

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN
OBJECTIVE KEY FOR INTERMEDIATE ANNUAL EXAMINATION, 2022

230 21/07/22

Name of Subject: PHYSICS

Session: 2020-2022

Group: 1st

Group: 2nd

Q. Nos	Paper Code 2471	Paper Code 2473	Paper Code 2475	Paper Code 2477
1	B	B	B	D
2	B	B	C	B
3	C	B	B	A
4	B	C	B	C
5	D	C	C	C
6	B	B	B	B
7	A	B	D	B
8	C	C	B	B
9	C	B	A	C
10	B	B	C	C
11	B	C	C	B
12	B	B	B	B
13	C	D	B	C
14	C	B	B	B
15	B	A	C	B
16	B	C	C	C
17	C	C	B	B
18	/	/	/	/
19	/	/	/	/
20	/	/	/	/

Q. Nos	Paper Code 2472	Paper Code 2474	Paper Code 2476	Paper Code 2478
1	C	D	B	D
2	B	A	C	D
3	D	B	A	A
4	D	C	C	B
5	D	C	B	C
6	A	B	A	A
7	B	D	C	C
8	C	D	D	B
9	A	D	A	A
10	C	A	B	C
11	B	B	C	D
12	A	C	C	A
13	C	A	B	B
14	D	C	D	C
15	A	B	D	C
16	B	A	D	B
17	C	C	A	D
18	/	/	/	/
19	/	/	/	/
20	/	/	/	/

مرثقیلیٹ بائٹ صحیح سوالیہ پرچہ امارکنگ Key

ہم نے مضمون فزکس پرچہ I گروپ II + I سیم انٹرمیڈیٹ سالانہ امتحان 2022 کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عمیق چیک کر لیا ہے یہ پرچہ Syllabus کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے۔ یہ Version آپس میں مطابقت رکھتے ہیں۔ نیز اس پرچہ کی معروضی (MCQs) Key کی بابت تصدیق کی جاتی ہے کہ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔ نیز سب ایگزامینرز کیلئے تفصیلی مارکنگ ہدایات / مارکنگ سیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated:

S.#	Name	Designation	Institution	Mobile No	Signature
1	Muhammad Ishaq	A.P	Govt College Burewala	0345709994	
2	Muhammad Shafi	A/P	Govt. Millat College Multan	03226103107	
3	Perveen Akhtar	A.P	Govt Graduate College	03337493761	
4	MEHBOOB AHMED	Lec.	Govt. Graduate College of Science, Multan.	0304-8938958	
5					

Re-Checked By ہم نے درج بالا سوالیہ پرچہ (انشائیہ + معروضی) معروضی "Key" اور ہدایات کے حوالہ سے مکمل طور پر تہیہ کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

1	Shahid Iqbal	Associate Prof.	Govt. Civil Lines College	03077360030	
2	Kaleem Ullah	Assistant Prof.	Govt. Graduate College of Science	0301-7400172	
3					

INTERMEDIATE PART-I (11th CLASS)

PAPER-I GROUP-I

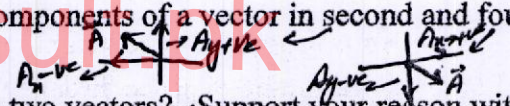
TIME ALLOWED: 2.40 Hours

SUBJECTIVE

MAXIMUM MARKS: 68

TE: Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

2. Write short answers to any eight parts. $8 \times 2 = 16$
- What is physics and nuclear physics? Define both (1+1)
 - What are derived units give two examples. Unit + 2 Ex (1+0.5+0.5)
 - The period of simple Pendulum is measured by stop watch. What types of error are possible in the time period? (1+1) Two errors (1) For each
 - Write the dimensions of (i) Pressure (ii) Density Define P+D (1+1)
 - When two objects move in opposite direction one will have positive momentum and other negative momentum why? Reason (2)
 - State Newton's 2nd and 3rd Laws of Motion. Define 2nd + 3rd Law (1+1)
 - Explain the circumstances in which the velocity \vec{v} and acceleration \vec{a} of a car are (1+1)
 - parallel
 - Perpendicular to each other
 - Show that range of projectile is maximum when projectile is thrown at an angle of 45° with horizontal. $R = \frac{v^2}{g} \sin 2\theta$
 - Write down two examples of adiabatic process. Formula (1) Mark Explanation (1) Mark Reason (2)
 - How petrol engine differ from diesel engine? Difference (1+1)
 - Does entropy increase or decrease due to friction? Increase (1) Explanation (1)
 - A thermos flask containing milk as a system is shaken rapidly. Does the temperature of milk rise? Reason (2)
3. Write short answers to any eight parts. $8 \times 2 = 16$
- Under what circumstances would a vector have components that are equal in magnitude? At an angle 45° (1+1)
 - What do you know about the signs of the components of a vector in second and fourth quadrant? Signs Make a diagram.  Reason + eq (1+1)
 - How would you determine null vector from two vectors? Support your reason with an equation. $A + (-A) = 0$
 - When a 50kg crate is pushed through 2m across the floor with a force of 50N. Calculate the work done. $W = \vec{F} \cdot \vec{d} = Fd \cos 0 = Fd = (50)(2) = 100J$ calculation (2)
 - What do you understand by the use of geo-thermal energy as geyser? Support your answer with an example. use + example (1+1)
 - How can you describe direct combustion and fermentation? Define both (1+1) Combustion (1) Mark Fermentation (1) Mark
 - Why does a diver change his body position before and after diving in the pool? Reason (2) $I_1 \omega_1 = I_2 \omega_2$ To conserve angular momentum
 - Rank the views of gravitation. Explain your rating. Reason (1+1)
 - What do you understand by the term "weightlessness"? Support your answer by proper reasoning. Reason (1+1)
 - An oil film spreading over a wet footpath shows colours. Explain how does it happen? Due to interference
 - What do you know about the term optical rotation? Give its one application. Define + Application (1+1)
 - Predict the outcome of light when two polaroids are perpendicular and parallel to each other. Support your answer with a diagram.
4. Write short answers to any six parts. $6 \times 2 = 12$
- Why fog droplet appears to be suspended in air? Reason (2)
 - Can we realize an ideal simple pendulum? (2) V_{air}
 - What is difference between free and forced oscillations? Difference (1+1)
 - Explain restoring force and what is its direction? Define + Direction (1+1)
 - What features do longitudinal waves have in common with transverse waves? Common feat P.T.O. (1+1)

- (vi) Explain the term red and blue shift in Doppler's effect. Define both (1+1)
- (vii) What is effect of pressure and density on speed of sound? Both effects (1+1)
- (viii) What do you understand by linear magnification and angular magnification? Define both (1+1)
- (ix) What is optical fibre? Write down two uses of optical fibre. Define + uses (1+0.5+0.5)

SECTION-II ✓**NOTE:** Attempt any three questions.

3 × 8 = 24

- 5.(a) Discuss interconversion of K.E and P.E. What happens when frictional forces present? 5
- (b) Find the work done when the point of application of the force $3\hat{i} + 2\hat{j}$ moves in a straight line from the point (2, -1) to the point (6, 4) 3
- 6.(a) Define law of conservation of linear momentum. Prove that $m_1v_1 + m_2v_2 = m_1v_1' + m_2v_2'$ 5
- (b) An earth satellite is in circular orbit at a distance of 384,000km from the earth's surface. What is its period of one revolution in days? Take mass of earth $M = 6.0 \times 10^{24} \text{ kg}$ and its radius $R = 6400 \text{ km}$ 3
- 7.(a) What is the principle of superposition of waves? Discuss the interference of waves. 5
- (b) Water is flowing smoothly through a close pipe system. At one point the speed of water is 3.0 ms^{-1} . While at another point 3.0 m higher, the speed is 4.0 ms^{-1} . If the pressure is 80 kPa at the lower point, what is pressure at the upper point? 3
- 8.(a) Describe the diffraction of X -rays through crystals. Also derive the "Bragg's Equation" and its different uses. 5
- (b) A block of mass 4.0 kg is dropped from a height of 0.80 m on to a spring of spring constant 1960 Nm^{-1} . Find the maximum distance through which the spring will be compressed. 3
- 9.(a) What is compound microscope? Write its construction and working. Also find the expression of its magnification. 5
- (b) 336 J of energy is required to melt 1 g of ice at 0° C . What is the change in entropy of 30 g of water at 0° C as it is changed to ice at 0° C by a refrigerator? 3

Note: You have four
think is correct
or pen to fill this

2471

INTERMEDIATE PART-I (11th CLASS)

PHYSICS PAPER-I

GROUP-I

TIME ALLOWED: 20 Minutes

MAXIMUM MARKS: 17

OBJECTIVE

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) $[M^0 L T^{-1}]$ are the dimensions of:
 (A) Force (B) Velocity (C) Work done (D) Momentum
- (2) The uncertainty in the time period of a vibrating body is found by:
 (A) Least count \times number of vibrations (B) Least count/number of vibrations
 (C) $\frac{\text{Number of vibration}}{\text{Least count}} \times 100$ (D) Least count - number of vibrations
- (3) $\hat{i} \times (\hat{j} \times \hat{k})$ is equal to:
 (A) \hat{i} (B) \hat{j} (C) 0 (D) 1
- (4) For which pair of angles of projection, the range of projectile are equal?
 (A) $50^\circ, 42^\circ$ (B) $35^\circ, 55^\circ$ (C) $40^\circ, 47^\circ$ (D) $37^\circ, 47^\circ$
- (5) Scalar product of two mutually perpendicular vectors, \vec{A} and \vec{B} is:
 (A) $AB \cos \theta$ (B) 1 (C) $AB \sin \theta$ (D) 0
- (6) Relation for the maximum range of projectile is:
 (A) $\frac{2v_i^2}{g}$ (B) $\frac{v_i^2}{g}$ (C) $\frac{v_i^2 \sin 2\theta}{g}$ (D) $\frac{v_i^2}{2g}$
- (7) One kilowatt hour (kWh) is equal to:
 (A) 3.6 MJ (B) 3.6 KJ (C) 36 MJ (D) 3.6 J
- (8) Equation of continuity is the statement of law of conservation of:
 (A) Energy (B) Momentum (C) Mass (D) Charge
- (9) Angle subtended at the centre of a circle by an arc equal to circumference is:
 (A) π rad (B) $\frac{\pi}{2}$ rad (C) 2π rad (D) $\frac{\pi}{4}$ rad
- (10) If the velocity is doubled then the force required to move it in a circle becomes:
 (A) One half (B) Four times (C) Two times (D) Remains same
- (11) The length of second pendulum is: (A) 98cm (B) 99cm (C) 100cm (D) 101cm
- (12) The wavelength of microwaves is: (A) 10cm (B) 12cm (C) 14cm (D) 15cm
- (13) Two waves of equal frequencies travelling in same direction give rise to phenomenon called:
 (A) Stationary waves (B) Beats (C) Interference (D) Compressional waves.
- (14) Confinement of light into one plane of vibration is called:
 (A) Diffraction (B) Interference (C) Polarization (D) Dispersion
- (15) When object is placed at focal point, the image is formed:
 (A) At focus (B) At infinity (C) Away from focus (D) Between focus and optical centre
- (16) For an isothermal process, the first law of thermodynamics can be written as:
 (A) $Q = \Delta U + W$ (B) $Q = W$ (C) $Q = \Delta U$ (D) $Q = -\Delta U$
- (17) The Boltzmann constant is equal to:-
 (A) $R N_A$ (B) N_A / R (C) R / N_A (D) $\frac{1}{R N_A}$

PHYSICS PAPER-I GROUP-I

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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- (16) Equation of continuity is the statement of law of conservation of:
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- (17) Angle subtended at the centre of a circle by an arc equal to circumference is:
 (A) π rad (B) $\frac{\pi}{2}$ rad (C) 2π rad (D) $\frac{\pi}{4}$ rad

2475

2022 (A)

241

Roll No. _____

INTERMEDIATE PART-I (11th CLASS)

PHYSICS PAPER-I GROUP-I

TIME ALLOWED: 20 Minutes

MAXIMUM MARKS: 17

OBJECTIVE

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- (1) For an isothermal process, the first law of thermodynamics can be written as:
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- (2) The Boltzmann constant is equal to:-
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- (17) When object is placed at focal point, the image is formed:
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2477

2022 (A)

(242)

Roll No. _____

INTERMEDIATE PART-I (11th CLASS)

PHYSICS PAPER-I GROUP-I

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

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INTERMEDIATE PART-I (11th CLASS)
PAPER-I GROUP-II
SUBJECTIVE

TIME ALLOWED: 2.40 Hours
 MAXIMUM MARKS: 68

Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

2. Write short answers to any eight parts. 8 × 2 = 16
- (i) Write the dimensions of (a) Pressure (b) Density
 - (ii) The period of simple pendulum is measured by a stop watch. What type of errors are possible in the time period?
 - (iii) Define radian and steradian.
 - (iv) Find the dimensions and SI units of coefficient of viscosity in $F = 6\pi\eta rv$.
 - (v) Explain the difference between elastic and inelastic collision.
 - (vi) An object is thrown vertically upward. Discuss the sign of acceleration due to gravity, relative to velocity, while the object is in air.
 - (vii) Does a moving object have impulse? Explain.
 - (viii) The horizontal range of projectile is four times of its maximum height. What is angle of projection?
 - (ix) What happens to the temperature of the room, when an air conditioner is left running on a table in the middle of the room?
 - (x) Does entropy of a system increase or decrease due to friction?
 - (xi) Name the four strokes of the petrol engine.
 - (xii) State second law of thermodynamics in terms of entropy.
3. Write short answers to any eight parts. 8 × 2 = 16
- (i) Can you add zero to null vector?
 - (ii) Define the term unit vector, position vector, component of a vector.
 - (iii) Define rectangular coordinate system.
 - (iv) Define head to tail rule for vector addition.
 - (v) An object has IJ of potential energy. Explain what does it mean?
 - (vi) Prove $P = \vec{F} \cdot \vec{V}$
 - (vii) When mud flies off the tyre of a moving bicycle, in what direction does it fly?
 - (viii) Why does a diver change his body position before and after diving in the pool?
 - (ix) Define angular momentum and spin angular momentum.
 - (x) Define centripetal force. Write its formula.
 - (xi) How is the distance between interference fringes affected by the separation between the slits of Young's experiment? Can fringes disappear?
 - (xii) Define constructive and destructive interference of light.
4. Write short answers to any six parts. 6 × 2 = 12
- (i) Water enters one end of a pipe whose area is 2cm^2 with a speed of 20msec^{-1} , emerges at other end of pipe with speed of 5msec^{-1} . Find the area at the other end of the pipe.
 - (ii) Can we realize an ideal simple pendulum?
 - (iii) Write any two advantages of resonance.
 - (iv) Show that in S.H.M the acceleration is zero when the velocity is greatest and velocity is zero when the acceleration is greatest.
 - (v) What is the effect of pressure and density on the speed of sound?

- (vi) Define Beats and dopplers effect.
- (vii) As a result of a distant explosion, an observer senses a ground tremor and then hears the explosion. Explain the time difference.
- (viii) Why would it be advantageous to use blue light with a compound microscope?
- (ix) Define resolving power and magnifying power of an optical instrument.

SECTION-II**NOTE: Attempt any three questions.****3 × 8 = 24**

- 5.(a) Define absolute potential energy. Derive the relation for absolute potential energy on surface of earth. 5
- (b) Find the angle between two vectors, $\vec{A} = 5\hat{i} + \hat{j}$ and $\vec{B} = 2\hat{i} + 4\hat{j}$ 3
- 6.(a) What are "Geostationary Orbit" and Geostationary satellite? Find orbital radius of Geostationary orbit. 5
- (b) A 100g golf ball is moving to the right with velocity of 20 m/s . It makes head on collision with an 8.0kg steel ball; initially at rest. Compute velocities of the ball after collision. 3
- 7.(a) What is terminal velocity? Derive $V_t = \frac{2gr^2\rho}{9\eta}$ 5
- (b) The wavelength of the signals from a radio transmitter is 1500m and the frequency is 200 kHz. What is the wavelength for a transmitter operating at 1000 kHz and with what speed the radio waves travel? 3
- 8.(a) What is Michelson's interferometer? Explain its construction and working. 5
- (b) A block of mass 4.0 kg is dropped from a height of 0.80m on to a spring of spring constant $K = 1960\text{ Nm}^{-1}$. Find the maximum distance through which the spring will be compressed. 3
- 9.(a) Write a detailed note on isothermal process and an adiabatic process. 5
- (b) The critical angle of glass light pipe in air is 39° . What is the critical angle of pipe if pipe is in water? (refractive index of water = 1.33) 3

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INTERMEDIATE PART-I (11th CLASS)

PHYSICS PAPER-I

GROUP-II

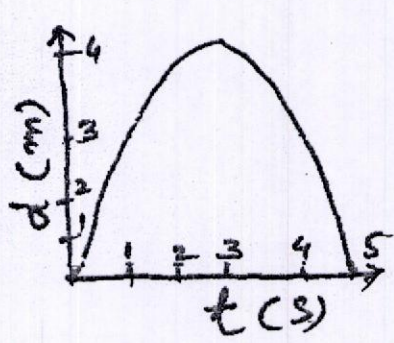
TIME ALLOWED: 20 Minutes

MAXIMUM MARKS: 17

OBJECTIVE

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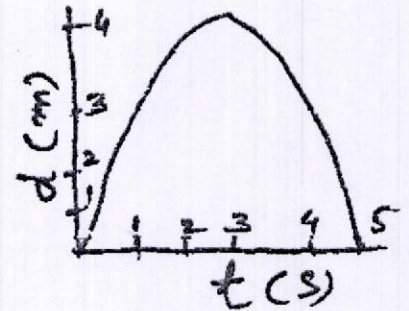
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- (6) What is the value of force required to break one's head covered with skin and hairs?
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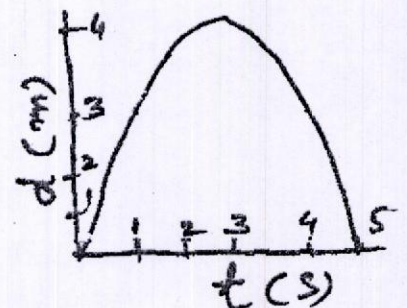
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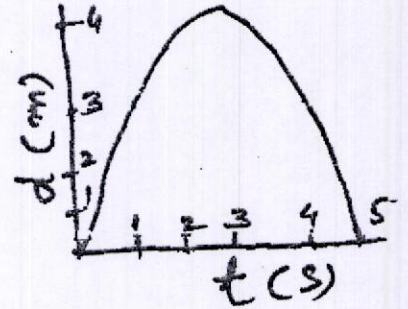
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