BOARD OF SECONDARY EDUCATION KARACHI.
KARACHI, HYDERABAD, SUKKAR, LARKANA, MIR PUR KHAS BOARD.
S.S.C(ANNUAL) EXAMINATIONS 2023
PHYSICS (THEORY) PAPER – I

Time: 3 Hours   **CLASS - IX (SCIENCE GROUP)**   **(Marks: 60)**

SECTION "A"   (20%)
MULTIPLE CHOICE QUESTIONS (MCQs)   **(12 Marks)**
SECTION "B"(40%)
(SHORT ANSWERS QUESTIONS)   **(24 marks)**
SECTION"C"(40%)
(DESCRIPTIVE ANSWER QUESTIONS)   **(24 Marks)**

UNIT NO. 1   PHYSICS QUANTITIES AND MEASUEMNT.
MULTIPLE CHOICE QUESTIONS: Page No. 27   6, 7, 8 , 9, 10
SHORT QUESTIONS:

1. Difference between base quantities and derived quantities? Give three examples in each case.
2. Estimate your age in seconds.
3. What is meant by significant figures of a measurement?
4. What is meant by Vernier constant?
5. What do you understand by the zero error of a measuring instrument?
6. Difference between base and derived quantities
7. Define significant figure .Determine the number of significant figure in
   i)   1.33   ii) 0.0012   iii) 7.00   iv) 0.00101

UNIT – 2   KINEMATICS
MULTIPLE CHOICE QUESTIOS.(MCQ'S):: Page No. 56 1, 3, 4, 5, 6, 7
SHORT QUESTIONS.

1. Explain translatory motion and give examples of various types of translatory motion.
2. Difference between Circular motion and rotatory motion. Speed and velocity, Linear and random motion, scalars and vectors, Distance and Displacement, Oscillatory and random motion.
3. Sketch a distance-time graph from the body starting from rest. How will you determine the speed of the body from this graph?
4. How do riders in a ferris wheel possess translatory motion but not circular motion?
5. State Newton second and third equation of motion.
6. How represent vector quantities are represented graphically?
7. Why gravity is taken negative for an object moving in an upward direction?

(DESCRIPTIVE ANSWER QUESTIONS).

1. Difference between distance and displacement?
2. Define Scalar and vector quantities.
3. Identify difference types of motion i.e. translator, (Linear, random and circular): rotatory and vibratory motions and distinguish among them.

NUMERICAL: 1 , 2, 4, 5 , 6

UNIT NO - 3   DYNAMICS

MULTIPLE CHOICE QUESTIONS (MCQ'S):   Page No. 82   1, 3, 4, 5,7,8,9

SHORT QUESTIONS:

1. Why it is dangerous to jump from a moving bus?
2. State Newton's second law of motion. Show the relationship between applied force and the acceleration produced in the body.
3. Define Inertia, momentum, force., Centripetal force
4. Difference between Mass and Weight. Sliding friction and rolling friction.
5. Why it is dangerous to travel on the roof of a bus?
6. Why does a passenger move outward when a bus takes a turn?
7. What is the law of conservation momentum?
8. When a gun is fired, it recoils, why?
9. Describe ways to reduce friction?
10. Why rolling friction is less than sliding friction?

DESCRIPTIVE ANSWER QUESTIONS).

1. Write two advantages and two disadvantages of friction. Write two methods of reducing friction.
2. State Newton's first law of motion. Give some common examples.
3. Define Newton's second law of motion.

NUMERICAL PROBLEMS :   1. b), c)   2. b)   5. b)   6. b)

UNIT - 4   TURNING EFFECT OF FORCES

MULTIPLE CHOICE QUESTIONS (MCQ'S):   Page No. 110   1, 2, 3. 5, 6, 7, 9

SHORT QUESTIONS:

1. Difference like and unlike forces using examples?
2. Define parallel forces.
3. .Define resultant of a forces.
4. What is meant by resolution of forces?
5. Write three necessary conditions for two forces to form a couple.
6. List three states of equilibrium.
7. Define Center of mass or Center of gravity.
8. Define couple as a pair of force tending to produce torque.
9. Define torque or moment. Write down its formula and units. List the factors on which moment of force depends.

DESCRIPTIVE ANSWER QUESTIONS).

1. Describe the head to tail rule of vector addition of forces.
2. How a force can be resolved into its perpendicular components?
3. State two conditions necessary for an object to be in equilibrium.

NUMERICAL PROBLEM: 2. b)   3. a)   4. b)   5. b)   8. b)

UNIT NO – 5   FORCE AND MATTER

MULTIPLE CHOICE QUESTIONS: (MCQ's):   **Page No. 130**   **3, 4, 5, 7, 8**

SHORT QUESTIONS:

1. Write two properties of spring.
2. Define pressure. Describe the factors that affect the pressure.
3. Sharks and crocodiles have sharp teeth.
4. If you walk on wooden floor wearing shoes with very narrow heels, you will damage the floor.
5. Calculate the pressure at a depth of 3m in a swimming pool?(density of water = 1000 kgm-2)
6. Write down the names of four machines that you have seen working on the principle of Pascal's law.
7. State Hooke's law.
8. Define the term pressure and SI unit of pressure.
9. Define and explain Pascal's law.
10. Describe the working of Hydraulic press.

DESCRIPTIVE ANSWER QUESTIONS).

1. What do mean by fluid pressure? Derive an expression for pressure inside a liquid. And on what factors do it depend
2. State Hooke's law. Show maximum force at which Hooke's law is applicable.
3. Define the term pressure and write down the S.I unit of pressure.

NUMERICAL PROBLEM: 4, 5. c)

UNIT – 6   GRAVITATION

MULTIPLE CHOICE QUESTIONS: (MCQ's):   **Page No. 152**   **2, 3, 4, 5, 6, 10, 11, 14, 15, 16, 17, 18, 19**

SHORT QUESTIONS:

1. Difference between G and g.
2. Difference between Natural satellites and Artificial Satellites.
3. Define Orbital velocity.
4. What is geostationary orbit and communication satellite?
5. Write down any four uses of artificial satellites.
6. Why the two satellites of different masses have same speed in the same orbit?
7. Define gravitational field strength.
8. State and explain Newton's law of gravitation?
9. Define weight and write down its equation.

DESCRIPTIVE ANSWER QUESTIONS).

1. What is artificial satellite? Prove that the velocity of satellite orbiting around the earth is given by. V = $\sqrt{gh(RE + h}$
2. Calculate the mass of Earth by using Newton's law of gravitation.
3. Write down the names of four different types of orbit.
4. Define the terms: i) Critical Velocity   ii) Communication Satellite.
5. Derive the expression for the motion of a satellite.   V = $\sqrt{\dfrac{GM}{R+h}}$
6. Differentiate between the natural satellite and artificial satellite.

.NUMERICAL PROBLEM: 13. a)

UNIT NO – 7   PROPERTIES OF MATTER.

MULTIPLE CHOICE QUESTIONS. (MCQ's):   Page No. 172- 2, 3, 4 , 5, 6, 9

SHORT QUESTIONS:

1. Define evaporation.
2. Describe the Kinetic Molecular model or theory of matter.
3. Define lattice.
4. The state of substances can be changed either by heating or by cooling it. Explain.
5. Define Pressure. Describe the pressure of gases.
6. Write down the application of Boyle's law.
7. Difference between Evaporation and Boiling.

DESCRIPTIVE ANSWER QUESTIONS).

1. State and explain Boyle's law. Also describe any one application of Boyle's law in daily life.

NUMERICAL PROBLEM: 7, 8, 9

UNIT NO – 8   ENERGY SOURCES AND TRANSFER OF ENERGY.

MULTIPLE CHOICE QUESTIONS. (MCQ's):   Page No. 191   1, 2, 3, 5, 6, 7, 8, 9, 10

SHORT QUESTIONS:

1. Define work? Derive the equations; work = Fd Cos θ
2. Define Kinetic energy Derive the equation.
3. Define Potential energy derive the equation PE = mgh
4. Why fossil fuel energy is called non-renewable source?
5. Define solar energy and its importance in Pakistan.
6. What is wing energy? Write any three applications of wind energy?
7. Write the name of any one radioactive element which is used as source of nuclear energy.
8. Write the names of any one device that can convert solar energy into heat energy.
9. Write the names of any two devices that can convert solar energy into electrical energy.

DESCRIPTIVE ANSWER QUESTIONS).

1. Define Kinetic Energy and Potential Energy. Also derive the equation K.E.= ½ mv2.
2. Convert 20 watt into horse power. Calculate the power of machine, if it does 40 Joules of work in 10 sec.
3. Define watt. A student of weight 400 N takes 5 sec to climb up an obstacle of height 2 m. Calculate the power consumed.

NUMERICAL PROBLEM: 2, 3, 6,   8. b)   17, 19, 24. b)

UNIT NO – 9   THERMAL PROPERTIES OF MATTER.

MULTIPLE CHOICE QUESTIONS. (MCQ's):   Page No. 216   1, 2, 3, 4 , 6, 7 ,9 , 10, 11

SHORT QUESTIONS:

1. Define Heat and write its SI unit. Why does heat flow from hot body to cold body?
2. What is Temperature? Write the formulae to convert Temperature from.
   i) Celsius to Kelvin   ii) Fahrenheit to Celsius scale.
3. Explain specific heat capacity. How would you find the specific heat of a solid?
4. Differentiate between heat of fusion and heat of vaporization.
5. Explain in detail, why evaporation causes cooling?
6. Differentiate between evaporation and boiling.
7. Why small gaps are left at the joints of sections of railway tracks?

DESCRIPTIVE ANSWER QUESTIONS).

1. What is Evaporation? And describe factors influencing surface Evaporation process.
2. Differentiate between heat of fusion and heat of vaporization.

NUMERICAL PROBLEMS: 4. b)   13