

Name of Subject: Physics - II

Group:.....

Q. Nos	Paper Code	Correct Answer	Paper Code	Correct Answer	Paper Code	Correct Answer	Paper Code	Correct Answer
1	4471	B	4473	D	4475	C	4477	A
2		$1.6 \times 10^{-14} \text{ N}$		Zero		0.25V		One
3		40J		Squid		Inertia		F, L, E
4		One		Both A and B are 1		Zero		Ammeter
5		F, L, E		$10^5$		Zero		0.25V
6		Ammeter		Electron		Squid		Inertia
7		0.25V		Electron microscope		Both A and B are 1		Zero
8		Inertia		$\gamma$ -rays		$10^5$		Zero
9		Zero		0.01SV		Electron		Squid
10		Zero		Hydrogen		Electron microscope		Both A and B are 1
11		Squid		$1.6 \times 10^{-14} \text{ N}$		$\gamma$ -rays		$10^5$
12		Both A and B are 1		40J		0.01SV		Electron
13		$10^5$		One		Hydrogen		Electron microscope
14		Electron		F, L, E		$1.6 \times 10^{-14} \text{ N}$		$\gamma$ -rays
15		Electron microscope		Ammeter		40J		0.01SV
16		$\gamma$ -rays		0.25V		One		Hydrogen
17		0.01SV		Inertia		F, L, E		$1.6 \times 10^{-14} \text{ N}$
18		Hydrogen		Zero		Ammeter		40J
19		/		/		/		/
20		/		/		/		/
Cross Check	A B C D		A B C D		A B C D		A B C D	
Total	6443		6443		6443		6443	

## سرٹیفکیٹ بابت صحیح سوالیہ پرچہ امارنگ Key

ہم نے مضمون فیزکس پرچہ گروپ انٹرمیڈیٹ دوسرا سالانہ امتحان 2023 کا سوالیہ پرچہ انتہائی و معروضی (Subjective & Objective) کو نظر میں 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 &amp; Checked By:

Dated: 07-11-2023

S.#	Name	Designation	Institution	Mobile No	Signature
1	Bashir Ahmad	Associate Professor	Govt. Millat Graduate College Multan	03006305057	
2	Shahid Ishaq	Associate Prof.	Govt. Civil Lines Multan	03077360030	
3	MUHAMMAD SARFRAZ	Asso. Prof.	G. Lyallpur College of Science Multan	0302-7777121	
4					
5					

ہم نے درج بالا سوالیہ پرچہ (انتہائی + معروضی) معروضی "Key" اور ہدایات کے حوالہ سے مکمل طور پر تسلی کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

Re-Checked By					
1					
2					

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INTERMEDIATE PART-II (12 <sup>th</sup> Class)		2023 (2 <sup>nd</sup> -A)	Roll No:
PHYSICS PAPER-II			
TIME ALLOWED: 2.40 Hours		SUBJECTIVE	MAXIMUM MARKS: 68
NOTE: Write same question number and its parts number on answer book, as given in the question paper.			
SECTION-I			
<b>2. Attempt any eight parts.</b>			<b>8 × 2 = 16</b>
(i)	How can you identify that which plate of the capacitor is positively charged?		
(ii)	Do electrons tend to go to region of high potential or of low potential?		
(iii)	Write any two characteristics of electric lines of force.		
(iv)	What is origin of electric field and how can we test its presence?		
(v)	Why the voltmeter should have a very high resistance?		
(vi)	Why does the picture on a TV screen become distorted when a magnet is brought near the screen?		
(vii)	How should one measure current sensitivity of a galvanometer? Write its relation.		
(viii)	What is principle of cathode ray oscilloscope? Write any one of its application.		
(ix)	What do we mean by the term critical mass?		
(x)	Why are heavy nuclei unstable?		
(xi)	Show that fission of one ${}_{92}\text{U}^{235}$ Uranium atom produces almost 200 MeV energy.		
(xii)	What is alpha decay? Give one example.		
<b>3. Attempt any eight parts.</b>			<b>8 × 2 = 16</b>
(i)	Why does the resistance of a conductor rise with temperature?		
(ii)	Explain, why the terminal potential of a battery decreases when the current drawn from it is increased?		
(iii)	Why resistance of a conductor is inversely proportional to the area of cross-section of the conductor?		
(iv)	What are the conditions under which electromagnetic waves are produced from source?		
(v)	Describe the relation between frequency of A.C. signal and capacitive reactance.		
(vi)	What is a choke? Write its main use.		
(vii)	Define elastic limit and yield point.		
(viii)	What you mean by curie temperature? And write value of curie temperature for iron.		
(ix)	Is it possible to have an isolated north or south pole of magnet?		
(x)	Why charge carriers are not present in the depletion region?		
(xi)	Why ordinary silicon diode do not emit light?		
(xii)	How would you measure the forward resistance of the p - n junction?		
<b>4. Attempt any six parts.</b>			<b>6 × 2 = 12</b>
(i)	Show that $\varepsilon$ and $\frac{\Delta\phi}{\Delta t}$ have the same unit.		
(ii)	Can a D.C motor be turned into D.C generator? What changes are required to be done?		
(iii)	When light shines on a surface, is momentum transferred to the metal surface?		
(iv)	We do not notice de-broglie wavelength for a pitched cricket ball. Explain why		
(v)	What do we mean when we say that the atom is excited?		
(vi)	Differentiate between line spectrum and band spectrum.		
(vii)	What is wave particle duality? Give its one particle use.		
(viii)	What is photoelectric effect? Does it depends upon intensity or frequency of light?		
(ix)	What is back emf effect in motors?		
SECTION-II			
<b>NOTE: Attempt any three questions.</b>			<b>3 × 8 = 24</b>
5.(a)	State and explain Gauss's Law. How can you apply the Gauss's Law to calculate electric intensity due to infinite sheet of charges?		05
(b)	A platinum wire has resistance to $10 \Omega$ at $0^\circ\text{C}$ and $20 \Omega$ at $273^\circ\text{C}$ . Find the value of temperature coefficient of resistance of platinum?		03
6.(a)	How will you determine the charge to mass ratio of electron?		05
(b)	A solenoid has 250 turns and its self inductance is 2.4 mH. What is flux through each turn when the current is 2A? What is the induced emf when the current changes at $20\text{As}^{-1}$ .		03
7.(a)	What is meant by biasing of PN junction? Explain its two types.		05
(b)	Find the value of current flowing through a capacitance $0.5 \mu\text{F}$ when connected to a source of 150V at 50Hz.		03
8.(a)	Derive an expression for strain energy in deformed material.		05
(b)	Assuming you radiate as does a black body at your body temperature about $37^\circ\text{C}$ . What wave length do you emit the most energy?		03
9.(a)	What are necessary conditions to make a LASER? Write a note on working of helium-neon laser along with any two applications of laser.		05
(b)	The half-life of ${}_{38}\text{Sr}^{91}$ is 9.70 hours. Find its decay constant.		03

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Paper Code		2023 (2 <sup>nd</sup> -A)		Roll No: _____	
Number: 4471		INTERMEDIATE PART-II (12 <sup>th</sup> Class)			
PHYSICS PAPER-II					
TIME ALLOWED: 20 Minutes		OBJECTIVE		MAXIMUM MARKS: 17	
Q.No.1 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.					
S.#	QUESTIONS	A	B	C	D
1	The force on an electron in an electric field $10^5 NC^{-1}$ is:	$1.6 \times 10^{-19} N$	$1.6 \times 10^{-14} N$	$1.6 \times 10^{-27} N$	Zero
2	A capacitor with capacitance 'C' has charge 'q' and stored energy is 10J. If the charge increased to "2q", then stored energy is:	20J	5J	40J	50J
3	The product of resistivity and conductivity is:	One	Current	Voltage	Power
4	If $F_1$ and $F_2$ are the magnetic force on an electron and $\alpha$ - particle respectively, then:	$F_1 = 2F_2$	$F_1 = F_2$	$F_1 > F_2$	$F_1 < F_2$
5	Which one of the following has low resistance?	Ammeter	Voltmeter	Galvanometer	Capacitor
6	A metal rod of 1m is moving at speed $1.0 m sec^{-1}$ in a direction making an angle $30^\circ$ with the magnetic field 0.5T. The emf induced will be:	6.25V	25V	0.25V	2.5V
7	The role of self inductance is same as that of one of the following in mechanical system:	Force	Inertia	Velocity	Power
8	The power dissipation in pure inductor is:	Zero	Maximum	Minimum	Infinite
9	The frequency of D.C current is:	50Hz	100Hz	220Hz	Zero
10	A device used to detect very weak magnetic field produced by the brain is named:	Squid	CAT scanner	CRO	MRI
11	A two input NAND with inputs 'A' and 'B' has output zero if:	'B' is 0	'A' is 0	Both 'A' and 'B' are 1	Both 'A' and 'B' are 0
12	The open loop gain of operational amplifier:	Infinite	$10^5$	1	10
13	A positron is an antiparticle of:	Electron	Proton	Neutron	Photon
14	Wave nature property of particle is applicable to:	Simple microscope	Compound microscope	Photo electric effect	Electron microscope
15	The charge on the x-rays is same as that of:	Electron	$\gamma$ - rays	Ion	Proton
16	1.0 rem is equal to:	10 SV	0.1 SV	0.01 SV	100 SV
17	Which one of the following is not nuclear fuel?	Hydrogen	Plutonium-239	Uranium-235	Uranium-233

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Paper Code Number: 4473	2023 (2 <sup>nd</sup> -A) INTERMEDIATE PART-II (12 <sup>th</sup> Class)	Roll No: _____			
PHYSICS PAPER-II					
TIME ALLOWED: 20 Minutes		OBJECTIVE		MAXIMUM MARKS: 17	
Q.No.1	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.				
S.#	QUESTIONS	A	B	C	D
1	The frequency of D.C current is:	50Hz	100Hz	220Hz	Zero
2	A device used to detect very weak magnetic field produced by the brain is named:	Squid	CAT scanner	CRO	MRI
3	A two input NAND with inputs 'A' and 'B' has output zero if:	'B' is 0	'A' is 0	Both 'A' and 'B' are 1	Both 'A' and 'B' are 0
4	The open loop gain of operational amplifier:	Infinite	$10^5$	1	10
5	A positron is an antiparticle of:	Electron	Proton	Neutron	Photon
6	Wave nature property of particle is applicable to:	Simple microscope	Compound microscope	Photo electric effect	Electron microscope
7	The charge on the x-rays is same as that of:	Electron	$\gamma$ - rays	Ion	Proton
8	1.0 rem is equal to:	10 SV	0.1 SV	0.01 SV	100 SV
9	Which one of the following is not nuclear fuel?	Hydrogen	Plutonium-239	Uranium-235	Uranium-233
10	The force on an electron in an electric field $10^5 \text{ NC}^{-1}$ is:	$1.6 \times 10^{-19} \text{ N}$	$1.6 \times 10^{-14} \text{ N}$	$1.6 \times 10^{-27} \text{ N}$	Zero
11	A capacitor with capacitance 'C' has charge 'q' and stored energy is 10J. If the charge increased to "2q", then stored energy is:	20J	5J	40J	50J
12	The product of resistivity and conductivity is:	One	Current	Voltage	Power
13	If $F_1$ and $F_2$ are the magnetic force on an electron and $\alpha$ -particle respectively, then:	$F_1 = 2F_2$	$F_1 = F_2$	$F_1 > F_2$	$F_1 < F_2$
14	Which one of the following has low resistance?	Ammeter	Voltmeter	Galvanometer	Capacitor
15	A metal rod of 1m is moving at speed $1.0 \text{ m sec}^{-1}$ in a direction making an angle $30^\circ$ with the magnetic field 0.5T. The emf induced will be:	6.25V	25V	0.25V	2.5V
16	The role of self inductance is same as that of one of the following in mechanical system:	Force	Inertia	Velocity	Power
17	The power dissipation in pure inductor is:	Zero	Maximum	Minimum	Infinite

Paper Code	2023 (2 <sup>nd</sup> -A)	Roll No: <u>236</u>			
Number: 4475	INTERMEDIATE PART-II (12 <sup>th</sup> Class)				
PHYSICS PAPER-II					
TIME ALLOWED: 20 Minutes		OBJECTIVE		MAXIMUM MARKS: 17	
Q.No.1	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.				
S.#	QUESTIONS	A	B	C	D
1	A metal rod of $1m$ is moving at speed $1.0 m sec^{-1}$ in a direction making an angle $30^\circ$ with the magnetic field $0.5T$ . The emf induced will be:	6.25V	25V	0.25V	2.5V
2	The role of self inductance is same as that of one of the following in mechanical system:	Force	Inertia	Velocity	Power
3	The power dissipation in pure inductor is:	Zero	Maximum	Minimum	Infinite
4	The frequency of D.C current is:	50Hz	100Hz	220Hz	Zero
5	A device used to detect very weak magnetic field produced by the brain is named:	Squid	CAI scanner	CRO	MRI
6	A two input NAND with inputs 'A' and 'B' has output zero if:	'B' is 0	'A' is 0	Both 'A' and 'B' are 1	Both 'A' and 'B' are 0
7	The open loop gain of operational amplifier:	Infinite	$10^5$	1	10
8	A positron is an antiparticle of:	Electron	Proton	Neutron	Photon
9	Wave nature property of particle is applicable to:	Simple microscope	Compound microscope	Photo electric effect	Electron microscope
10	The charge on the $x$ - rays is same as that of:	Electron	$\gamma$ - rays	Ion	Proton
11	1.0 rem is equal to:	10 SV	0.1 SV	0.01 SV	100 SV
12	Which one of the following is not nuclear fuel?	Hydrogen	Plutonium-239	Uranium-235	Uranium-233
13	The force on an electron in an electric field $10^5 NC^{-1}$ is:	$1.6 \times 10^{-19} N$	$1.6 \times 10^{-14} N$	$1.6 \times 10^{-27} N$	Zero
14	A capacitor with capacitance 'C' has charge 'q' and stored energy is 10J. If the charge increased to "2q", then stored energy is:	20J	5J	40J	50J
15	The product of resistivity and conductivity is:	One	Current	Voltage	Power
16	If $F_1$ and $F_2$ are the magnetic force on an electron and $\alpha$ - particle respectively, then:	$F_1 = 2F_2$	$F_1 = F_2$	$F_1 > F_2$	$F_1 < F_2$
17	Which one of the following has low resistance?	Ammeter	Voltmeter	Galvanometer	Capacitor

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Paper Code		2023 (2 <sup>nd</sup> -A)		Roll No: _____	
Number: 4477		INTERMEDIATE PART-II (12 <sup>th</sup> Class)			
PHYSICS PAPER-II					
TIME ALLOWED: 20 Minutes		OBJECTIVE		MAXIMUM MARKS: 17	
Q.No.1		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.			
S.#	QUESTIONS	A	B	C	D
1	The product of resistivity and conductivity is:	One	Current	Voltage	Power
2	If $F_1$ and $F_2$ are the magnetic force on an electron and $\alpha$ - particle respectively, then:	$F_1 = 2F_2$	$F_1 = F_2$	$F_1 > F_2$	$F_1 < F_2$
3	Which one of the following has low resistance?	Ammeter	Voltmeter	Galvanometer	Capacitor
4	A metal rod of $1m$ is moving at speed $1.0 \text{ msec}^{-1}$ in a direction making an angle $30^\circ$ with the magnetic field $0.5T$ . The emf induced will be:	6.25V	25V	0.25V	2.5V
5	The role of self inductance is same as that of one of the following in mechanical system:	Force	Inertia	Velocity	Power
6	The power dissipation in pure inductor is:	Zero	Maximum	Minimum	Infinite
7	The frequency of D.C current is:	50Hz	100Hz	220Hz	Zero
8	A device used to detect very weak magnetic field produced by the brain is named:	Squid	CAT scanner	CRO	MRI
9	A two input NAND with inputs 'A' and 'B' has output zero if:	'B' is 0	'A' is 0	Both 'A' and 'B' are 1	Both 'A' and 'B' are 0
10	The open loop gain of operational amplifier:	Infinite	$10^5$	1	10
11	A positron is an antiparticle of:	Electron	Proton	Neutron	Photon
12	Wave nature property of particle is applicable to:	Simple microscope	Compound microscope	Photo electric effect	Electron microscope
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14	1.0 rem is equal to:	10 SV	0.1 SV	0.01 SV	100 SV
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