

RIZWAN ACADEMY – KASUR

Paper: Physics

Chapter (9 – 10)

Class: F.Sc. Part – I

PHYSICAL OPTICS + OPTICAL INSTRUMENTS

Name: _____ Roll No: (in words) _____

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 power of a concave lens is	Real	Imaginary	Positive	Negative
2.	The diameter of a lens is called	Focal length	Aperture	Optical centre	Principle axis
3.	The resolving power of diffraction grating is	$R = N \times m$	$R = \frac{\lambda}{\Delta\lambda}$	Both (A) and (B)	$R = \frac{D}{1.22 \lambda}$
4.	In single mode step index fibre, light used is	White	Monochromatic	Blue	Red
5.	How many TV channels can be carried by single mode step index fibre	10	12	14	16
6.	Light is a source which	Create energy	Destroy energy	Carry energy	All of these
7.	Diffraction is a special type of	Polarization	Interference	Wavelength	All of these
8.	Which of the following rays can not be polarized	Sound wave	Light waves	X Rays	None of these
9.	Interference produced by the reflected light is destructive if the thickness of the thin film is	Very small	Approximately zero	$(m + \frac{1}{2})\lambda$	$m\lambda$
10.	An un – polarized beam of transverse wave is that whose vibrations	Are confined to a single plane	Takes place in all direction	Takes place in direction perpendicular to their direction of propagation	Take place in direction parallel to the direction of propagation
11.	Precision of Michelson interferometer is	100nm	$10^{-4} mm$	$10^{-6} m$	Both (A) and (B)
12.	Optically active crystals are	Quartz	Sodium Chlorate	NaCl	Both (A) and (B)

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. How is the distance between interference fringes affected by the separation between the slits of Young's experiment? Can fringes disappear?
- ii. In the white light spectrum obtained with a diffraction grating, the third order image of a wavelength coincides with the fourth order image of a second wavelength. Calculate the ratio of the two wavelengths.
- iii. How would you manage to get more orders of spectra using a diffraction grating?
- iv. Can visible light produce interference fringes? Explain.
- v. If a person was looking through a telescope at the full moon. How would the appearance of the moon be changed by covering half of the objective lens?
- vi. How the power is lost in optical fibre through dispersion? Explain.
- vii. One can buy a cheap microscope for use by the children. The images seen in such a microscope have coloured edges. Why is this so?

SECTION – II (ESSAY TYPE) Attempt given question

3. Do as directed...

- i. Describe Young's double slit experiment and find the positions of minima and maxima. (5)
- ii. A light is incident normally on a grating, which has 2500 lines per cm. Compute the wavelength of a spectral line for which the deviation in second order is 15.0° . (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