AAFAQ ACADEMY – KASUR

Paper: Physics **Chapter (19)** **Class: F.Sc. Part – II**

DAWN OF MODERN PHYSICS

Name: _____ Roll No: (in words) _____

EVENING GROUP

OBJECTIVE TYPE

Total Marks: 12 **Paper Code: _____** **Total Time: 10 Minutes**

NOTE: Write your **Roll No.** in space provided. Using lead pencil will result in loss of marks.

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 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.

Sr. No.	QUESTION	A	B	C	D
1.	The relativistic energy 'E' is equivalent to relativistic mass given by	Ec^2	$\frac{E}{c^2}$	$\frac{E}{c}$	$\frac{c^2}{E}$
2.	The mass of an object will be doubled at speed	2.6×10^7 m/s	1.6×10^8 m/s	2.6×10^8 m/s	None of these
3.	$0 \bullet 001kg$ mass will be equivalent to	2.50 Giga watt hour	25.00 giga watt hour	0.26 giga watt hour	None of these
4.	If the distance of an electric-lamp from a photo cell is continuously increased, the photo electric current (I) varies with distance (d) as	$I \propto d^2$	$I \propto d$	$I \propto 1/d^2$	$I \propto 1/d$
5.	Compton wavelength is given by	$\frac{h}{m_O c^2}$	$\frac{h}{m_O c}$	$\frac{hc}{m}$	$\frac{m_O h}{c}$
6.	If energy of incident photon is greater than the rest mass energy of electron positron pair, the surplus energy is shared by the pair as	Potential energy	Thermal energy	Electronic energy	Kinetic energy
7.	Pair production can be studied with	Ultraviolet rays	X-rays	Microwaves	γ-rays
8.	The wavelength of the wave associated with the moving object is	Directly proportional to the accelerating voltage	Directly proportional to the square of accelerating voltage	Inversely proportional to the square root of accelerating voltage	Inversely proportional to the accelerating voltage
9.	Black body radiations depends upon	The shape and nature of the body	The velocity of radiations and colour of the body	The temperature of the body	All of these
10.	Uncertainty arises due to the	Human error	Compton effect	Dual nature of light	NONE OF THESE
11.	The reverse phenomena of photoelectric effect is called	Photo voltaic effect	Emission of X-rays	Radio activity	None of these

SUBJECTIVE TYPE

Total Marks: 18 **Time Allowed: 0 Hours 40 Minutes**

SECTION – I (SHORT QUESTIONS)

2. Attempt any FIVE questions. (5×2=10)Marks

i. Does the dilation means that time really passes more slowly in moving system or that is only seems to pass more slowly?

ii. Since mass is a form of energy, can we conclude that a compressed spring has more mass than the same spring when it is not compressed?

iii. When ultraviolet light falls on certain dyes, visible light is emitted. Why does this not happen when infra-red light falls on these dyes?

iv. Why can red light be used in a photographic dark room when developing films, blue or white light cannot?

v. Can pair production take place in vacuum? Explain.

vi. What advantages an electron microscope has over an optical microscope?

vii. We do not notice the de Broglie wavelength for a pitched cricket ball. Explain why?

SECTION – II (ESSAY TYPE) Attempt given question

3. Do as directed...

i. What is Compton effect. Find expression for Compton shift. (5)

ii. Yellow light of 577 nm wavelength is incident on a cesium surface. The stopping voltage is found to be 0.25 V. Find

(a) The maximum K.E. of the photoelectrons.

(b) The work function of (3)

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SECTION – III (Practical)

4. (a) Write answer of TWO questions. (2×2=4)

i. a
ii. c
iii. v
iv. b

4. (b) Write procedure to determine the resistance of voltmeter by graph method. (3)

(OR)

Write procedure to find the unknown high resistance by using neon flash lamp. (3)

4. (c) Answer the following questions on the basis of graph drawn between potential difference (V) and charge (Q). (4)

i. What you conclude from the graph?
ii. Find the capacitance of capacitor from the graph.

Good Luck
Ch. Khalid Mahmood Ashraf