

MADHYAMIK PARIKSHA
PHYSICAL SCIENCE
SET – 1 (Time 3 hrs 15 minutes)

SECTION - A

1. Multiple choice type questions. Choose the correct answer : 1 x 15 = 15
- 1.1 Which of the following is measured by common balance ?
a) Mass of substance b) Weight of substance c) Length of substance d) Volume of substance
- 1.2 When a moving vehicle is stopped suddenly the passengers in it tend to fall forward. This is due to –
a) inertia of rest b) inertia of motion c) rotational motion d) relative velocity
- 1.3 The boiling point of mercury is
a) 357°C b) 350°C c) 457°C d) 257°C
- 1.4 The colour of iodine vapour
a) Red b) Yellow c) Violet d) Green
- 1.5 Proton was discovered by
a) Thomson b) Rutherford c) Chadwick d) Avogadro
- 1.6 CGS unit of work is
a) Joule b) Erg c) Foot poundal d) Watt
- 1.7 Example of class I lever is
a) Oar of a boat b) Scissors c) Human arms d) Shovels
- 1.8 'Au' is the symbol of which of the following element?
a) Sodium b) Potassium c) Copper d) Gold
- 1.9 The molecular weight of ammonia is
a) 44 b) 18 c) 17 d) 28
- 1.10 $\text{Zn} + \text{H}_2\text{SO}_4 = \text{ZnSO}_4 + \text{H}_2$ – This reaction is known as
a) substitution reaction b) addition reaction c) decomposition d) double decomposition
- 1.11 The colour gas formed by the reaction of N_2 and O_2 in the sky during electric discharge is
a) NO_2 b) NO c) N_2O_3 d) N_2O
- 1.12 What will be the angle of reflection, when the angle of incidence is 45°
a) 40° b) 55° c) 45° d) 35°
- 1.13 In absolute scale the value of 27°C will be
a) 100Å b) 173Å c) 300Å d) 330Å
- 1.14 Law of triad was given by
a) Dobereiner b) Newland c) Lothar Meyer d) Mendeleev
- 1.15 Which of the following is an aromatic compound ?
a) Methane b) Ethylene c) Butane d) Naphthalene

SECTION - B

2. Answer the following questions (Alternatives are to be noted) 1 x 21 = 21
- 2.1 Between vernier calipers and screw gauge which can be used for more accurate measurement ? 1
Or
Indicate whether velocity is a scalar or vector quantity. 1
- 2.2 Give an example when chemical energy is converted into electrical energy. 1
- 2.3 Whether the following statement is true or false ?
"Action and reaction acts on two different objects" 1
- 2.4 Where inside the atom proton and neutron is located? 1
- 2.5 Whether the following statement is true or false ?
Space vehicle carrying passengers is known as air craft. 1
Or
Write the relation between dyne and newton. 1
- 2.6 What is the volume of 88g. carbon-di-oxide at STP 1
- 2.7 What is dry ice? 1
- 2.8 Which type of energy is possessed in a wound spring? 1
- 2.9 How many elements present in the fourth period of periodic table? 1

- 2.10 What is the frequency of audible sound? 1
Or
What will be the colour of the precipitate that is formed when NH_4OH is added in ferric chloride solution? 1
- 2.11 Match the column of L.H.S. and R.H.S. $1 \times 4 = 4$
Left column **Right column**
- a) Aeroplane in a certain path in a fixed time in different airports i) high speed space craft
b) For meteorological observations ii) for launching satellite
c) Rocket is used iii) obey international route for arrival - departure
d) Jet plane is 'Z' shaped iv) uses of modern balloons are them
- 2.12 What will be the change in atomic number and mass number when an alpha particle is ejected from an atom? 1
- 2.13 In which type of organic compound hydroxyl group $-\text{OH}$ is present? 1
Or
Which gas is responsible for "Will O the wisps?" 1
- 2.14 What is indicated by the middle finger in Fleming's left-hand rule? 1
- 2.15 If the frequency of a tone is 250 then what will be the frequency of its next octave? 1
- 2.16 At what minimum speed an object is to be thrown from the surface of earth so that it escape from the gravitational influence of earth? 1
Or
How much time is required for moon for the complete revolution round the earth? 1
- 2.17 From which part of atom β -particles emit? 1
Among L, B and D rays which has maximum penetrating power? 1
- 2.18 Write the name and formula of an ore of aluminium. 1

SECTION – C

3. Answer the following questions (Alternatives are to be noted) $2 \times 9 = 18$
- 3.1 State which of the following are scalar quantity and which are vector quantity :
Mass, Velocity, Force, Time $\frac{1}{2} \times 4 = 2$
- 3.2 The velocity of a particle changes from 10m/s to 25 m/s in 5 minute. Calculate the acceleration. 2
- 3.3 Write Newton's second law of motion. 2
Or
Define absolute unit of force in S.I. process. 2
- 3.4 Atomic number and mass number of an atom of chlorine are 17 and 35 respectively. Calculate the number of electrons and neutrons of this atom. 2
- 3.5 Write the formula of the following compounds $1+1=2$
i) Potassium permanganate ii) Aluminium oxide
or
State the nature of the following reactions : $1+1=2$
a) $\text{H}_2 + \text{Cl}_2 = 2\text{HCl}$ b) $\text{Na}_2\text{CO}_3 + \text{Pb}(\text{NO}_3)_2 = \text{PbCO}_3 + 2\text{NaNO}_3$
- 3.6 State the principle and reactions involved in the laboratory preparation of NH_3 gas. $1+1=2$
- 3.7 Why H_2SO_4 is not used in the laboratory preparation of CO_2 gas? 2
- 3.8 State the basic principle of calorimetry? 2
Or
Latest heat of fusion of ice 80cal/gm. What do you mean by the statement? 2
- 3.9 Write the two laws of reflection. 2
Or
What are the different conditions required for total internal reflection? 2

SECTION – C

4. Answer the following questions. (Alternatives are to be noted) $3 \times 12 = 36$

4.1 State Boyle's law. At what temperature volume of ideal gas becomes zero? $2+1=3$

4.2 A balloon is filled with 0.8 of air at a pressure of 95 cmHg. If the pressure is reduced to 76 cmHg keeping the temperature constant then what will be the volume of that air? 3

Or

Calculate the number of molecules in 9 gm of water and 34 gm of ammonia. 3

4.3 What is normal salt? Which type of salt is alum? $2+1=3$

Or

Three different bottles contain NaOH, dilute H_2SO_4 and NaCl separately. How will identify them only by using blue litmass paper? $1+1+1=3$

4.4 Write modern periodic law. Write the names of first and last elements of third period of periodic table. $2+1=3$

4.5 A person hears the sound of thunder 4 seconds after the lightning. If the velocity of sound is 332m/s, then what is the distance of the person from the cloud? Determine the distance between the listener and the reflector to hear an echo of short sound (velocity of sound in air is 332m/s) $1+2=3$

Or

A pilot fired a gun while flying horizontally with a velocity of 200m/s. the pilot heard the sound reflected from the ground after 2 seconds. If the velocity of sound in air is 320m/s, then what was the height of the plane from the ground? 3

4.6 State Joule's law of heating effect of current. 3

4.7 What is chemical name of bleaching powder? How bleaching powder is prepared? $1+2=3$

Or

What is the full form of PVC? Write two uses of PVC. $1+2=3$

4.8 Write three differences between organic and inorganic compound. 3

4.9 Mention two similarities between normal light and x-rays. Give one use of x-ray in medical science. $2+1=3$

Or

Write the name of the metal that is common in brass and bronze.

What will happen when an iron rod is dipped in copper sulphate solution? State with equation. $1+2=3$

4.10 Describe with diagram how lunar eclipse occurred? 3

4.11 What is escape velocity? What is the name of first artificial satellite of India? $2+1=3$

4.12 What is audible range? How many types of communication media are there? Mention them. $1+2=3$

Or

What is called wave length? Sound of loudspeaker can be heard from distance but to hear the sound of telephone, the ear of the person should be nearer to the phone. Explain why? $1+2=3$

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