.45+7.46}{3} = \frac{22.35}{3} = 7.45\text{ cm}$$

Report:

The diameter of the given spherical object (cricket ball) is $= 7.45\text{ cm (or) } 7.45 \times 10^{-2}\text{ m}$

VIRUDHUNAGAR DISTRICT**Common Half Yearly Examination - December 2023**

Time : 2.30 Hours

Marks : 75

Part – I

Choose the correct answer:

12x1=12

- 1) Which among the following is not a device to measure.
a) Spring balance b) Beam balance c) Physical balance d) Digital balance
- 2) Clouds float in atmosphere because of their low _____.
a) density b) pressure c) velocity d) mass
- 3) In current electricity, a positive charge refers to _____.
a) presence of electron b) presence of proton
c) absence of electron d) absence of proton
- 4) _____ is used as reflectors in torch light.
a) Concave mirror b) Plane mirror c) Convex mirror d) Spherical mirror
- 5) Elements in the modern periodic table are arranged in _____ groups and _____ periods.
a) 7, 18 b) 18, 7 c) 17, 8 d) 8, 17
- 6) Bond formed between a metal and non metal atom is usually _____.
a) Ionic bond b) Covalent bond c) Coordinate bond
- 7) Acid turn blue litmus papers to _____.
a) green b) red c) orange d) yellow
- 8) Mesoglea is present in _____.
a) Porifera b) Coelenterata c) Annelida d) Arthropoda
- 9) Smooth muscles occurs in _____.
a) Uterus b) Artery c) Vein d) all of the above
- 10) Transpiration takes place through _____.
a) fruit b) seed c) flowers d) stomata
- 11) Which of the following substance is not a constituent of sweat?
a) Urea b) Protein c) Water d) Salt
- 12) An Internal factor responsible for spoilage of food is _____.
a) Wax coating b) Contaminated utensils
c) Moisture content in food d) Synthetic preservatives

Part – II

Answer any 7 questions: (Q.No: 22 is compulsory)

7x2=14

- 13) Define Standard unit.
- 14) State Pascal's law.

15) State whether true or false. If false correct the statement.

- a) current can produce magnetic field
- b) A transformer can step up direct current.

16) Define Sublimation.

17) Write the electronic configuration of

- a) K
- b) Cl

18) Why are frogs said to be amphibians.

19) Why do we Sweat?

20) Assertion and reason type Question.

Assertion : Haemoglobin contains Iron anaemia.

Reason : Iron deficiency leads to anaemia.

- a) If both are true. Reason explain assertion.
- b) If both are true. But Reason is not correct explanation.
- c) If Assertion is true. But reason is false.
- d) If both Assertion and reason are false.

21) Expand the following.

- 1) ORS
- 2) WHO

22) Find the oxidation number of the elements in the following compounds.

- a) C in CO₂
- b) Mn in MnSO₄

Part – III

Answer any 7 questions: (Q.No.25 is compulsory)

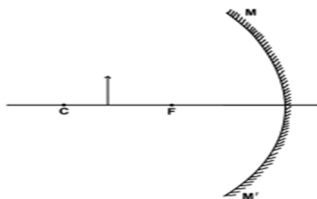
7x4=28

23) Differentiate mass and weight.

24) State Flemings left hand rule.

25) a) Complete the diagram to show how a Concave mirror forms the image of the object.

b) What is the nature of the image.



26) State any five features of Modern periodic table.

27) Write a note on different types of bonds.

28) What is Neutralization reactions? Give an example.

29) Match the following:

- a) Coelenterata - Snail
b) Platyhelminthes - Star fish
c) Echinodermata - Tapeworm
d) Mollusca - Hydra

30) List five characteristic of fishes?

31) What is Skeletal connective tissues? How is helpful in the functioning of our body?

32) Explain any two methods of food preservation?

Part – IV

Answer all the questions.

3x7=21

33) Explain different types of motion.

(OR)

Describe the construction and working of mercury barometer.

34) Write the differences between elements and compounds and give an example.

(OR)

Write the uses of acids and bases.

35) Describe the alimentary canal of man.

(OR)

Give an account of classification of bacteria based on the shape.

VIRUDHUNAGAR DISTRICT
Common Annual Examination 2023

Time : 2.30 Hours

Marks : 75

Part – I

i) Answer all the questions:

12x1=12

1) Clouds float in atmosphere because of their low _____

- a) density b) pressure c) velocity d) mass

2) Electroplating is an example for _____

- a) heating effect b) chemical effect c) flowing effect d) magnetic effect

3) The sound waves travel faster _____

- a) in liquids b) in gases c) in solids d) in vacuum

4) Ceres is a _____

- a) Meteor b) Star c) Planet d) Astroid

5) Elements in the modern periodic table are arranged in _____ groups and _____ periods.

- a) 7, 18 b) 18, 7 c) 17, 8 d) 8, 17

- 6) Number of valence electrons in carbon is _____
a) 2 b) 4 c) 3 d) 5
- 7) A phenomenon in which an element exists in different modification in same physical state is called
a) Isomerism b) Allotropy c) Catenation d) Crystallinity
- 8) One Nanometre is _____
a) 10^{-7} metre b) 10^{-8} metre c) 10^{-6} metre d) 10^{-9} metre
- 9) Transpiration takes place through _____
a) fruit b) seed c) flower d) stomata
- 10) The structural and functional unit of the kidney is _____
a) villi b) liver c) nephron d) liver
- 11) Which of the following is transmitted through air?
a) Tuberculosis b) Meningitis c) Typhoid d) Cholera
- 12) The symbiotic association of fungi and vassular plants is
a) Lichen b) Rhizobium c) Mycorrhizae d) Azotobacter

Part – II

Answer any seven questions: (Q.No: 22 is compulsory)

7x2=14

- 13) Why it is easy to swim in river water than in sea water?
- 14) State Fleming's Left Hand Rule?
- 15) Fill in the blanks:
a) The Mirror used in search light is _____
b) The Radius of curvature of Concave mirror whose focal length is 5cm is _____
- 16) What is meant by Supersonic speed?
- 17) Define Sublimation?
- 18) What are the uses of 'Plaster of paris'?
- 19) What is nematocyst?
- 20) Match it:
Skin - Urine
Lungs - Sweat
Intestine - Carbon dioxide
Kidneys - Undigested food
- 21) What is an adulterant?
- 22) Calculate the amount of charge that would flow in 2 hours through an element of an electric bulb drawing a current of 2.5 A

Part – III

Answer any seven questions: (Q.No.32 is compulsory)

7x4=28

- 23) Explain different types of Motion?
- 24) What are the changes of state in water? Explain.
- 25) Explain Tyndall effect and Brownian movement with suitable diagram?
- 26) a) Give example for liquid metal
b) What are metalloids?
c) Match it:
- | | |
|----------------------|-----------------|
| Alkali metals | - Newlands |
| Law of octaves | - Calcium |
| Alkaline earth metal | - Henry Moseley |
| Modern Periodic Law | - Sodium |
- 27) a) Write all possible isomers of C₂H₆O.
b) Why are one-time use and throwaway plastics harmful?
- 28) List four characteristic features of fishes?
- 29) How will you differentiate the different types of transpiration?
- 30) Describe the alimentary canal of man?
- 31) List the medicinal importance of honey?
- 32) a) Differentiate mass and weight
b) Find the mass of an object weighing 98N.

Part – IV

Answer all the questions.

3x7=21

(Draw diagram wherever necessary)

- 33) Explain the construction and working of a hydrometer with diagram. (OR)
Explain the principle, construction and working of a dc motor?
- 34) a) Explain the postulates of Bohr's atomic model.
b) What are isotopes? (OR)
a) Define aquaregia.
b) Sulphuric acid is called king of chemicals. Why is it called so?
c) Write any four uses of bases.
- 35) a) Write about elements of xylem. (OR)
a) What are the uses of recycled water?
b) What is IUCN?
c) How does a bat adapt itself to its habitat?

வினாத்தாலைக் கல்விக்கூடம் நேரமெல்லாம்
படித்தலைக் கல்விக்கூடம்

எமது வெளியீடுகள் (STATE BOARD)

6th to 12th Std - **STEP TO SUCCESS ENGLISH**

10th to 12th Std - **ELITE ENGLISH**

6th to 12th Std - உன்னால் முடியும் தமிழ்

10th to 12th Std - அமுத சுரபி தமிழ்

6th to 10th Std - சமூகஅறிவியல்

(Tamil & English Medium)

8th to 10th Std - அறிவியல்

(Tamil & English Medium)



DOLPHIN PUBLICATIONS®

239, Keelappatti Street, Srivilliputtur - 626 125. Virudhunagar Dt. TN.

Cell : 98653 06197 / 89256 77710 / 99435 67646

93453 14146 / 93453 30937

Mail us : dolphin.pub2005@gmail.com | Visit us : www.kalvidolphin.com



63743 17883