

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDEAT ANNUAL/SUPPLY EXAMINATION, 2019'

Name of Subject: فزکس Session: _____

Q.Nos	Paper Code 4471	Paper Code 4473	Paper Code 4475	Paper Code 4477
1	D	C	B	D
2	A	A	D	A
3	C	B	C	C
4	B	C	A	B
5	D	D	B	D
6	A	C	C	C
7	C	A	D	A
8	B	B	C	B
9	D	D	A	C
10	C	A	B	D
11	A	C	D	C
12	B	B	A	A
13	C	D	C	B
14	D	A	B	D
15	C	C	D	A
16	A	B	A	C
17	B	D	C	B
18				
19				
20				

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ امارنگ Key

ہم نے مضمون فزکس پرچہ سائنس گروپ I نیم نئی انٹرمیڈیٹ امتحان 2019ء کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عین 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 سکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated: 26-10-2019

S.#	Name	Designation	Institution	Mobile No	Signature
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INTERMEDIATE PART-II (12th CLASS)**PHYSICS PAPER-II (NEW SCHEME)**

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 × 2 = 16**

- (i) Define SI unit of electric potential and write its formula.
- (ii) The time constant of a series RC Circuit is $t = RC$. Verify that an ohm times farad is equivalent to second.
- (iii) If a point charge q of mass m is released in a non-uniform electric field with field lines pointing in the same direction, will it make a rectilinear motion.
- (iv) Is it true that Gauss's Law states that the total number of lines of force crossing any closed surface in the outward direction is proportional to the net positive charge enclosed within surface?
- (v) Find the radius of an orbit of an electron moving at a rate of $2.0 \times 10^7 \text{ ms}^{-1}$ in a uniform magnetic field of $1.20 \times 10^{-3} \text{ T}$.
- (vi) What are the functions of anodes and sweep generator in cathode ray oscilloscope?
- (vii) Is it possible to orient a current loop in a uniform magnetic field such that the loop will not tend to rotate? Explain.
- (viii) If a charged particle moves in a straight line through some region of space, can you say that the magnetic field in the region is zero?
- (ix) Describe 'back emf effect' in motors briefly.
- (x) Define eddy current and magnetic hysteresis in case of transformer.
- (xi) Is it possible to change both the area of the loop and the magnetic field passing through the loop and still not have an induced emf in the loop?
- (xii) Can a step-up transformer increase the power level? Explain.

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

- (i) Do bends in a wire affects its electrical resistance? Explain.
- (ii) Is the filament resistance lower or higher in a 500W , 220V light bulb than in a 100W , 220V bulb?
- (iii) What is meant by Tolerance? Give example.
- (iv) In a RL circuit, will the current lag or lead the voltage? Illustrate your answer by a vector diagram.
- (v) Name the device that will (a) permit the flow of direct current but oppose the flow of alternating current (b) permit the flow of alternating current but not the direct current
- (vi) Define Impedance. Also write its unit.
- (vii) Define Stress and Strain. What are their units?
- (viii) What are Superconductors? Give example.
- (ix) What are Ferromagnetic Substances? Give an example.
- (x) Why a photo diode is operated in reverse biased state?
- (xi) The inputs of a gate are "1" and "0". Identify the gate if its output is (a) 0 (b) 1
- (xii) Write the truth table of "NAND" gate and also draw its symbol.

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

- (i) Photon A has twice the energy of Photon B . What is the ratio of the momentum of A to that of B ?
- (ii) Can pair production take place in vacuum? Explain.
- (iii) State Stephen Boltzmann Law.

(2)

- (iv) How can the spectrum of hydrogen contain so many lines when hydrogen contains one electron?
- (v) Why the x - rays can not be produced from lighter atoms?
- (vi) What are isotopes? What do they have in common?
- (vii) A particle which produces more ionization is less penetrating. Why?
- (viii) What factors make a fusion reaction difficult to achieve?
- (ix) Define Half life of radioactive element.

SECTION-II

NOTE: Attempt any three questions.

$3 \times 8 = 24$

- 5.(a) Define electric potential and derive an expression for the electrical potential at a certain point due to a point charge. 1 + 4
- (b) How many electrons pass through an electric bulb in one minute, if the 300 mA current is passing through it? 3

- 6.(a) State Ampere's law and apply it to find the magnetic field due to current carrying solenoid. 5
- (b) An ideal step down transformer is connected to main supply of 240 V . It is desired to operate a 12 V , 30 W lamp. Find the current in the primary and the transformation ratio. 3

- 7.(a) What is a transistor? Use transistor as an amplifier and derive formula for voltage gain. 1 + 4
- (b) A $100\ \mu\text{F}$ capacitor is connected to an alternating voltage of 24 V and frequency 50 Hz . Calculate the current in the circuit. 3

- 8.(a) Define and explain Photoelectric effect. Also derive Einstein's photoelectric effect equation. 1 + 4
- (b) A 1.25 cm diameter cylinder is subjected to a load of 2500 Kg . Calculate the stress on the bar in mega Pascals. 3

- 9.(a) What is Nuclear Reactor? Describe its four important parts. 5
- (b) Compute the shortest wavelength radiation in the Balmer Series. What value of n must be used? 3

PHYSICS PAPER-II (NEW SCHEME)

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 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) The number of isotopes of Neon gas are:
 (A) 2 (B) 4 (C) 1 (D) 3
- (2) The temperature of steam coming out of turbine in nuclear reactor is:
 (A) $300^{\circ}C$ (B) $200^{\circ}C$ (C) $1300^{\circ}C$ (D) $600^{\circ}C$
- (3) The shortest wavelength of Balmer series is:
 (A) 675 nm (B) 1875 nm (C) 364.5 nm (D) 375 nm
- (4) The wavelength associated with 140 g ball moving at 40 ms^{-1} is:
 (A) 9.92 nm (B) $1.18 \times 10^{-34}\text{ m}$ (C) 2.2 nm (D) 7.2 pm
- (5) The rest mass energy of electron positron pair is:
 (A) 0.51 MeV (B) 2 MeV (C) 0.71 MeV (D) 1.02 MeV
- (6) $X = A + B$ is the mathematical notation for:
 (A) OR Gate (B) NOR Gate (C) NOT Gate (D) NAND Gate
- (7) Open loop gain of operational amplifier is of the order of:
 (A) 10^4 (B) 10^6 (C) 10^5 (D) 10^7
- (8) The example of crystalline solid is:
 (A) Natural rubber (B) Zirconia (C) Nylon (D) Polystrene
- (9) High frequency radio wave is called:
 (A) Matter wave (B) Particle wave (C) Mechanical wave (D) Carrier wave
- (10) The SI unit of impedance is:
 (A) Volt (B) Farad (C) Ohm (D) Watt
- (11) For step down transformer:
 (A) $N_S < N_P$ (B) $N_S > N_P$ (C) $N_S = N_P$ (D) $N_S \geq N_P$
- (12) A 50 mH coil carries a current of 2.0 A , then energy stored in its magnetic field is:
 (A) 100 J (B) 0.1 J (C) 10 J (D) 1000 J
- (13) Brightness of screen of CRO is controlled by:
 (A) Anode (B) Cathode (C) Grid (D) Filament
- (14) The SI unit of ratio of electric field to magnetic field $\frac{E}{B}$ is:
 (A) ms^{-2} (B) $\text{m}^{-1}\text{s}^{-1}$ (C) ms (D) ms^{-1}
- (15) Heat sensitive resistors are called:
 (A) Capacitor (B) Inductor (C) Thermistor (D) Resistor
- (16) One Joule is equal to:
 (A) $6.25 \times 10^{18}\text{ eV}$ (B) $6.25 \times 10^{-18}\text{ eV}$ (C) $1.6 \times 10^{-19}\text{ eV}$ (D) $1.6 \times 10^{19}\text{ C}$
- (17) Total flux through a closed surface depends on:
 (A) Shape of surface (B) Medium and charge (C) Medium only (D) Charge only

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