SUNDARBAN MAHAVIDYALAYA
Intermediate Examination 2020
Subject: Physics (Advanced), SEM-II
Paper-PHS-A-CC-2-4
Full Marks-30 ; Time-2Hrs.

Answer any 15 questions from the following questions. Each question carries 2 marks.

1. Huygens' principle state that every point on a Wevefront in a homogenius and isotropic medium is to be considered as a source of secondary
    a) plane wavelets
    b) cylindrical wavelets
    c) Spherical wavelets
    d) Wavelets of any complicated shape.
2. Two light sources are said to be coherent if they emit
    a) light of the same intensity
    b) waves of the same frequency
    c) waves of the same velocity
    d) waves of the same wavelength having constant phase difference.
3. What happens if the monochromatic light used in young's double slit experiment is replaced by white light?
    a) All bright fringes become white
    b) All bright fringes have colours between violet and red
    c) Only the central fringe is white, all the other changes are coloured
    d) No fringes will be observed
4. In young's double slit experiment if slit widths are in the ratio of 1:2, the ratio of the intensities at minima and Maxima will be
    a) 1:1
    b) 1:2
    c) 2:1
    d) $\sqrt{2}$:1
5. What is the effect on the interference fringes in young's double slit experiment if the width of the source slit is increased
    a) the fringe width increases
    b) The fringe width decreases
    c) difference become more distinct
    d) the Fringe become less distinct
6. When a Ray of light goes from a denser into a rarer medium
    a) The wavelength of light is decreased
    b) the frequency of the light is increased
    c) The speed of the light is increased
    d) The light undergoes a phase change of π.
7. The time taken by light to pass through a glass slave of thickness 2 mm and refractive index 1.5 is
    a) 10^{-5} s
    b) 10^{-11} s
    c) 10^{-9} s
    d) 10^{-13} s
8. Two waves of intensities I and 4I superpose, then the maximum and minimum intensities are
    a) 5I, 3I
    b) 9I, I
    c) 9I, 3I
    d) 5I , I
9. Speed of light wave in a medium is 670m/s. If 3600 waves passes through a point in a medium in 2 minutes, its wavelength is

a) 13.8m
b) 25.3m
c) 41.5 m
d) 57.2 m

10. A wave travelling in air, falls on a glass plate. It is partly reflected and partly refracted. The phase difference between reflected and refracted wave is
    a) Zero
    b) π/2
    c) π
    d) 2π
11. In a wave is reflected from a mirror, there is a change in its
    a) Amplitude
    b) frequency
    c) wavelength
    d) Velocity
12. A plane wavefront enters an inhomogeneous and anisotropic medium. The geometrical shape of the wavefront in medium will be –
    a) Plane
    b) spherical
    c) cylindrical
    d) of a complicated shape.
13. Which of the following phenomenon cannot be explained by the wave theory of light
    a) Refraction
    b) Total internal reflection
    c) Diffraction
    d) Photoelectric effect
14. In young's double slit experiment if the distance between the slits and the screen is doubled and the separation between the slits is reduced to half, the fringe width
    a) is doubled
    b) Becomes 4 times
    c) is halved
    d) remains unchanged.
15. Monochromatic light is refracted from air into glass of refractive index μ. The ratio of wavelengths of the incident and refracted waves is
    a) 1 : 1
    b) 1 : μ
    c) μ : 1
    d) μ^2 : 1
16. Light travels with a speed of 2 x 10^8m/s in crown glass of refractive index 1.5 . What is the speed of light in dense flint glass of refractive index 1.8?
    a) 1.33x10^8m/s
    b) 1.67x10^8 m/s
    c) 2.0x10^8m/s
    d) 3.0x10^8m/s
17. Interference patterns are not observed in in thick films because
    a) Most of the incident light intensity is absorbed within the film
    b) A thick film has a high coefficient of reflection
    c) The Maxima of the interference patterns are far from the minima
    d) There is too much overlapping of colours washing out the interference pattern.

18. Two coherent sources of intensity 100:1 interfere. What is the ratio of the intensity between the maxima and minima in the interference pattern?
    a) 10:2

b) 5:2
c) 3:2
d) 11:9

19. How is the interference pattern affected if the young's experiment was performed in still water than in air?
    a) Fewer fringes will be visible
    b) Fringes will be broader
    c) Fringes will be narrower
    d) No fringes will be observed

20. When a wave travels from air into glass there is no change in its
    a) Amplitude
    b) Frequency
    c) Wavelength
    d) Velocity.