Home Assignment

Subject: Physics (Major)

B.Sc 4th Semester (Both Regular and Arrear)

Paper: 402

Read the Instructions carefully before submission

1. **The Assignment contains 20 numbers of Multiple Choice Questions (MCQs), each having one correct answer. Out of 20 you have to attempt only 11 numbers of questions.**
2. **Please take your time and read each question carefully, because once you submit it you can't modify the answers.**
3. **Students are directed to submit the assignment by sending the scan copy of the assignment to the email id: feminabrahma1984@gmail.com mentioning their Name, Roll Code and Roll No., Registration No.**
4. **Last date of submission is 08/08/2020**

Total Marks: 11

1. By corpuscular theory of light, the phenomenon which can be explained is
   a. Refraction
   b. Interference
   c. Diffraction
   d. Polarization

2. The idea of the quantum nature of light has emerged in an attempt to explain
   a. Interference
   b. Diffraction
   c. Radiation spectrum of a black body
   d. Polarization

3. The phenomenon of interference is shown by
   a. Longitudinal mechanical waves only
   b. Transverse mechanical waves only
   c. Electromagnetic waves only
   d. All the above types of waves

4. Two coherent monochromatic light beams of intensities I and 4I are superposed. The maximum and minimum possible intensities in resulting beam are
   a. 5I and I
   b. 5I and 3I
   c. 9I and I
   d. 9I and 3I

5. A wave can transmit …. from one place to another
   a. Energy
   b. Amplitude
   c. Wavelength
   d. Matter
6. If the intensities of two waves is 1:25, then the ratio of their amplitude will be
   a. 1:25
   b. 5:1
   c. 26:24
   d. 1:5
7. The bending of beam of light around corners of obstacles is called
   a. Reflection
   b. Diffraction
   c. Refraction
   d. Interference
8. The penetration of light into the region of geometrical shadow is called
   a. Polarisation
   b. Interference
   c. Diffraction
   d. Refraction
9. Which statement is correct for a zone plate
   a. Zone plate has multi foci whereas lens has one
   b. Zone plate has one focus whereas lens has multiple foci
   c. Both are correct
   d. Zone plate has one focus whereas lens has infinite
10. In Fresnel diffraction, if the distance between the disc and the screen is decreased, the intensity of central bright spot will
    a. Increase
    b. Decrease
    c. Remain constant
    d. None of these
11. Interference is observed only when the phase difference between the two waves is zero.
    a. True
    b. False
12. According to Stoke's law the expression for maxima is: $2\mu t\cos r =$
    a. $n\lambda$
    b. $2n\lambda$
    c. $(2n+1)\lambda/2$
    d. $(n+1)\lambda/2$

13. When a thin plate of refractive index 1.5 is placed in the pathof one of interfering beams of Michelson Interferometer, a shift o 3 fringes observed. If the thickness of te plate is 0.018mm, wavelength of the used light is
    a. 4000A
    b. 5000A
    c. 6000A
    d. 7000A

14. The shape of the pattern depends on the
    a. Distance between the slits
    b. Distance between the slits and the screen
    c. Wavelength of light
    d. Shape of the slit.

15. Zero order fringe can be identified using
    a. White light
    b. Yellow light
    c. Achromatic light
    d. Monochromatic light

16. When two waves of same amplitude add constructively, the intensity becomes
    a. Double
    b. Half
    c. Four times
    d. One-fourth

17. In Newton's ring, the central fringe is
    a. Bright
    b. Dark

18. The refractive index of water is 1.33. The polarizing angle for water
    a. 50^0
    b. 52^0
    c. 53^0
    d. 45^0

19. In Newton's ring the diameters of dark rings are proportional to
    a. Square root of number of ring
    b. Root of number of ring
    c. Number of ring
    d. All are correct

20. Resolving power of a grating means ability to separate spectral lines of
    a. close wavelength together.
    b. Very close wavelength together.
    c. Far wavelength together.
    d. None of the above.