Kaferelsheikh University
Faculty of Science
Physics Department
First level (Faculty of Computers & Information)

(Exam in 2 pages)

Time: 3rd h
Subject: PH:102
Mark: 60 Marks
Date: 9/1/2022
First Term

: Answer the following questions (MCQ):-

In Full -wave rectification, the average value of $V_P = 48$ V is .....

A	30.6	B	31.6
C	42	D	24

In the depletion region of a pn junction, there is a shortage of .....

A	Acceptor ions	B	Holes and electrons
C	Donor ions	D	None of the above

In double slit experiment we observe.....

A	Both interference and diffraction fringes	B	Interference fringes only
C	Diffraction fringes only	D	Polarized fringes

If the initial velocity of the charged particle has a component parallel to the magnetic field B, the resulting trajectory will be.....

A	Parallel	B	A helical
C	A perpendicular	D	None of these

..... Phenomenon proves that nature of light is transverse

A	Polarization	B	Diffraction
C	Scattering	D	Interference

In n-type materials, the majority carriers are .....

A	Holes	B	Free electrons
C	Protons	D	Mesons

The Electric force vector is..... to the magnetic field.

A	Parallel	B	Perpendicular
C	Helical	D	Intersect

Appearance of color in thin films is due to.....

A	Diffraction	B	Interference
C	Dispersion	D	Polarization

In Youngs double slit experiment the fringe spacing is equal to.....

A	$Y = \frac{\lambda L}{d}$	B	$Y = \frac{\lambda d}{L}$
C	$\lambda = \frac{Y L}{d}$	D	$Y = \frac{m \lambda d}{L}$

The condition for constructive interference of two coherent beams is that the path difference should be.....

A	Integral multiple of $\lambda/2$	B	Integral multiple of λ
C	Odd integral multiple of $\lambda/2$	D	None of above

A two-slit interference experiment in which the slits are 0.300 mm apart and the screen is 2m from the slits. The m=4 bright fringe is 8.30 mm from the central fringe. The wavelength (λ) of the light is.....(Writer the solution steps)

A	311 nm	B	633 nm
C	555 nm	D	none of these

Q2: Answer the following questions

1. **Write about**, Length Contraction Phenomena according to special theory of relativity?
2. **Deduce (with drawing)**, the Magnetic Field Due to a Current in a Curved Wire Segment?
3. **Find (with drawing), the** first and second dark fringe from diffraction by a single slit?
4. **Explain (with drawing)**, the Models (Approximations) of diode?
5. **Write short notes about (with drawing)**, polarization by absorption?

****End of Exam****
With My Best Wishes
Dr/ Walid Ismail