# OBJECTIVE KEY FOR INTERMEDIATE ANNUAL EXAMINATION, 2022

<u> </u>	AF WEI LOK INTE	RIVIEDIATE ANNUAL EXAM	INATION.2022 ( QUA) 6
Name of Subject:	physics	Session:	MATION, 2022 50 30 21
Group: 1st		Group: 2nd	

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	Q.	Paper Code	Paper Code	Paper Code	Paper Code
	Nos	4471	4473	4475	4477
	1	С	B	Α	A
	2	D	В	Α	С
	3	D	B	В	B
	4	A A C	D	Α	Α
	5	Α	D	D	Α
	6	C	D	СВ	B
-	7	B	D	В	Α
	8		A	B	D
	9	A	A	В	С
L	10	В	C	D	B
L	11	A	В	C	B
L	12	D	A	D.	В
L	13	A D C	A	D	D
L	14	B	B	A	C
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	Q.	Paper Code	Paper Code	Paper Code	Paper Code
1	Nos	4472	4474	4476	4478
	1	A	В	B .	A
	2	D	C	-C	A
	3	D	A	В	D
	4	A	D	B	B
	5	A	D	C	c
	6	D	A	С	В
	7	В	A D	A	
	8	C	D	D	C
	9	В	B	Α	С
	10	B	B C	A B	C C A
	11	С В В С С	B	С	D
	12	C	B C C A	Α	Α
	13	A	C	D	
L	14.	D	C	D	B
	15	A	Α	A	A
L	16	В	D	A	D
	17	C	A	D	D
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	19	22.		/	/
	20		1	/	1

مر شفكيث بابت مي سواليد يرجد الماركك Key

ہم نے مضمون Physics پچ سالاندامتخان 2022 کا سیم New یوپ I and I کی جہر نے کے مسلان استحان 2022 کا سیم معروض (Subjective & Objective کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ انشا کیے ومعروضی (Subjective & Objective کی کرلیا ہے۔ یہ پرچہ میں کی فتم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریز Version بھی چیک کرلیا ہے۔ یہ Version آپس میں مطابقت رکھتے ہیں۔ نیز اس پرچہ کی معروضی (Key (MCQs) کی بابت تقدیق کی جاتی ہے کہ اس میں بھی کی قتم کی کوئی غلطی نہ ہے۔ مزید ہی کہ ہم نے بھی تیار کردہ ہدایات کی معروضی (Rubrics) کی بابت تقدیق کی جاتی ہے کہ اس میں بھی کی قتم کی کوئی غلطی نہ ہے۔ مزید ہی کہ ہم نے بدایات ادارکنگ سیم ادارکنگ سیم ادارکنگ سیم Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By: Dated: 04. 07. 22 S.# Name Designation Institution Mobile No Signature Shamol squal Good. civil lines 030773600 Kamran khan 2 0331-8611722 M. Siddique Abid 03347184702 Kaleem Ullah 0301-7400172 5 ہم نے درج بالاسواليد پر چد (انشائيد +معروض) معروض "Key"اور بدايات كے والد ي مكل طور پر ليل كر لى ب- كى تتم كى كو كى فلطى ند ب- م 03336060851

تاريخ\_

	2022 (A)	Roll No:
DITT	INTERMEDIATE PART-II (12 <sup>th</sup>	
PHY	SICS PAPER-II GROUP-II	TIME ALLOWED: 2.40 Hours
NOT	<u>SUBJECTIVE</u>	MAXIMUM MARKS: 68
NOT	E: Write same question number and its part number on answe as given in the question paper.	r book,
	SECTION-I	
2.	Attempt any eight parts.	$8 \times 2 = 16$
(:)		8 × 2 = 16
(i)	Show that $\frac{Volt}{Meter} = \frac{Newton}{Coulomb}$	
(ii	What is the time constant? Prove that its unit for RC series ci	rcuit is second.
(ii	Write down similarities between gravitational force and electric	rical force.
(iv (v)	but the state of a capacitor is positive	vely charged?
(v)	The state of the s	
	Is it possible to orient a current loop in a uniform magnetic fie will not tend to rotate? Explain.	eld such that the loop
(vi	i) State Ampere's Law. Write down its mathematical expression	
(vi	ii) What is the effect on magnetic field inside solenoid if the len	gth of the solenoid is doubled
	and number of turns remain the same?	
(ix		
(x) (xi	The state of the cut ve binding interest	maximum? (xi) What is Chain Reaction?
3.	<ul> <li>A particle which produces more ionization less penetrating.</li> <li>Attempt any eight parts.</li> </ul>	
(i)	Calculate the resistance of a carbon resistor with first bond Re	$8 \times 2 = 16$
	third bond Orange and fourth bond have Silver colour.	
(ii	What are the difficulties in testing whether the filament of a li	ighted bulb obeys Ohm's Law?
(ii	flow a wheatstone bridge can be used to determine an unknown	wn resistance?
(iv	rms of the peak value.	
(v)	,	
(vi	in the state of th	e produced from a source.
(vi	ii) Distinguish between intrinsic and extrinsic semi-conductors.	
(ix	Define super conductors. Give their two applications. (x) Writing	ite down four applications of Photodiodes
(xi)	what is the effect of forward and reverse biasing of a diode on	the width of depletion region.
(xi	i) When the output of an exclusive OR gate is in (a) one state Attempt any six parts.	(b) zero state
(i)	Four unmarked wires emerge from a transformer. What step	$6 \times 2 = 12$
	the turns ratio?	s would you take to determine
(ii)	The state of the s	nges are required to be done?
(iii	Define self inductance and also define its unit. (iv) Disting	uish between slip rings and split rings.
(v) (vi	why do we not observe a Compton effect with visible light?	
(vi	o the state of the	nicroscope?
(vi	i) How can the spectrum of Hydrogen contain so many lines who	init.
(ix	What is CAT scanner? Explain.	en riydrogen contains one electron?
	SECTION-II	
NOTE:	r J var of classions.	$3 \times 8 = 24$
5.(a) (b)	What is electric potential? Derive the relation between electric	field and electric potential. 5
(0)	A rectangle bar of iron is 2.0cm by 2.0cm in cross-section and	
6.(a)	Calculate its resistance if the resistivity of iron is $11 \times 10^{-8} \Omega m$	3
(b)	What is the alternating generator? Explain principle, constructing	ion and working of A.C generator. 5
(0)	How fast must be a proton moving in a magnetic field of 2.50 magnetic force is equal to its reviels.	
7.(a)	magnetic force is equal to its weight.  What is operational amplifier? Derive an expression for gain of	3
(b)	Find the value of current flowing through a capacitance of $0.5 \mu$	f inverting op-amp. 5
	to a source of 150 V at 50 Hz	3
8.(a)	Explain de-Broglie hypothesis. How Davisson and Germer exper	rimentally varified
4	the de-Brogne hypothesis?	5
(b)	A 1.0 m long copper wire is subjected to stretching force and its	length increases by 20cm
0 (a)	Calculate the tensile strain and percent elongation which the wire	undergoes 2
9.(a)	what is a radiation detector? Explain detection principle constru	uction and
(b)	working of Geiger-Muller Counter.  An electron jumps from a level F. 2.5 10-19 x 10-19	5
(0)	An electron jumps from a level $E_i = -3.5 \times 10^{-19} J$ to $E_f = -3.5 \times 10^{-19} J$ to $E_f = -3.5 \times 10^{-19} J$	$1.20 \times 10^{-18} J$ .
	What is the wavelength of the emitted light?	3
	20-2022	(A)-12000 (MULTAN)

						(52)
18	per Code		2022	(A) R	Roll No.	(36)
Nu	ımber:	4472	INTERMEDIATE	PART-II (12th CL	ASS)	
PH	YSICS	PAPER-II	GROUP-II	Т	TME ALLOY	VED: 20 Minutes
NT			OBJEC	CTIVE M	IAXIMUM N	MARKS: 17
No	te: You h think	ave four choice is correct, fill	ces for each objective ty that bubble in front of	pe question as A, B, C	and D. The c	hoice which you
	or her	i to im the bu	obles. Cutting or filling	two or more bubbles	will regult in a	are mark in that
	questi	ion. No credit	will be awarded in case CTIVE PAPER.	BUBBLES are not fil	led. Do not so	olve question on
Q.N	0.1					
(1)	(A) Sto	okes's law		aw (C) Newton's gra	alculated by: avitational law	(D) Faraday's law
(2)	(A) De	tance of paralle ecreasing area	el plate capacitor can be i			
	(C) inc	reasing potenti	al	(B) Increasing se (D) Inserting diel		plates
(3)	Thermi	istors with nega	ative temperature coeffici			
		om temperature w temperature		(B) High tempera (D) Low tempera		
(4)			m be increased by:	(D) Low tempera	ture TOK	
	(A) Inc	reasing high re	sistance	(B) Decreasing hi	igh resistance	
(5)			de deflection current	(D) Changing res	istance of coil	
(3)	(A) D.(	c or galvanom	eter is same as: (B) A.C motor	(C) Transformer	(D) Gener	ator
(6)	The pri	inciple of trans	former is:	(=),===================================	(B) Gener	utor
		nservation of e mentum conse		(B) Conservation	of charge	
(7)				(D) Mutual induc		
(7)	FOF A.C	generator I =	$=I_0\sin(2\pi ft.)$ instant	aneous current at $t = \frac{1}{2}$	4 is:	
	(A) Zer		$(B)$ $I_0$	(C) $\frac{I_0}{2}$	(D) $\frac{I_0}{\sqrt{2}}$	
(8)	When a (A) 5	capacitor is co	onnected to A.C source. I (B) Zero	How many times, it wil (C) 10	l saturate in 5 c (D) 6	ycles.
(9)	The prir (A) Res	sonance	detector is: (B) Beats	(C) Faraday's law	(D) Lenz's	law
(10)	Techno	logical applica ro wave oven	tion of super conductor is			2
(11)			(B) MRI	(C) Logic gates	(D) Transis	stor
	(A) A 19	s zero (		Both $A$ and $B$ are on	(D) Both A	and B are zero
(12)	(A) The	verse bias	tted by a LED depends o	n: (B) The amount of	f forward currer	<b>.</b> +
		of semicondu	ctor material	(D) The forward b		11
(13)	Diffract (A) Wav	ion of electron e nature	s indicates: (B) Particle nature	e (C) Dual nature	(D) Crystal	nature
(14)	de Brogl	ie wavelength	of moving cricket ball is	not noticed due to:		•
(15)	(A) Low	mass	(B) High speed	(C) Time delay	(D) Low sp	eed /
(	(A) Holo	am can be used	In: (B) X-ray machin	e (C) Fission	(D) Solid st	tructure study
(16)	Xenon ha (A) 30 is		(B) 36 isotopes	(C) 10 instance	(D) 10 ·	
(17)			d strange combination of	(C) 10 isotopes	(D) 12 isoto	opes
	(A) e		(B) $-e$	(C) Zero	(D) 2e	
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	Code		2022	(A)	Roll No.	(304)
IN	umber:	4474	INTERMEDIATE	PART-II (12th C	LASS)	
	HYSICS		GROUP-II			WED: 20 Minutes
No	ote: You h	ave four choic	OBJE(	CTIVE	A A A YETT AT THE A Y	******
	think or per	is correct, fill to	es for each objective ty that bubble in front of the bles. Cutting or filling	pe question as A, B, that question number	C and D. The er, on bubble sh	choice which you eet. Use marker
	questi	on. No credit v	obles. Cutting or filling vill be awarded in case TIVE PAPER.	BUBBLES are not	es will result in : filled. Do not s	zero mark in that
1000	No.1		TIVE PAPER.			
(1)		isotopes	(B) 36 isotopes	(C) 10 isotopes	(D) 12 iso	otones
(2)	(A) e		and strange combination of $(B) - e$	of quark is:	(D) 2a	on the second se
(3)	The ma	iss of oil drople kes's law	t in measuring charge in	Millikan method is	calculated by:	
(4)	(		(B) Coulomb's la plate capacitor can be in	w (C) Newton's g	ravitational law	(D) Faraday's law
	(21) DU	creasing area of easing potential	plates	(B) Increasing s	eparation between	su plates
(5)				(D) Inserting dia	electric material	Spanies
		m temperature 1	ive temperature coefficie	(B) High temper (D) Low temper	rature	
(6)	Range o	f voltmeter can	be increased by:	(D) Low temper	ature 10K	
	(C) Incre	easing high resi easing full scale	deflection current	(B) Decreasing l (D) Changing re	nigh resistance	
(7)	Principle (A) D.C	of galvanomet	er is same as: (B) A.C motor			
(8)	The prin	ciple of transfo	rmer is:	(C) Transformer	(D) Genera	ator
	(A) Con	servation of end entum conserva	ergy	(B) Conservation (D) Mutual induc	ref charge	
(9)	For A.C	generator $I = I$	$\sin(2\pi ft)$ instantar			
	(A) Zero		$(B) I_0$	(C) $\frac{I_0}{2}$	(D) $\frac{I_0}{\sqrt{2}}$	No.
(10)	When a can (A) 5	apacitor is conn	ected to A.C source. He (B) Zero	Ow many times, it will	ll saturate in 5 cy (D) 6	rcles.
(11)	The prince (A) Resor	iple of metal de nance	tector is: (B) Beats	(C) Faraday's law		
[12]	Technolo (A) Micro	gical applicatio wave oven	n of super conductor is: (B) MRI			
13)		ut NAND gate	with inputs A and B	(C) Logic gates	(D) Transist	
14)	The colour	of light emitte	B is zero (C) F d by a LED depends on:	Both A and B are on	(D) Both A	and B are zero
	(11) 1110 10	verse bias f semiconducto		(B) The amount of	forward current	
15)	Diffraction	rof electrons in		(D) The forward b.	ias	
, (	(A) Wave i	nature	(B) Particle nature	(C) Dual nature	(D) Crystal n	ature
16)			moving cricket ball is no (B) High speed	t noticed due to: (C) Time delay	(D) Low spec	
17)	(A) Hologr	can be used in aphy	: (B) X-ray machine	(C) P:		
`	<u> </u>		(2) 11-1ay machine	(C) Fission	(D) Solid stru	ecture study
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# INTERMEDIATE PART-II (12th CLASS)

PHYSICS	PAPER-II	GROUP-I	I
		OTFO OF T	_

TIME ALLOWED: 20 Minutes

**OBJECTIVE** 

**MAXIMUM MARKS: 17** 

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

		be awarded in case BU		l result in zero mark in that  Do not solve question on
Q.No.	1			
(1)	For A.C generator $I = I_0$	$\sin(2\pi f t.)$ instantane	eous current at $t = \frac{T}{4}$	is:
	(A) Zero	$(B) I_0$	(C) $\frac{I_0}{2}$	(D) $\frac{I_0}{\sqrt{2}}$
(2)	When a capacitor is connected (A) 5	ected to A.C source. How (B) Zero	wanany simes, it will sa (C) 10	aturate in 5 cycles. (D) 6
(3).	The principle of metal det (A) Resonance	(B) Beats	(C) Faraday's law	(D) Lenz's law
(4)	Technological application (A) Micro wave oven	n of super conductor is: (B) MRI	(C) Logic gates	(D) Transistor
(5)	A two input NAND gate v (A) A is zero (B)		oth A and B are one	(D) Both A and B are zero
(6) <b>(</b>	The colour of light emitte (A) The reverse bias (C) Type of semiconductors		(B) The amount of fo (D) The forward bias	
(7) <b>(</b>	Diffraction of electrons in (A) Wave nature	ndicates: (B) Particle nature	(C) Dual nature	(D) Crystal nature
(8)	de Broglie wavelength of (A) Low mass	moving cricket ball is no (B) High speed	ot noticed due to: (C) Time delay	(D) Low speed
(9)	Laser beam can be used in (A) Holography	n: (B) X-ray machine	(C) Fission	(D) Solid structure study
(10)	Xenon has: (A) 30 isotopes	(B) 36 isotopes	(C) 10 isotopes	(D) 12 isotopes
(11)	Charge on up, down and s (A) e	trange combination of qu (B) -e	lark is: (C) Zero	(D) 2e
(12)	The mass of oil droplet in (A) Stokes's law	measuring charge in Mi (B) Coulomb's law		
(13)	Capacitance of parallel pla (A) Decreasing area of pl (C) increasing potential	ate capacitor can be increates	eased by:  (B) Increasing separa  (D) Inserting dielectr	
(14)	Thermistors with negative (A) Room temperature (C) Low temperature 100F		are very accurate for m  (B) High temperature  (D) Low temperature	
(15)	Range of volumeter can be	increased by:	<u> </u>	

(A) Increasing high resistance

(C) Increasing full scale deflection current

(16)Principle of galvanometer is same as: (A) D.C motor

(B) A.C motor The principle of transformer is:

(A) Conservation of energy

(17)

(C) Momentum conservation

(B) Decreasing high resistance

(D) Changing resistance of coil

(C) Transformer

(D) Generator

(B) Conservation of charge

(D) Mutual induction

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# 2022 (A)

Roll No.

Number:

# INTERMEDIATE PART-II (12th CLASS)

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PAPER-II GROUP-II **PHYSICS** 

TIME ALLOWED: 20 **MAXIMUM MARKS** 

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

	this sheet of OBJECTIV	E PAPER.		
Q.N	No.1			
(1)	Range of voltmeter can be	increased by:		
	(A) Increasing high resista	nce	(R) Decreasing high	
	(C) Increasing full scale do	effection current	(B) Decreasing high	resistance
(2)			(D) Changing resist	ance of coil
(2)	Principle of galvanometer	is same as:		
	(A) D.C motor	(B) A.C motor	(C) Transformer	(D) Generator
(3)	The principle of transform			(D) Generator
(-)	(A) Conservation of an are	ier is:		
	(A) Conservation of energ	У	(B) Conservation of	
	(C) Momentum conservation	on	(D) Mutual induction	on )
(4)	For A C generator $I = I$ o	in (2 = f+) :	T /	
` '	For A.C generator $I = I_0$ s	$\lim_{n \to \infty} (2\pi f t_n)$ instantan	eous current at $t = \frac{1}{4}$	is:
	(A) Zero		L	1
	(A) Zelo	$(B) I_0$	(C) $\frac{I_0}{2}$	(D) $\frac{I_0}{\sqrt{2}}$
			2	V 2
(5)	When a capacitor is connect	eted to A.C source. Ho	W many times it will s	aturate in 5 avalor
	(A) 5	(B) Zero	(C) 10	(D) 6
(6)	The principle of motal date			(D) 0
(0)	The principle of metal dete (A) Resonance			
	(A) Resonance	(B) Beats	(C) Faraday's law	(D) Lenz's law
(7)	Technological application	of super conductor is:		
	(A) Micro wave oven	(B) MRI	(C) I:-	(D) T
(0)			(C) Logic gates	(D) Transistor
(8)	A two input NAND gate wi	th inputs $A$ and $B$	has an input 0 if:	
	(A) $A$ is zero (B) $A$	B is zero $(C)$ B	Both $A$ and $B$ are one	(D) Both A and B
(9)	The colour of light emitted			(D) Don't A and D
` '	(A) The reverse bias	by a LED depends on:		
	(C) Type of somious dust		(B) The amount of for	orward current
	(C) Type of semiconductor	material	(D) The forward bias	S 400
(10)	Diffraction of electrons ind	icates:		. 4
	(A) Wave nature	(B) Particle nature	(C) Dual nature	(D) (C
(11)				(D) Crystal nature
(11)	de Broglie wavelength of m	oving cricket ball is no	t noticed due to:	
	(A) Low mass	(B) High speed	(C) Time delay	(D) Low speed
(12)	Laser beam can be used in:			( ) Jon speed
(	(A) Holography	(B) X-ray machine	(C) T' .	
(12)		(b) A-lay machine	(C) Fission	(D) Solid structure s
(13)	Xenon has:			
	(A) 30 isotopes	(B) 36 isotopes	(C) 10 isotopes	(D) 12 isotopes
(14)	Charge on up down and street			(D) 12 isotopes
()	Charge on up, down and stra (A) e	inge combination of qu	1	
		(B) $-e$	(C) Zero	(D) 2e
(15)	The mass of oil droplet in m	easuring charge in Mi	llikan method is calcul	
	(A) Stokes's law	(B) Coulomb's law	(C) Nouton's carcul	ated by:
(16)			(C) Newton's gravita	tional law (D) Farac
(10)	Capacitance of parallel plate	capacitor can be increa	ased by:	
	(A) Decreasing area of plate	es	(B) Increasing separa	tion between plates
	(C) increasing potential	(	(D) Inserting dielectri	c material
(17)	Thermistors with negative to	mnaroturo confC	, and	
	Thermistors with negative te (A) Room temperature	imperature coefficient a	are very accurate for me	easuring:
	(C) Low temperature 100K		(B) High temperature	
	(-) 2011 temperature 100K		(D) Low temperature	10K )

2022 (A)

Roll No: \_

(308)

# INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II GROUP-I

TIME ALLOWED: 2.40 Hours

**SUBJECTIVE** 

**MAXIMUM MARKS: 68** 

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

### **SECTION-I**

2. Attempt any eight parts.

 $8 \times 2 = 16$ 

- (i) What can you infer for  $R \times C$  in charging and discharging of a capacitor?
- (ii)  $4.8 \times 10^{-19} C$  charge falls through potential difference of 3.0 V. Calculate energy acquired by it in electron volt.
- (iii) How can you identify that which plate of the capacitor is positively charged?
- (iv) Do electrons tend to go to region of high potential or of low potential?
- (v) How galvanometer can be made more sensitive?
- (vi) Why Ohm meter gives full deflection on zero resistance?
- (vii) How can you use a magnetic field to separate isotopes of chemical element?
- (viii) If a charged particle moves in a straight line through some region of space. Can you say the magnetic field in the region is zero?
- (ix) A particle which produces more ionization is less penetrating. Why?
- (x) Why are heavy nuclei unstable?
- (xi) What will be resultant nucleus if a neutron is absorbed in  $\frac{238}{92}U$  and  $\beta$  particle emitted?
- (xii) In Uranium fission reaction, the estimated energy is 200 MeV where as in fusion P P Chain reaction 25.7MeV. Why fusion is more energetic than fission?
- 3. Attempt any eight parts.

 $8\times 2=16$ 

- (i) Why does The terminal potential difference of a battery decrease when the current drawn from it is increased.
- (ii) A wire of length 5m has resistance  $200\Omega$ . If the wire is stretched to increase its length three times. What will be its new resistance?
- (iii) How many electrons pass through an electric bulb in 2 minutes if the 100mA current passing through it?
- (iv) Explain the conditions under which electromagnetic waves are produced from a source.
- (v) Define Impedance. Give its unit.
- (vi) What is Choke?
- (vii) What is Plasticity and Elasticity?
- (viii) What is the elastic constant and give its unit.
- (ix) What do you understand by the term UTS and fracture stress?
- (x) What is the biasing requirement of the Junctions of a transistor for its normal operation?
- (xi) A transistor has collector current 10mA and Base current  $40\mu A$ . Find the current gain.
- (xii) Why a photo diode is operated in reverse biased state?

### Attempt any six parts.

 $6 \times 2 = 12$ 

- (i) Does the induced emf always act to decrease the magnetic flux through a circuit?
- (ii) Can a DC motor be turned into a DC generator? What changes are required to be done?
- (iii) How can we improve the efficiency of a transformer?



- (iv) State Faraday's Law.
- (v) As a solid is heated and begins to glow, why does it first appear red?
- (vi) Is it possible to create a single electron from energy? Explain.
- (vii) What is the difference between inertial frame of reference and non-inertial frame of reference?
- (viii) What are the advantages of lasers over ordinary light?
- (ix) Define Spectroscopy.

# **SECTION-II**

NOTE:	Attempt any three questions. $3 \times 8 =$	24
5.(a)	Find electric potential at a point due to a point charge and prove that $V = \frac{1}{4\pi \in Q} \frac{q}{r}$	5
(b)	A platinum wire has resistance of $10\Omega$ at $0^{\circ}C$ and $20\Omega$ at $273^{\circ}C$ . Find the value of temperature coefficient of resistance of platinum.	3
6.(a)	State the Ampere's Law. Also calculate the magnetic field due to current carrying Solenoid by using Ampere's Law	5
(b)	An ideal step down transformer is connected to main supply of 240V.  It is desired to operate a 12V, 30W lamp. Find current in the primary and the transformation ratio?	3
7.(a)	Derive an expression for impedance and phase angle in RC series and RL – series circuits excited by A.C voltage.	5
(b)	In a certain circuit, the transistor has a collector current of $10mA$ and a base current of $40\mu A$ . Calculate the current gain of the transistor.	3
8.(a)	State and explain Photoelectric effect. Write down its experimental results and failures of classical theory.	5
(b)	A 1.25cm diameter cylinder is subjected to a load of 2500kg.  Calculate the stress on the bar in mega pascals.	3
9.(a)	What is inner shell transitions? Explain the production of $X$ – rays.	5
(b)	The half – life of $^{91}_{38}$ Sr is 9.7 hours. Find its decay constant.	3

19-2022(A)-25000 (MULTAN)

				(3/6)
	Code	2022 (A INTERMEDIATE PA		11 No
Num	ber: 4471	INTERMEDIATE		
PHY	SICS PAPER-II			ME ALLOWED: 20 Minutes AXIMUM MARKS: 17
Note	. Vou have four choi	OBJECT		and D. The choice which you
Note	think is correct, fill	that bubble in front of the	at question number, o	on bubble sheet. Use marker
	or pen to fill the bu	ibbles. Cutting or filling to will be awarded in case B	vo or more bubbles v UBBLES are not fille	vill result in zero mark in that ed. Do not solve question on
	this sheet of OBJE	CTIVE PAPER.		
Q.No.		in one coulomb charge	is aqual to:	
(1)		rons in one coulomb charge	(C) $6.25 \times 10^{18}$	(D) $6.25 \times 10^{19}$
	(A) $1.6 \times 10^{-19}$	(B) $6.25 \times 10^{-19}$	(C) 6.23 × 10	(D) 0.23×10
(2)	S.I unit of Electric fl		(C) 11 3 C-1	(7) N.,.2 C-
	(A) $NmC^{-1}$	(B) $Nm^{-1}C^{-1}$	(C) $Nm^3C^{-1}$	(D) Nm C
(3)	Gold band shows a t		(C) +150/	$(D) \pm 5\%$
	(A) ±50%	(B) ±10%	(C) ±15%	(D) ±3%
(4)		perpendicular to magnetic fi		(D) Infinite
	(A) Maximum	(B) Minimum	(C) Zero	
(5)		ometer into a voltmeter a hig	None of the second	lar (D) Along tangent
	(A) In series	(B) In parallel		iai (D) Along tangent
(6)		bell requires a voltage of abo (B) 6 volts	(C) 9 volts	(D) 10 volts
(7)	(A) 7 volts	cation of the phenomenon of		(2) 10 1010
(7)	(A) Electric motor		(C) A.C generato	r (D) D.C generator
(8)		ow of A.C allows is:	, g.	
(0)	(A) Capacitor	(B) Inductor	(C) D.C motor	(D) Battery
(9)		R – L series circuit is:		
		(B) $Z = \sqrt{R^2 + 2}$	$\frac{1}{X^2}$ (C) $Z = \sqrt{R + X}$	(D) $Z = \sqrt{R + X_C}$
(1.0)			C (C) Z VII	
(10)			(C) Hexagonal	(D) Trigonal
(11)	(A) Tetragonal	(B) Cubical transistor is of the order of:	(C) Hexagonai	(D) Iligoliui
(11)			(C) $10^{-4} m$	(D) $10^{-3} m$
(12)	(A) 10 <sup>-6</sup> m	(B) $10^{-5} m$ gate with inputs $A$ and $B$		(D) 10 m
(12)	(A) $A$ is 0		(C) Both $A$ and $B$ are	0 (D) Both A and B are 1
(13)	Compton waveleng		(c) Bolli II and D and	
(13)	$\frac{h}{h}$	(B) $\frac{hC}{m_0}$	$(C)$ $\frac{h}{m_0 C}$	(D) $\frac{hC}{m_0 \lambda}$
	(A) $\frac{h}{m_0 C^2}$		$m_0C$	$m_0 \lambda$
(14)	and and	d for pair production is:	(C) 2.04 Mal/	(D) 3.06 MeV
	(A) 0.51 MeV	(B) 1.02 MeV	(C) 2.04 MeV	(D) 3.00 MeV
(15)		n region of electromagnetie		D) Evoir frozed region
	(A) Infrared region	(B) Visible regio	n (C) Ultraviolet re	egion (D) Frainfrared region
(16)	1 rem is equal to:	(D) 0.01 C.	(0) 2 04 54	(D) 3.06 Sv
(1.7)	(A) 0.1 Sv	(B) 0.01 Sv	(C) 2.04 Sv	(D) 3.00 BV
(17)		d in a nuclear reactor is: (B) Sodium	(C) Calcium	(D) Graphite
	(A) Aluminium	(D) Souldill	(C) Calcrum 19(Obj)(☆)-20	
			19(Obj)( <b>M</b> )-20	ZZ(A)- (MOLIAN)

Number:

INTERMEDIATE PART-II (12th CLASS)

IIIISICS FAFER-II GRUUP-	PHYSICS	PAPER-II	GROUP-I
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TIME ALLOWED: 20 Minutes

**OBJECTIVE** 

**MAXIMUM MARKS: 17** 

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

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	question. No credit will be this sheet of OBJECTIV	oe awarded in case Bl E PAPER.	UBBLES are not filled.	Do not solve question on
Q.No				
(1)	The energy required for pa	ir production is:		
	(A) 0.51 MeV	(B) 1.02 MeV	(C) 2.04 MeV	(D) 3.06 MeV
(2)	Balmer series lies in region	of electromagnetic sp	pectrum:	
	(A) Infrared region	(B) Visible region	(C) Ultraviolet regio	n (D) Frainfrared region
(3)	1 rem is equal to:			
	(A) 0.1 Sv	(B) 0.01 Sv	(C) 2.04 Sv	(D) 3.06 Sv
(4)	The moderator used in a nu	clear reactor is:		
	(A) Aluminium	(B) Sodium	(C) Calcium	(D) Graphite
(5)	The number of electrons in	one coulomb charge i	is equal to:	
	(A) $1.6 \times 10^{-19}$	(B) $6.25 \times 10^{-19}$	(C) $6.25 \times 10^{18}$	(D) $6.25 \times 10^{19}$
(6)	S.I unit of Electric flux is			
	(A) $NmC^{-1}$	(B) $Nm^{-1}C^{-1}$	(C) $Nm^3C^{-1}$	(D) $Nm^2C^{-1}$
(7)	Gold band shows a tolerand	ce of colour:		
	(A) ±50%	(B) ±10%	(C) ±15%	$(D) \pm 5\%$
(8)	The charge moving perpen	dicular to magnetic fie	eld experience force:	
(	(A) Maximum	(B) Minimum	(C) Zero	(D) Infinite
(9)	To convert a galvanometer	into a voltmeter a high	h resistance is connected	:
	(A) In series	(B) In parallel	(C) In perpendicular	(D) Along tangent
(10)	The common door bell req	uires a voltage of abou	ut:	402
	(A) 7 volts	(B) 6 volts	(C) 9 volts	(D) 10 volts

- The practical application of the phenomenon of mutual induction is: (11)
  - (A) Electric motor
- (B) Transformer
- (C) A.C generator
- (D) D.C generator

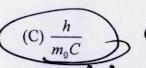
- The device which flow of A.C allows is: (12)
  - (A) Capacitor
- (B) Inductor
- (C) D.C motor
- (D) Battery

- The impedance of R L series circuit is: (13)
- (B)  $Z = \sqrt{R^2 + X_C^2}$  (C)  $Z = \sqrt{R + X_L}$  (D)  $Z = \sqrt{R + X_C}$

- The crystalline structure of NaCl is: (14)
  - (A) Tetragonal
- (B) Cubical
- (C) Hexagonal
- (D) Trigonal

- (15)The size of base of transistor is of the order of:
  - (A)  $10^{-6} m$
- (B)  $10^{-5} m$
- (C)  $10^{-4} m$
- (D)  $10^{-3} m$
- Two inputs NAND gate with inputs A and B has an output "0" if: (16)
  - (A) A is 0
- (B) B is 0
- (C) Both A and B are 0
- (D) Both A and B are 1

- (17)Compton wavelength is:





(MULTAN)

per	Code	2022 (	(A) Ro	oll No. $(312)$	
Numbe	er: 4475	INTERMEDIATE	PART-II (12 <sup>th</sup> CLA	ass)	
PHYS	CS PAPER-II			ME ALLOWED: 20 M	
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	or pen to fill the bu	ibbles. Cutting or filling	two or more bubbles	will result in zero mark in	that .
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Q.No.1					
		ow of A.C allows is:			
_	A) Capacitor	(B) Inductor	(C) D.C motor	(D) Battery	
		L series circuit is:			
(	$A)  Z = \sqrt{R^2 + X_L^2}$	$(B) Z = \sqrt{R^2 + 1}$	$\overline{X_C^2}$ (C) $Z = \sqrt{R + X_C}$	(D) $Z = \sqrt{R + X_C}$	
(3)	The crystalline struc	ture of NaCl is:			
	A) Tetragonal	(B) Cubical	(C) Hexagonal	(D) Trigonal	
(4) T	he size of base of tr	ransistor is of the order of:			
(	A) $10^{-6} m$	(B) $10^{-5} m$	(C) $10^{-4} m$	(D) $10^{-3} m$	
(5) T	wo inputs NAND g	ate with inputs $A$ and $B$	has an output "0" if:		
(4	A) A is 0	(B) B is 0	(C) Both $A$ and $B$ are	0 (D) Both $A$ and $B$ a	ire 1
(6) C	ompton wavelength			,	
(1	A) $\frac{h}{m_0 C^2}$	(B) $\frac{hC}{m_0}$	$\left( (C) \frac{h}{m! C} \right)$	(D) $\frac{hC}{m_0 \lambda}$	
(7) T	he energy required	for pair production is:	$m_0$ C	$m_0 \chi$	1
(2	A) 0.51 <i>MeV</i>	(B) 1.02 MeV	(C) 2.04 MeV	(D) 3.06 MeV	
(8) B	almer series lies in	region of electromagnetic	spectrum:		
(1	A) Infrared region	(B) Visible region	(C) Ultraviolet reg	ion (D) Frainfrared region	n
(9) 1	rem is equal to:				
(4	A) 0.1 Sv	(B) 0.01 Sv	(C) 2.04 Sv	(D) 3.06 Sv	
(10) T	he moderator used i	n a nuclear reactor is:			
(A	A) Aluminium	(B) Sodium	(C) Calcium	(D)-Graphite	
(11) T	he number of electron	ons in one coulomb charge	e is equal to:		
(4	A) $1.6 \times 10^{-19}$	(B) $6.25 \times 10^{-19}$	(C) $6.25 \times 10^{18}$	(D) $6.25 \times 10^{19}$	
(12) S.	I unit of Electric flu	ıx is			
(A	$NmC^{-1}$	(B) $Nm^{-1}C^{-1}$	(C) $Nm^3C^{-1}$	$(D) \widetilde{Nm^2C^{-1}}$	
(13) G	old band shows a to	lerance of colour:			
(A	x) ±50%	(B) ±10%	(C) ±15%	(D).±5%	
(14) TI	ne charge moving p	erpendicular to magnetic f	ield experience force:		
(A	A) Maximum	(B) Minimum	(C) Zero	(D) Infinite	
(15)	convert a galvanor	meter into a voltmeter a hi	gh resistance is connect	ed:	
(A	) In series	(B) In parallel	(C) In perpendicula	ar (D) Along tangent	
		ell requires a voltage of abo	out:		
	a) 7 volts	(B) 6 volts	(C) 9 volts	(D) 10 volts	
		tion of the phenomenon of	mutual induction is:		
(A	.) Electric motor	(B) Transformer	(C) A.C generator	(D) D.C generator	1
		19	(Obj)(********)-2022	(A)-10 (MULTAN)	

	per Code		2022	2 (A)	Roll No. (3/3)	
	Number:	4477	INTERMEDIATI	E PART-II (12 <sup>th</sup> C	LASS)	
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(1	) To cor	ivert a galvanoi	neter into a voltmeter a	high resistance is conr	nected:	
	(A) In	series	(B) In parallel		cular (D) Along tangent	
(2	) The co	ommon door be	ll requires a voltage of a	about:	cular (b) Along tangent	
	(A) 7		(B) 6 volts	(C) 9 volts	(D) 10 volts	
(3	) The pr	ractical applicat	ion of the phenomenon	( ' '		
		ectric motor	(B) Transformer	*	*/ *	
(4)	The de	vice which flow	v of A.C allows is:	(o) I I o gonor	(D) D.C generator	
	(A) Ca		(B) Inductor	(C) D.C motor	(D) Battery	
(5)	The im	pedance of R -	L series circuit is:		(D) Battery	
	(A) Z	$= \sqrt{R^2 + X^2}$	(B) $7 - \sqrt{p^2}$	V <sup>2</sup> (C) 7 (P	$\overline{X_L}$ (D) $Z = \sqrt{R + X_C}$	
(6)	The cm	vetalling atmost	$(B) Z = \sqrt{K} +$	$\Lambda_C$ (C) $Z = \sqrt{R + 2}$	$X_L$ (D) $Z = \sqrt{R} + X_C$	
(0)		ragonal	are of NaCl is:			
(7)			(B) Cubical	(C) Hexagonal	(D) Trigonal	
(.)	(A) 10	7	nsistor is of the order of:			1.
(8)			(B) $10^{-5} m$	(C) $10^{-4} m$	(D) $10^{-3} m$	
(0)	(A) A i	outs NAND gat	e with inputs $A$ and $B$			
(9)			(B) B is 0	(C) Both $A$ and $B$ are	(D) Both $A$ and $B$ are	1)
(2)		n wavelength is		h		
	(A) $\frac{h}{m_0 G}$		(B) $\frac{hC}{m_0}$	$\left( (C) \frac{n}{m_0 C} \right)$	(D) $\frac{hC}{m_0\lambda}$	
(10)		7	pair production is:		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	(A) 0.51		(B) 1.02 MeV	(C) 2.04 MeV	(D) 3.06 MeV	
(11)	Balmer s	series lies in reg	gion of electromagnetic	spectrum:		
		red region	(B) Visible region	(C) Ultraviolet re	gion (D) Frainfrared region	
(12)		equal to:				
(10)	(A) 0.1 S		(B) 0.01 Sv	(C) 2.04 Sv	(D) 3.06 Sv	
(13)		48.64	nuclear reactor is:			
(1.4)	(A) Alur		(B) Sodium	(C) Calcium	(D) Graphite	
(14)	7 7		in one coulomb charge	is equal to:		
	(A) 1.6 ×		(B) $6.25 \times 10^{-19}$	(C) $6.25 \times 10^{18}$	(D) $6.25 \times 10^{19}$	
(15)	S.I unit o	f Electric flux i	s			
	(A) Nm(		(B) $Nm^{-1}C^{-1}$	(C) $Nm^3C^{-1}$	(D) $Nm^2C^{-1}$	
(16)		d shows a tolera	ance of colour:			
1.5	(A) $\pm 50^{\circ}$		(B) ±10%	(C) ±15%	$(D) \pm 5\%$	
(17)	The charg	e moving perpe	endicular to magnetic fie	eld experience force:		
	(A) Maxir	num )	(B) Minimum	(C) Zero	(D) Infinite	
			19(Ob	j)(********)-2022	2(A)-10 (MULTAN)	

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Special

performance PAPER CODE - 8471

12th CLASS - 12022.

543177 (32)

PHYSICS GROUP: FIRST

TIME: 20 MINUTES 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 circle in front of that question number. Use marker or pen to fill the circles. Cutting of filling two or more circles will result in zero mark in that question.

Second   is equal to.   (A) Coulomb   (B) Farad   (C) Joule   (D) Ampere	QI	UESTJON NO. 1
(A) Coulomb (B) Farad (C) Joule (D) Ampere S.I unit of electric flux is.  (A) N C -1 (B) N.m².C -1 (C) N.m.C -1 (D) N.C -1.m²  If there is a single black colour band around the body of a resistor, then the value of its resistance will be.  (A) 2cro ohm (B) 10 ohm (C) 100 ohm (D) Infinity  Which of the following is not accurate potential measuring device?  (A) Voltmeter (B) C.R.O (C) Potentiometer (D) Digital multimeter  The rod of unit length is moving at 30° through a magnetic field of 1T. If the velocity of rod is 1 m/s, then induced emf in the rod will be.  (A) 1 V (B) 0.25 V (C) 0.5 V (D) 0.6 V  In alternating current circuit, inductors behave like.  (A) Zero (B) Large (C) Very small (D) Infinite  The device which allows only the flow of D.C. is.  (A) Capacitor (B) Transformer (D) Inductor (D) Generator  Curie temperature for iron is.  (A) 115 K (B) 1023 K (C) 750 K (D) 700 K  If R <sub>1</sub> = 10 k Ω and R <sub>2</sub> = 100 k Ω, the gain of inverting amplifier is  (A) -11 (B) -10 (C) 10 (D) 10  11 The open loop gain of op-amp is of the order of.  (A) 10 <sup>2</sup> (B) 10 <sup>3</sup> (C) 10 <sup>4</sup> (D) 10 <sup>5</sup> O.1 Kg is equivalent to the energy of.  (A) 9 × 10 <sup>15</sup> J (B) 9 × 10 <sup>16</sup> J (C) 6 × 10 <sup>16</sup> J (D) 3 × 10 <sup>8</sup> J  The rest mass energy of an electron positron pair is.  (A) 0.51 Mev (B) 1.02 Mev (C) 0.2 Mev (D) 1.51 Mev  First spectral series of hydrogen atom was identified by.  Lyman (B) Rydberg (C) Balmer (D) Paschen	1	Second is equal to.
S.I unit of electric flux is.  (A) NC <sup>-1</sup> (B) N.m <sup>2</sup> .C <sup>-1</sup> (C) N.m.C <sup>-1</sup> (D) N.C <sup>-1</sup> .m <sup>2</sup> If there is a single black colour band around the body of a resistor, then the value of its resistance will be.  (A) Zero ohm  (B) U Ohm  (C) 100 ohm  (D) Infinity  If 300 turns of wire are wound on 30cm length, then number of turns per unit length is  (A) 10  (B) 20  (C) 100  (D) 1000  Which of the following is not accurate potential measuring device?  (A) Voltmeter  (B) C.R.O  (C) Potentiometer  (D) Digital multimeter  The rod of unit length is moving at 30° through a magnetic field of 1T. If the velocity of rod is 1 m/s, then induced emf in the rod will be.  (A) I V  (B) 0.25 V  (C) 0.5 V  (D) 0.6 V  In alternating current circuit, inductors behave like.  (A) Zero  (B) Large  (C) Very small  (D) Infinite  The device which allows only the flow of D.C. is.  (A) Capacitor  (B) Transformer  (C) Inductor  (D) Generator  Curie temperature for iron is.  (A) 1153 K  (B) 1023 K  (C) 750 K  (D) 700 K  If R <sub>1</sub> = 10 k Ω and R <sub>2</sub> = 100 k Ω, the gain of inverting amplifier is  (A) -11  (B) -10  (C) 10  (D) 11  The open loop gain of op-amp is of the order of.  (A) 10 <sup>2</sup> (B) 10 <sup>3</sup> (C) 10 <sup>4</sup> (D) 10 <sup>5</sup> 0.1 Kg is equivalent to the energy of.  (A) 0.51 Mev  (B) 1.02 Mev  (C) 0.2 Mev  (D) 1.51 Mev  First spectral series of hydrogen atom was identified by.  Lyman  (B) Rydberg  (C) Balmer  (D) Paschen		
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Lyman (B) Rydberg (C) Balmer (D) Paschen  Slow neutrons can cause fission in.	15	(C) O.E ITIEV (D) 1.51 IVIEV
Slow neutrons can cause fission in.		(D) 5 #
A D	'	(b) rascileii
Radio therapy is generally done with γ-rays emitted from.	17	
(A) Sodium - 24 (P) Cobalt - 60 (C) Iodine - 131 (D) Strontium - 90		(A) C 1' C4 (ma)

#### PHYSICS GROUP: FIRST

#### 12<sup>th</sup> CLASS – 12022 SUBJECTIVE <u>SECTION-I</u>

543177 TIME: 2.40 HOURS MARKS: 68

QUESTION NO. 2 Write short answers any Eight (8) parts of the following The potential is constant throughout a given region of space. Is electric field zero or non zero in this region. Explain. Write any two comparisons of electric force and gravitational force. Calculate the electric intensity inside a hollow charged sphere. Electric lines of force never cross. Why? Write any two uses of C.R.O. Define current sensitivity of a galvanometer. Describe the change in magnetic field inside a solenoid carrying a steady current I, if length of solenoid is doubled and number of turns remains same. Why the resistance of ammeter should be very low? vili Define nuclear reactor. Also write down its two main types of reactor X Define fluorescence. Why are heavy nuclei unstable? Explain briefly. XI Discuss the advantages and disadvantages of nuclear power as compared to the use of fossil fuel generated power. QUESTION NO. 3 Write short answers any Eight (8) parts of the following 16 Why does the resistance of a conductor rise with temperature? ir Differentiate between ohmic and non-ohmic devices with example. Give statements of Kirchhoff's, 1st rule and 2nd rule iii A sinusoidal current has rms value of 10A. What is the maximum or peak value? What is Choke? Why is it used in A.C. circuit 2 What is impedance? Give its SI Units. Distinguish between crystalline and amorphous solids/ yil What is meant by hysteresis loss? viii ix Why ordinary silicon diodes do not emit light? The anode of a diode is 0.2V positive with respect to the cathode. Is it forward biased? X xi Differentiate between Forward and Reverse Biasing. Define elastic limit and yield point. xii QUESTION NO. 4 Write short answers any Six (6) parts of the following X Define motional emf and write its formula 2 Explain the factors responsible for powers loss in transistor? ii iń Four unmarked wires emerge from a transformer. What steps would you take to determine the turn ratio? Does the induced emf in a circuit depend on the resistance of the circuit? Does the induced current w depend upon the resistance of the circuit? Give four applications of photocell? Define work function and threshold frequency. Define special theory of relativity and write its postulates? vii Distinguish between stimulated and spontaneous emission? viii ix What are the advantages of laset over ordinary light? Note: Attempt any Three questions from this section Define capacitance of a capacitor. Derive an expression for the energy stored in the capacitor. 1+4 The resistance of an iron wire at 0 °C is  $1 \times 10^4 \Omega$ . What is resistance at 500 °C of the temperature coefficient of resistance of iron is  $5.2 \times 10^{-3}$  k For a current carrying solehoid, derive expression for magnetic field. How can you explain Q.6.(A) the direction of magnetic field by right hand grip rule? An ideal step down transformer is connected with main supply of 240 W. It is desired to (B) operate a 12 V, 30 W lamp. Find the current in the primary and the transformer ratio. 3 What is the operational amplifier? Derive the relation for gain of an inverting amplifier. Q.7.(A), 1+4 Find the capacitance required to construct a resonance circuit of frequency 1000 KHz with inductor of 5 mH. 3 What is photoelectric effect? How its results were explained by Einstein? Q.8.(X) 1+4 A 2.5m long and cross-section area 10<sup>-5</sup> m<sup>2</sup> is stretched 1.5 mm by a force of 100 N in the elastic region. Calculate (a) Strain (b) Young's modulus. 3 Describe the principle, construction and working of Wilson Cloud Chamber for detection Q.9.(A) nuclear radiation. 5 Find the speed of the electron in the first Bohr orbit. 3