BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN

OBJECTIVE KEY FOR INTER (~~PART-I~~ / II) Annual Examination, 2016

Name of Subject Physics

Group: 1st

Q. Nos.	Paper Code 8471	Paper Code 8473	Paper Code 8475	Paper Code 8477
1.	D	D	B	A, B C, D
2.	B	C	D	C
3.	A	D	A	B
4.	C	A	B	D
5.	A, B C, D	D	B	A
6.	C	B	C	B
7.	B	A	A,D	B
8.	D	C	D	C
9.	A	A, B C, D	C	A,D
10.	B	C	D	D
11.	B	B	A	C
12.	C	D	D	D
13.	A,D	A	B	A
14.	D	B	A	D
15.	C	B	C	B
16.	D	C	A, B C, D	A
17.	A	A,D	C	C
18.	/	/	/	/
19.	/	/	/	/
20.	/	/	/	/

Session Physics

Group: 2nd

Q. Nos.	Paper Code 8472	Paper Code 8474	Paper Code 8476	Paper Code 8478
1.	D	A	B	B
2.	B	C	A	D
3.	D	C	C	B
4.	B	D	C	A
5.	A	B	C	C
6.	B	D	D	C
7.	D	B	C	C
8.	B	A	A	D
9.	A	B	C	C
10.	C	D	C	A
11.	C	B	D	C
12.	C	A	B	C
13.	D	C	D	D
14.	C	C	B	B
15.	A	C	A	D
16.	C	D	B	B
17.	C	C	D	A
18.	/	/	/	/
19.	/	/	/	/
20.	/	/	/	/

سرٹیفیکیٹ بابت صحیح سوالیہ پرچہ/مارکنگ Key

ہم نے مضمون Physics پرچہ II گروپ I, II سکیم New انٹر سالانہ / ضمنی امتحان 2015، 6 سوالیہ پرچہ انشائیہ / معروضی (Subjective & Objective) کو بغور عمیق چیک کر لیا ہے یہ پرچہ سلیبس کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو/انگریزی Version بھی چیک کر لیا ہے یہ Version آپس میں مطابقت رکھتے ہیں اور سلیبس (Syllabus) کے مطابق بھی ہیں۔ نیز اس پرچہ کی Key کی بابت بھی تصدیق کی جاتی ہے کہ یہ بھی درست بنائی گئی ہے۔ 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۔

PREPARED & CHECKED BY

Sr.No	Name	Designation	Institution	Mobile No.	Signature.
1.	AISH MUHAMMAD	Ass. Prof	Govt. [illegible]	03008591411	[signature]
2)	Shahid Iqbal		Govt. W. H. Sol. College Multan		[signature]
3	Abdul Waheed		Govt. Emerson College Multan	0301-7436935	[signature]
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5.	MEHR IJAZ AHMAD	SSS (Phy)	GHSS Qadir Pur Ran Multan	03006347269	[signature]
6-	M. Habib Rashid		Nishat college of Science	0300-9631403-	

Paper Code Number: 8471

2016 (A)

Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
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 circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. 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) One Joule is equal to:-

(A) $1.6 \times 10^{-19} eV$ (B) $1.6 \times 10^{19} eV$ (C) $6.25 \times 10^{-18} eV$ (D) $6.25 \times 10^{18} eV$

(2) Capacitance of parallel plate capacitor is:-

(A) $\varepsilon_0 d / A$ (B) $\varepsilon_0 A / d$ (C) $A / \varepsilon_0 d$ (D) $d / \varepsilon_0 A$

(3) Three 1 ohm resistors are connected to form a triangle, the resistance between any two corners is:-

(A) $\frac{2}{3}\Omega$ (B) $\frac{3}{2}\Omega$ (C) $\frac{1}{2}\Omega$ (D) 3Ω

(4) An electron enters the magnetic field at right angle from left, $\vec{B}$ is into paper. The electron will be deflected:- (A) Upward (B) Towards right (C) Downward (D) Towards left

(5) _____ is correct relation.

(A) $1T = 10^4 G$ (B) $1T = 10^{-4} G$ (C) $1T = 10^{-2} G$ (D) $1T = 10^2 G$

(6) The self inductance of solenoid is:-

(A) $L = \mu_o n A \ell$ (B) $L = \mu_o N^2 A \ell$ (C) $L = \mu_o n^2 A \ell$ (D) $L = \mu_o N A \ell$

(7) Lenz's law is in accordance with the Law of Conservation of:-

(A) Momentum (B) Energy (C) Charge (D) Angular momentum

(8) At resonance frequency, the impedance of RLC – Parallel Circuit is:-

(A) Zero (B) Infinite (C) Minimum (D) Maximum

(9) In R-L-C circuit, the energy is dissipated in:-

(A) R only (B) R and L (C) R and C (D) R, L and C

(10) To get N – type, the Ge is doped with:-

(A) Aluminium (B) Arsenic (C) Boron (D) Indium

(11) The thickness of the base of the transistor is of the order of:-

(A) $10^6 m$ (B) $10^{-6} m$ (C) $10^{-3} m$ (D) $10^{-6} \mu m$

(12) The range of F.M transmission frequencies is from:- (A) 540 kHz to 1600 kHz (B) 88 kHz to 108 kHz (C) 88 MHz to 108 MHz (D) 540 MHz to 1600 MHz

(13) Two Photons approach each other, their relative speed will be:-

(A) 2 C (B) Zero (C) Less than C (D) C

(14) ____ has the largest de Broglie wavelength at same speed.

(A) Proton (B) α – particle (C) Carbon Atom (D) Electron

(15) The number of Neutrons in $^{238}_{92}U$ is:-

(A) 92 (B) 238 (C) 146 (D) 330

(16) Production of X – rays is the reverse process of:-

(A) Compton effect (B) Pair production (C) Pair annihilation (D) Photo electric effect

(17) Fission chain reaction is controlled by:-

(A) Cadmium rods (B) Iron rods (C) Platinum rods (D) Steel rods

er Code
Number: 8472

2016 (A)

Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-II

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 circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. 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) The electric field created by positive charge is:-
(A) Radially inward (B) Zero (C) Circular (D) Radially outward

(2) The unit of Electric intensity other than NC^{-1} is:-
(A) V/A (B) V/m (C) V/C (D) N/V

(3) Resistance tolerance for gold colour is:-
(A) 50 % (B) 30 % (C) 20 % (D) 5 %

(4) The SI unit of magnetic induction is:-
(A) Weber (B) Tesla (C) Gauss (D) Newton

(5) The value of e/m is smallest for:-
(A) Proton (B) Electron (C) β – particle (D) Positron

(6) When motor is just started, back emf is almost:-
(A) Maximum (B) Zero (C) Minimum (D) Infinite

(7) Henry is SI Unit of:-
(A) Current (B) Resistance (C) Flux (D) Self induction

(8) High frequency radio wave is called as:-
(A) Fluctuative wave (B) Carrier wave (C) Matter wave (D) Mechanical wave

(9) The impedance Z can be expressed as:-
(A) $Z = \frac{V_{rms}}{I_{rms}}$ (B) $Z = \frac{I_{rms}}{V_{rms}}$ (C) $Z = I + V$ (D) $Z = I - V$

(10) Substances which break just after the elastic limit is reached are called as:-
(A) Ductile Substances (B) Hard Substances (C) Brittle Substances (D) Soft Substances

(11) The Boolean expression of NAND Gate is:-
(A) $X = A.B$ (B) $X = \overline{A}$ (C) $X = \overline{A.B}$ (D) $X = A + B$

(12) Automatic functioning of streetlight can be done by the use of:-
(A) Inductor (B) Capacitor (C) Comparator (D) Thermistor

(13) The dimensions of Planck's Constant is same as that of:-
(A) Energy (B) Power (C) Acceleration (D) Angular Momentum

(14) The Photon with energy greater than 1.02 MeV can interact with matter as:-
(A) Photoelectric Effect (B) Compton Effect (C) Pair Production (D) Annihilation of Matter

(15) In electronic transition, atom can not emit:-
(A) γ rays (B) Ultraviolet rays (C) Visible light (D) Infrared

(16) Nuclear fission chain reaction is controlled by using:-
(A) Steel rods (B) Graphite rods (C) Cadmium rods (D) Platinum rods

(17) The most useful tracer isotope for the treatment of Thyroid gland is:-
(A) Cobalt 60 (B) Carbon 14 (C) Iodine–131 (D) Strontium 90

Code Number: 8473

2016 (A)

Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-I

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

OBJECTIVE

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Q.No.1

(1) ____ has the largest de Broglie wavelength at same speed.
(A) Proton (B) α – particle (C) Carbon Atom (D) Electron

(2) The number of Neutrons in $^{238}_{92}U$ is:-
(A) 92 (B) 238 (C) 146 (D) 330

(3) Production of X – rays is the reverse process of:-
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(4) Fission chain reaction is controlled by:-
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(5) One Joule is equal to:-
(A) $1.6 \times 10^{-19} eV$ (B) $1.6 \times 10^{19} eV$ (C) $6.25 \times 10^{-18} eV$ (D) $6.25 \times 10^{18} eV$

(6) Capacitance of parallel plate capacitor is:-
(A) $\varepsilon_0 d / A$ (B) $\varepsilon_0 A / d$ (C) $A / \varepsilon_0 d$ (D) $d / \varepsilon_0 A$

(7) Three 1 ohm resistors are connected to form a triangle, the resistance between any two corners is:-
(A) $\frac{2}{3}\Omega$ (B) $\frac{3}{2}\Omega$ (C) $\frac{1}{2}\Omega$ (D) 3Ω

(8) An electron enters the magnetic field at right angle from left, $\vec{B}$ is into paper. The electron will be deflected:- (A) Upward (B) Towards right (C) Downward (D) Towards left

(9) _____ is correct relation.
(A) $1T = 10^4 G$ (B) $1T = 10^{-4} G$ (C) $1T = 10^{-2} G$ (D) $1T = 10^2 G$

(10) The self inductance of solenoid is:-
(A) $L = \mu_0 n A \ell$ (B) $L = \mu_0 N^2 A \ell$ (C) $L = \mu_0 n^2 A \ell$ (D) $L = \mu_0 N A \ell$

(11) Lenz's law is in accordance with the Law of Conservation of:-
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(12) At resonance frequency, the impedance of RLC – Parallel Circuit is:-
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(14) To get N – type, the Ge is doped with:-
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(16) The range of F.M transmission frequencies is from:- (A) 540 kHz to 1600 kHz
(B) 88 kHz to 108 kHz (C) 88 MHz to 108 MHz (D) 540 MHz to 1600 MHz

(17) Two Photons approach each other, their relative speed will be:-
(A) 2 C (B) Zero (C) Less than C (D) C

per Code Number: 8474

2016 (A) Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-II

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

OBJECTIVE

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Q.No.1

(1) In electronic transition, atom can not emit:-
(A) γ rays (B) Ultraviolet rays (C) Visible light (D) Infrared

(2) Nuclear fission chain reaction is controlled by using:-
(A) Steel rods (B) Graphite rods (C) Cadmium rods (D) Platinum rods

(3) The most useful tracer isotope for the treatment of Thyroid gland is:-
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(9) When motor is just started, back emf is almost:-
(A) Maximum (B) Zero (C) Minimum (D) Infinite

(10) Henry is SI Unit of:-
(A) Current (B) Resistance (C) Flux (D) Self induction

(11) High frequency radio wave is called as:-
(A) Fluctuative wave (B) Carrier wave (C) Matter wave (D) Mechanical wave

(12) The impedance Z can be expressed as:-
(A) $Z = \frac{V_{rms}}{I_{rms}}$ (B) $Z = \frac{I_{rms}}{V_{rms}}$ (C) $Z = I + V$ (D) $Z = I - V$

(13) Substances which break just after the elastic limit is reached are called as:-
(A) Ductile Substances (B) Hard Substances (C) Brittle Substances (D) Soft Substances

(14) The Boolean expression of NAND Gate is:-
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(16) The dimensions of Planck's Constant is same as that of:-
(A) Energy (B) Power (C) Acceleration (D) Angular Momentum

(17) The Photon with energy greater than 1.02 MeV can interact with matter as:-
(A) Photoelectric Effect (B) Compton Effect (C) Pair Production (D) Annihilation of Matter

Code Number: 8475

2016 (A)

Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-I

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

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Q.No.1

(1) Lenz's law is in accordance with the Law of Conservation of:-
(A) Momentum (B) Energy (C) Charge (D) Angular momentum

(2) At resonance frequency, the impedance of RLC – Parallel Circuit is:-
(A) Zero (B) Infinite (C) Minimum (D) Maximum

(3) In R-L-C circuit, the energy is dissipated in:-
(A) R only (B) R and L (C) R and C (D) R, L and C

(4) To get N – type, the Ge is doped with:-
(A) Aluminium (B) Arsenic (C) Boron (D) Indium

(5) The thickness of the base of the transistor is of the order of:-
(A) $10^{6}\,m$ (B) $10^{-6}\,m$ (C) $10^{-3}\,m$ (D) $10^{-6}\,\mu m$

(6) The range of F.M transmission frequencies is from:- (A) 540 kHz to 1600 kHz
(B) 88 kHz to 108 kHz (C) 88 MHz to 108 MHz (D) 540 MHz to 1600 MHz

(7) Two Photons approach each other, their relative speed will be:-
(A) 2 C (B) Zero (C) Less than C (D) C

(8) ____ has the largest de Broglie wavelength at same speed.
(A) Proton (B) α – particle (C) Carbon Atom (D) Electron

(9) The number of Neutrons in $^{238}_{92}U$ is:-
(A) 92 (B) 238 (C) 146 (D) 330

(10) Production of X – rays is the reverse process of:-
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(11) Fission chain reaction is controlled by:-
(A) Cadmium rods (B) Iron rods (C) Platinum rods (D) Steel rods

(12) One Joule is equal to:-
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(16) _____ is correct relation.
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(17) The self inductance of solenoid is:-
(A) $L = \mu_o n A \ell$ (B) $L = \mu_o N^2 A \ell$ (C) $L = \mu_o n^2 A \ell$ (D) $L = \mu_o N A \ell$

r Code
umber: 8476

2016 (A)

Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-II

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

OBJECTIVE

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Q.No.1

(1) High frequency radio wave is called as:-

(A) Fluctuative wave (B) Carrier wave (C) Matter wave (D) Mechanical wave

(2) The impedance Z can be expressed as:-

(A) $Z = \frac{V_{rms}}{I_{rms}}$ (B) $Z = \frac{I_{rms}}{V_{rms}}$ (C) $Z = I + V$ (D) $Z = I - V$

(3) Substances which break just after the elastic limit is reached are called as:-

(A) Ductile Substances (B) Hard Substances (C) Brittle Substances (D) Soft Substances

(4) The Boolean expression of NAND Gate is:-

(A) $X = A.B$ (B) $X = \overline{A}$ (C) $X = \overline{A.B}$ (D) $X = A + B$

(5) Automatic functioning of streetlight can be done by the use of:-

(A) Inductor (B) Capacitor (C) Comparator (D) Thermistor

(6) The dimensions of Planck's Constant is same as that of:-

(A) Energy (B) Power (C) Acceleration (D) Angular Momentum

(7) The Photon with energy greater than 1.02 MeV can interact with matter as:-

(A) Photoelectric Effect (B) Compton Effect (C) Pair Production (D) Annihilation of Matter

(8) In electronic transition, atom can not emit:-

(A) γ rays (B) Ultraviolet rays (C) Visible light (D) Infrared

(9) Nuclear fission chain reaction is controlled by using:-

(A) Steel rods (B) Graphite rods (C) Cadmium rods (D) Platinum rods

(10) The most useful tracer isotope for the treatment of Thyroid gland is:-

(A) Cobalt 60 (B) Carbon 14 (C) Iodine–131 (D) Strontium 90

(11) The electric field created by positive charge is:-

(A) Radially inward (B) Zero (C) Circular (D) Radially outward

(12) The unit of Electric intensity other than NC^{-1} is:-

(A) V/A (B) V/m (C) V/C (D) N/V

(13) Resistance tolerance for gold colour is:-

(A) 50 % (B) 30 % (C) 20 % (D) 5 %

(14) The SI unit of magnetic induction is:-

(A) Weber (B) Tesla (C) Gauss (D) Newton

(15) The value of e/m is smallest for:-

(A) Proton (B) Electron (C) β – particle (D) Positron

(16) When motor is just started, back emf is almost:-

(A) Maximum (B) Zero (C) Minimum (D) Infinite

(17) Henry is SI Unit of:-

(A) Current (B) Resistance (C) Flux (D) Self induction

Code Number: 8477

2016 (A)

Roll No. _____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-I

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

OBJECTIVE

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Q.No.1

(1) _____ is correct relation.

(A) $1T = 10^4 G$ (B) $1T = 10^{-4} G$ (C) $1T = 10^{-2} G$ (D) $1T = 10^2 G$

(2) The self inductance of solenoid is:-

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(9) Two Photons approach each other, their relative speed will be:-

(A) 2 C (B) Zero (C) Less than C (D) C

(10) _____ has the largest de Broglie wavelength at same speed.

(A) Proton (B) α – particle (C) Carbon Atom (D) Electron

(11) The number of Neutrons in $^{238}_{92}U$ is:-

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(A) Compton effect (B) Pair production (C) Pair annihilation (D) Photo electric effect

(13) Fission chain reaction is controlled by:-

(A) Cadmium rods (B) Iron rods (C) Platinum rods (D) Steel rods

(14) One Joule is equal to:-

(A) $1.6 \times 10^{-19} eV$ (B) $1.6 \times 10^{19} eV$ (C) $6.25 \times 10^{-18} eV$ (D) $6.25 \times 10^{18} eV$

(15) Capacitance of parallel plate capacitor is:-

(A) $\varepsilon_0 d / A$ (B) $\varepsilon_0 A / d$ (C) $A / \varepsilon_o d$ (D) $d / \varepsilon_o A$

(16) Three 1 ohm resistors are connected to form a triangle, the resistance between any two corners is:-

(A) $\frac{2}{3}\Omega$ (B) $\frac{3}{2}\Omega$ (C) $\frac{1}{2}\Omega$ (D) 3Ω

(17) An electron enters the magnetic field at right angle from left, $\vec{B}$ is into paper. The electron will be deflected:- (A) Upward (B) Towards right (C) Downward (D) Towards left

Code Number: 8478

2016 (A)

Roll No._____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-II

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 circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. 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) When motor is just started, back emf is almost:-

(A) Maximum (B) Zero (C) Minimum (D) Infinite

(2) Henry is SI Unit of:-

(A) Current (B) Resistance (C) Flux (D) Self induction

(3) High frequency radio wave is called as:-

(A) Fluctuative wave (B) Carrier wave (C) Matter wave (D) Mechanical wave

(4) The impedance Z can be expressed as:-

(A) $Z = \frac{V_{rms}}{I_{rms}}$ (B) $Z = \frac{I_{rms}}{V_{rms}}$ (C) $Z = I + V$ (D) $Z = I - V$

(5) Substances which break just after the elastic limit is reached are called as:-

(A) Ductile Substances (B) Hard Substances (C) Brittle Substances (D) Soft Substances

(6) The Boolean expression of NAND Gate is:-

(A) $X = A.B$ (B) $X = \overline{A}$ (C) $X = \overline{A.B}$ (D) $X = A + B$

(7) Automatic functioning of streetlight can be done by the use of:-

(A) Inductor (B) Capacitor (C) Comparator (D) Thermistor

(8) The dimensions of Planck's Constant is same as that of:-

(A) Energy (B) Power (C) Acceleration (D) Angular Momentum

(9) The Photon with energy greater than 1.02 MeV can interact with matter as:-

(A) Photoelectric Effect (B) Compton Effect (C) Pair Production (D) Annihilation of Matter

(10) In electronic transition, atom can not emit:-

(A) γ rays (B) Ultraviolet rays (C) Visible light (D) Infrared

(11) Nuclear fission chain reaction is controlled by using:-

(A) Steel rods (B) Graphite rods (C) Cadmium rods (D) Platinum rods

(12) The most useful tracer isotope for the treatment of Thyroid gland is:-

(A) Cobalt 60 (B) Carbon 14 (C) Iodine–131 (D) Strontium 90

(13) The electric field created by positive charge is:-

(A) Radially inward (B) Zero (C) Circular (D) Radially outward

(14) The unit of Electric intensity other than NC^{-1} is:-

(A) V/A (B) V/m (C) V/C (D) N/V

(15) Resistance tolerance for gold colour is:-

(A) 50 % (B) 30 % (C) 20 % (D) 5 %

(16) The SI unit of magnetic induction is:-

(A) Weber (B) Tesla (C) Gauss (D) Newton

(17) The value of e/m is smallest for:-

(A) Proton (B) Electron (C) β – particle (D) Positron

SECTION-II (Essay Type)

NOTE: - Attempt any three questions. 8×3

5.(a) Derive the expression for energy stored in a charged capacitor. Also calculate the energy and energy density stored in the electric field. 5

(b) A Platinum wire has resistance of 10Ω at $0°C$ and 20Ω at $273°C$. Find the value of temperature coefficient of resistance of Platinum. 3

6.(a) What is Transformer? Describe its principle, construction and working of Transformer. 5

(b) A power line 10.0m high carries a current 200A. Find the magnetic field of the wire at the ground. 3

7.(a) What is Energy Band Theory? How it can be used to explain different features of electrical conductors, insulators and semiconductors. 5

(b) What is the resonant frequency of a circuit which includes a coil of inductance 2.5H and a capacitance of $40\mu F$ 3

8.(a) What is Uncertainty Principle? Explain it. 5

(b) In a certain circuit, the transistor has a collector current of $10mA$ and a base current of $40\mu A$. What is the current gain of the transistor? 3

9.(a) Define Isotopes. Describe Aston's mass spectrograph and how it can be used to separate the isotopes of an element? 5

(b) Calculate the longest wave length of radiation for the Paschen series. 3

SECTION-III (PRACTICAL)

10. (a) Give answers to any Four. $4 \times 2 = 8$

(i) What is Equivalent Resistance in case of in Parallel combination?
(ii) What is the unit of Potential Difference? Define it.
(iii) Why we use Weston type moving coil galvanometer?
(iv) What is the difference between emf and Terminal Potential Difference?
(v) Do the filament of lighted bulb obey Ohm's Law or not? Explain.
(vi) Draw the circuit diagram to compare the emf of two cells by using Potnetiometer.
(vii) Draw symbol and truth table of AND Gate.
(viii) What is meant by Work Function? Write its unit.

(b) Write down the procedure of experiment to find the resistance of a wire by slide Wire Bridge.

OR 3

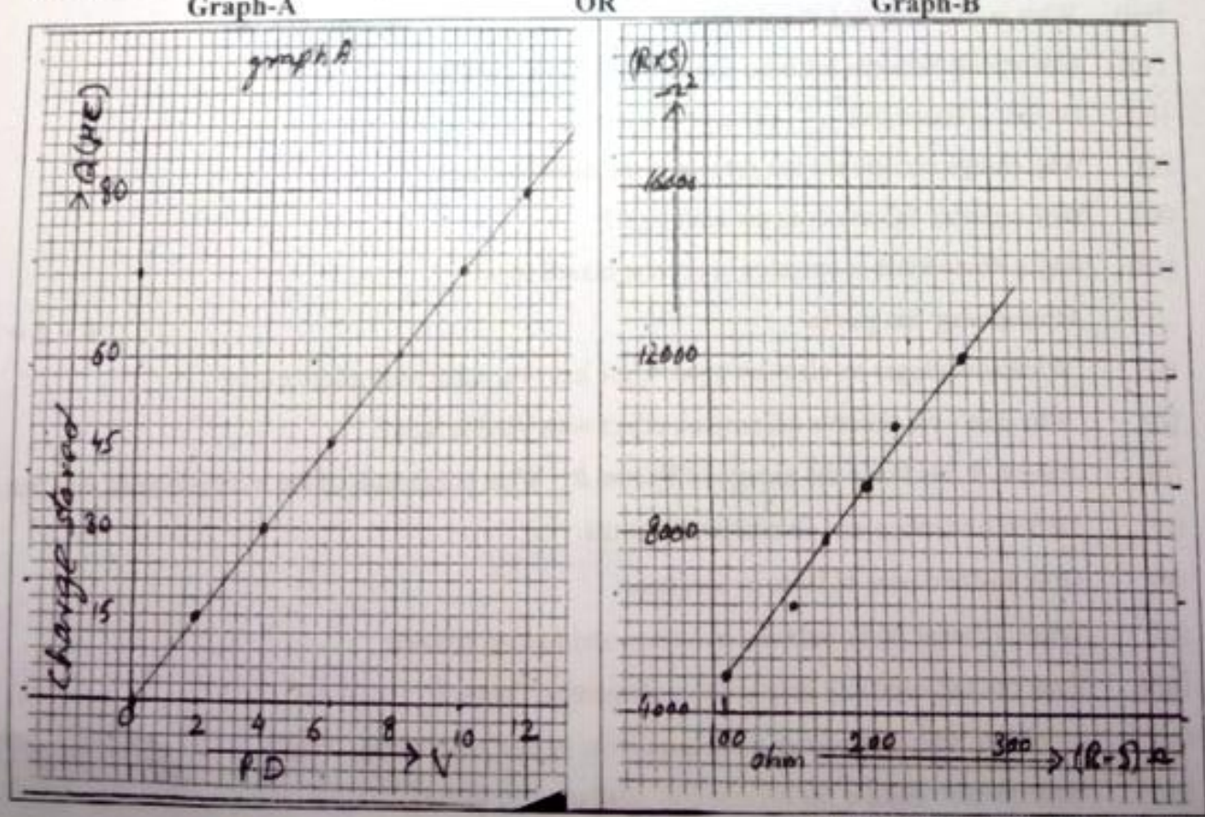
Write down the procedure of experiment to study the characteristics of a semi-conductor diode.

(c) Answer the question given below on the basis of the following graph. 4

Graph-A (i) What do you infer from the graph? (ii)Find the slop of graph. **OR**

Graph-B (i) What do you infer from the graph? (ii) Find the resistance of galvanometer.

Graph-A OR **Graph-B**



2016 (A) Roll No: _____

YSICS PAPER-II INTERMEDIATE PART-II (12th CLASS)

ROUP-I TIME ALLOWED: 3.10 Hours

NOTE: - Write same question number and its part number on answer book, as given in the question paper. SUBJECTIVE MAXIMUM MARKS: 83

SECTION-I

2. **Attempt any Eight parts.** $8 \times 2 = 16$

(i) Verify that an ohm times farad is equivalent to second.

(ii) Electric lines of force never cross. Why?

(iii) Show that $\frac{1 Volt}{1 meter} = \frac{1 Newton}{1 Coulomb}$

(iv) The potential is constant throughout a given region of space. Is the electrical field zero or non-zero in this region? Explain.

(v) What is the function of Grid in a Cathode Ray Oscilloscope?

(vi) Why the voltmeter should have a very high resistance?

(vii) Why does the picture on a T.V screen become distorted, when a magnet is brought near the screen?

(viii) What do you mean by current sensitivity of a galvanometer?

(ix) State Faraday's Law. Also write its mathematical expression.

(x) Show that $\mathcal{E}$ and $\Delta\phi/\Delta t$ have the same units.

(xi) Does the induced emf always act to decrease the magnetic flux through a circuit? Explain.

(xii) How the efficiency of a transformer can be improved?

3. **Attempt any Eight parts.** $8 \times 2 = 16$

(i) Is the filament resistance lower or higher in a 500W, 220V light bulb than in a 100W, 220V bulb?

(ii) Why does the resistance of a conductor rise with temperature?

(iii) State Kirchhoff's First Rule.

(iv) How does doubling the frequency affect the reactance of (a) an inductor (b) a capacitor?

(v) Define Instantaneous Value and Peak Value of Current.

(vi) How many times per second will an incandescent lamp reach maximum brilliance when connected to a 50Hz source?

(vii) What is Elasticity and Plasticity?

(viii) Distinguish between Intrinsic and Extrinsic Semi-conductor.

(ix) Define (i) unit cell (ii) crystal lattice

(x) Why charge carriers are not present in the depletion region?

(xi) Why ordinary Silicon does not emit light?

(xii) Why a Photodiode is operated in reverse biased state?

4. **Attempt any Six parts.** $6 \times 2 = 12$

(i) What advantages an electron microscope has over an optical microscope?

(ii) Why don't we observe a Compton effect with Visible light?

(iii) Photon A has twice the energy of Photon B. What is the ratio of the momentum of A to that of B?

(iv) Define Ionization and Excitation Potential.

(v) Give any two uses of laser in Medicine.

(vi) What is meant by Population Inversion and Lasing Action?

(vii) How can radioactivity help in the treatment of Cancer?

(viii) A particle which produces more Ionization is less penetrating. Why?

(ix) What factors make a fusion reaction difficult to achieve?

P.T.O

SECTION-II (Essay Type)

$8 \times 3 = 24$

NOTE: - Attempt any three questions.

5.(a) What is Wheatstone Bridge? Explain and prove the principle of Wheatstone Bridge. How can it be used to find the unknown resistance of a wire? 5

(b) Find the electric field strength required to hold suspended a particle of mass $1.0 \times 10^{-6} kg$ and charge $1.0\ \mu C$ between two plates 10.0 cm apart. 3

6.(a) Derive the relation for energy stored in an Inductor. 5

(b) What current should pass through a solenoid that is 0.5m long with 10,000 turns of Copper wire so that it will have a magnetic field of 0.4 T? 3

7.(a) Discuss R-L-C series feeding by A.C source. Find out its resonance frequency. 5

(b) A 1.25cm diameter cylinder is subjected to a load of 2500kg. Calculate the stress on the bar in mega Pascals. 3

8.(a) Explain de Broglie hypothesis. How Davisson and Germer experimentally verified the de Broglie hypothesis? 5

(b) The current flowing into the base of a transistor is $100\ \mu A$. Find collector current if $\beta = 100$ 3

9.(a) What is LASER? Write down its properties. Explain how Helium-neon laser works? 5

(b) Find the mass defect and the binding energy for Tritium, if the atomic mass of tritium is 3.016049 U. 3

SECTION-III (PRACTICAL)

$4 \times 2 = 8$

10. (a) Give answers to any Four.

(i) Define Specific Resistance and give its formula.
(ii) Define Potential Difference and give its unit.
(iii) Write the truth table and symbol for OR Gate.
(iv) Define Current and give its unit.
(v) Does the filament of bulb obey Ohm's Law? Why?
(vi) What is Threshold Frequency?
(vii) Write the names of two sensors.
(viii) What is Shunt?

(b) Write down the procedure for finding the resistance of Galvanometer by half deflection method. 3

OR

Write the procedure for the study of variation of electric current with intensity of light using a Photo Cell.

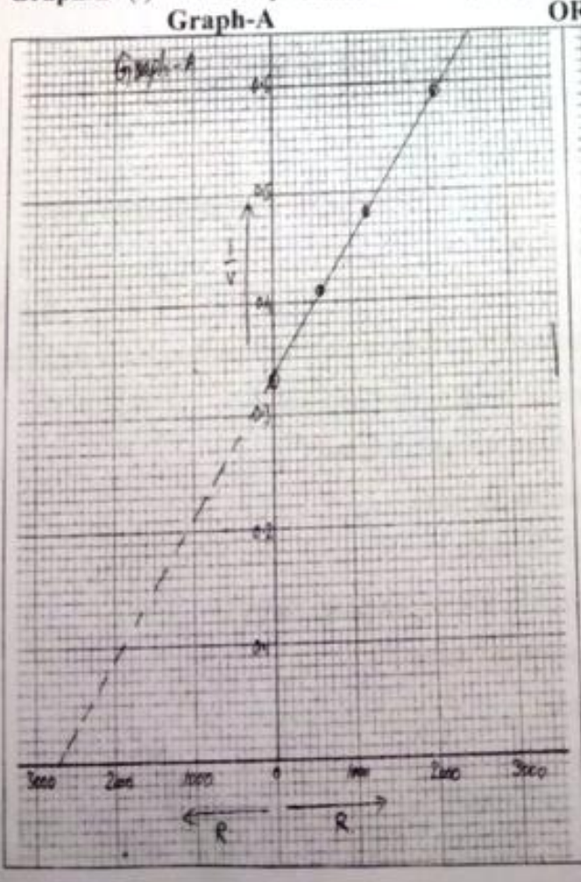
(c) Answer the questions given below on the basis of following given graph:- 4

Graph-A (i) What do you infer from the graph? (ii) Find the resistance of galvanometer from the graph.

OR

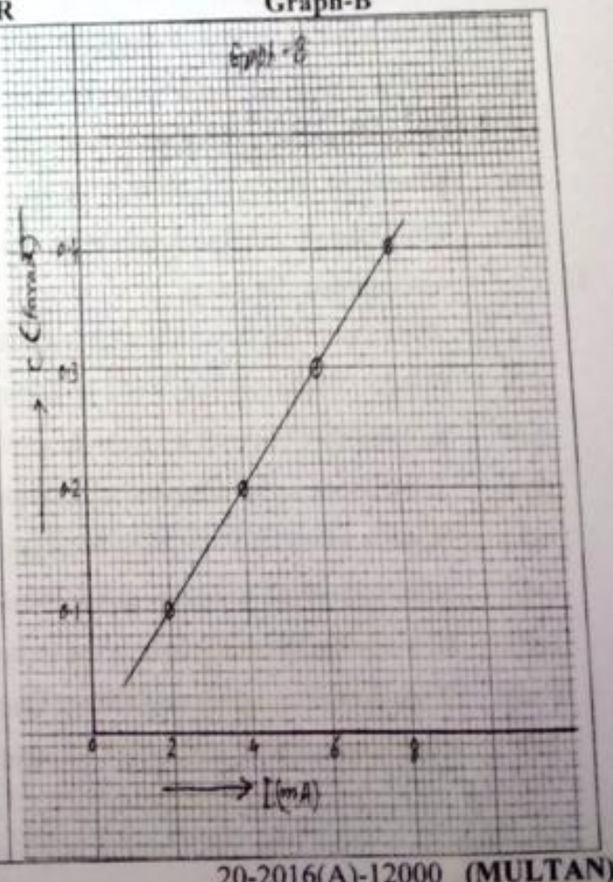
Graph-B (i) What do you infer form the graph? (ii) Find the slope between Current and Voltage.

Graph-A



OR

Graph-B



2016 (A) Roll No: _____

INTERMEDIATE PART-II (12th CLASS)

PHYSICS PAPER-II
GROUP-II

TIME ALLOWED: 3.10 Hours
MAXIMUM MARKS: 83

SUBJECTIVE

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 × 2 = 16**

(i) Electric lines of force never cross each other. Why?

(ii) How can you identify that which plate of a capacitor is positively charged?

(iii) Do electrons tend to go to region of high potential or of low potential?

(iv) Show that an Ohm times farad is equivalent to second.

(v) Write two uses of CRO.

(vi) Why does the picture on a T.V screen become distorted when a magnet is brought near the screen?

(vii) Why the resistance of an ammeter should be very low?

(viii) How can you use a magnetic field to separate isotopes of chemical element?

(ix) Show that $\mathcal{E}$ and $\Delta\phi/\Delta t$ have the same units.

(x) Does the induced emf in a circuit depend on the resistance of the circuit?

(xi) Four unmarked wires emerge from a transformer. What steps would you take to determine the turns ratio?

(xii) How fluctuations of the output can be reduced in D.C generator?

3. **Attempt any Eight parts.** **8 × 2 = 16**

(i) Do bends in a wire affect its electrical resistance? Explain briefly.

(ii) Why does the resistance of a conductor rise with temperature?

(iii) What is meant by Tolerance? Also give one example.

(iv) What is meant by A.M and F.M? Also give their range.

(v) A Sinusoidal current has rms (effective) value of 10A. What is the maximum or peak value?

(vi) What is Choke? Explain briefly.

(vii) Distinguish between Crystalline and Amorphous solids.

(viii) What is meant by Hysteresis loss? How is it used in the construction of transformer?

(ix) Define a superconductor with one example.

(x) Why charge carriers are not present in the depletion region?

(xi) What is the biasing requirement of the junctions of a transistor for its normal operation?

(xii) Why Ordinary Silicon diodes do not emit light?

4. **Attempt any Six parts.** **6 × 2 = 12**

(i) Will higher frequency light eject greater number of electrons than low frequency light? Explain.

(ii) Which Photon red, green or blue carries the most energy and why?

(iii) Is it possible to create a single electron from energy? Explain.

(iv) What do we mean when we say that atom is excited?

(v) What is meant by Population Inversion? Explain.

(vi) A particle which produces more ionization is less penetrating. Why?

(vii) How can radioactivity help in the treatment of Cancer?

(viii) Write down the names of different Quarks.

(ix) What is meant by Quenching? Explain.

P.T.O