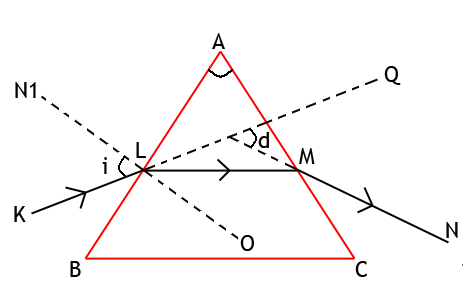
SS2 PHYSICS 3RD TERM 2017

1. The angle at which a projectile must be fired to cover maximum range is A. 30° B. 45° C. 60° D. 90°
2. A plane is inclined at an angle θ to the horizontal. Its velocity ratio is A. sin θ B. tan θ C. D.
3. A vapour whose molecules are in dynamic equilibrium with those of its own liquid is said to be A. unsaturated B. gaseous C. saturated D. diffused
4. A rainbow is formed when sunlight is incident on water droplet suspended in the air due to A. diffraction B. refraction C. dispersion D. interference
5. Which of the following statements about the 3rd overtone of a vibrating air column of an open pipe is correct? It has A. 4 nodes B. 5 nodes C. 3 antinodes D. 4 antinodes
6. Consider the wave equation: y = 10 sin 7 (x -50t). what does the number 10 in the equation represent? A. Acceleration B. speed C. Amplitude D. Wavelength.
7. Plane waves passing through a narrow gap emerge as circular waves. This phenomenon is known as A. interference B. dispersion C. refraction D. diffraction
8. Two plane mirrors are inclined at an angle 20° to each other. Determine the number of images formed when an object is placed between them. A. 17 B. 18 C. 19 D. 20
9. The inverse of the time required for a wave to complete one full cycle is called A. wavelength B. period C. frequency D. amplitude
10. Two tuning forks of frequencies 256Hz and 260Hz are sounded close to each other. What is the frequency of the beats produced? A. 2Hz B. 4Hz C. 8Hz D. 258Hz
11. The absolute refractive indexes of glass and water are and respectively. The refractive index at the interface when a ray travel from water to glass is A. B. C. D.
12. Which of the following arrangement in the sequence shown can be used to obtain a pure spectrum of white light? A. source, slit, converging lens, prism, diverging lens, screen B. source, slit, converging lens, prism, diverging lens, screen C. source, slit, converging lens, prism, diverging lens, screen D. source, slit, prism, diverging lens, screen
13. Which of the following is used for controlling the amount of light entering the eye? A. cornea B. pupil C. iris D. ciliary muscle
14. A uniform metre rule balance horizontally on a knife edge at the 25cm mark, when a mass of 30g is hung at the 10cm mark. Calculate the mass of the ruler. A. 30g B. 18g C. 12g D. 6g
15. Which of the following is an example of a body in an unstable equilibrium A. Ball in a bowl B. cone resting on its side C. cylinder lying on its side D. egg on an inverted spherical bowl.
16. A spring stretched by 0.1m when a force of 20N is applied to it. Calculate the elastic potential energy of the spring. A. 1J B. 0.1J C. 2J D. 20J
17. The ice and steam points on a thermometer are 90mm apart. At what distance above the ice point mark will it read a temperature corresponding to 40°C on the Celsius scale? A. 54mm B. 50mm C. 44.4mm D. 36mm
18. Which of the following takes place at any temperature? A. Boiling B. Evaporation C. Freezing D. Melting
19. The instrument for measuring gas pressure is called A. altimeter B. barometer C. hygrometer D. manometer
20. Which of the following frequency is used to determine sea depth? A. audio B. infrasonic C. supersonic D. ultrasonic
21. An object is placed at 20cm of a concave mirror of radius of curvature 30cm. calculate the distance of its image from the mirror. A. 8.6cm B. 20cm C. 30cm D. 60cm
22. Which of the following sets of media is arranged in order of increasing speed of sound in them A. water, iron and air B. iron, water and air C. iron, air and water D. air, water and iron
23. A coin was viewed through a 3cm thick glass block and observed to be 2cm below the surface. Calculate the refractive index of the glass. A. 5 B. 1.5 C. 1 D. 0.7
24. Materials that can be stretched and still return to their original forms when stressed are removed are said to be A. elastic B. elastomer C. plastic D. thermoplastic
25. An object floats in a fluid when it displaces it’s A. volume of the liquid in which it floats B. mass of fluid in which it floats C. weight of fluid in which it floats D. density of fluid in which it floats.
26. Which of the following units is derived? A. kg B. m C. K D. N
27. The crackling noise produced by aluminum roofing sheets during a hot sunny day is as a result of A. thermal equilibrium of sheet B. conduction of heat by the sheets C. contraction of the sheets D. expansion of the sheets.
28. Water is unsuitable for use as thermometric liquid because it A. expands unevenly between 0°C and 4°C B. has a narrow temperature range C. has a concave meniscus D. maintains a fixed density
29. Which of the concepts is a method of heat transfer that does not require a material medium A. conduction B. radiation C. diffusion D. convention
30. If an object is located 25cm from a converging mirror of radius of curvature 10cm. calculate the image distance from the mirror. A. 6.25 cm B. 8 cm C. 3.12 cm D. 4.02cm
31. If the distance between two crests of a transverse wave of frequency 100Hz is 20cm, the velocity of the wave is A. 200 m/s B. 2000m/s C. 20m/s D. 40m/s
32. A stone of mass 0.8kg is thrown upward with a velocity of 60m/s. calculate the potential energy attained at the maximum height (g = 10m/s2) A. 2450J B. 1000J C. 1440J D. 4440J
33. A boat accelerate uniformly from rest at 10m/s2, what distance will it cover in 10s? A. 1000m B. 10m C. 100m D. 500m
34. The horizontal component of a force of 120N inclined at 60° to the horizontal is A. 120N B. 30N C. 60N D. 45N
35. To get the accurate measurement of the relative density of substances in liquid form, one needs a beam balance and a A. pipette B. burette C. density bottle D. measuring cylinder
36. I Polythene II Glass III Ebonite IV Silk ; Which of the materials can be used to obtain positive charge? A. III and IV B. II and IV C. I and III D. I and II
37. What does the statement “The latent heat of fusion of ice is 336J/g ” mean? It means 336J is the amount of heat energy that A. is required to change 1g of ice to e=water at its melting point B. will change 1g of ice at O°C to water at 336°C C. is enough to vapourise 336g of water completely D. will raise the temperature of ice through 1K
38. Which of the following prevents loss of heat by radiation in a thermo flask? A. vacuum B. cork stopper C. cork supports below the flask D. silvered walls
39. If the initial are of a material is 28m2, calculate the increase in area if it is heated through 35°C. [the linear expansivity of the material is 1.6 x 10-5K-1] A. 0.49960m2 B. 0.30001 m2  C. 0.3000 m2  D. 0.01060 m2
40. Which of the following process is not a surface phenomenon? A. Condensation B. Evaporation C. Photo emission D. Thermionic emission

THEORY : QUESTION 2 IS A MUST AND ANY OTHER 3 QUESTIONS

1. (a) What is meant by resonance -2mks (b) Describe an experiment to determine the velocity of sound in air – 4mks (c) As a ship approaches a cliff, its siren is sounded and the echo is heard in the ship after 12 seconds. 2.1 minutes later the siren is sounded again and the echo is heard 8 seconds later. If the speed of the sound in air is 340m/s, calculate the velocity at which the ship is approaching the cliff. – 4mks
2. (a) Explain the terms ***critical angle*** and ***total internal reflection -2mks***(b) the angle of refraction (r) of a ray of white light from air through a triangular glass prism of refractive index 1.5 is 29°. Calculate the angle through which the ray is least deviated. – 2mks (c) Study the diagram below and use it to answer the question that follow



Calculate (i) value of **P**, **Q** and **R – 3mks**  (ii) refractive index n of the glass prism – 1mks (iii) value of **e – 1mk**  (iv) total deviation **D – 1mk**

1. (a) Draw and label a diagram of a pulley system with a velocity ratio of 5- 2mks (b) Show that the efficiency of a machine ξ, the force ratio M.A and the velocity ratio V.R are related by the equation ξ = x 100% - 4mks(c) The efficiency ξ of a machine is 80%. Calculate the work done by a person using the machine to raise a load of 300kg through a height of 4m (g = 10m/s2). – 4mks
2. (a) Draw a clearly labelled diagram to illustrate how two converging lenses maybe arranged to form a compound microscope- 3mks (b) An object 2.5mm long is viewed through a converging lens of focal length 10cm held close to the eye. A magnified image of the object is formed 30cm from the lens. Calculate the (i) distance of the object from the lens- 3mks (ii) size of the image – 2mks (iii) power of the lens – 2mks
3. (a) Explain why white light is dispersed when it passes through a glass prism – 2mk (b) State the colours in the spectrum of white light in ascending order of wavelength – 2mks (ii) which colour is deviated *least* and *most* - 2mk(c) Describe with the aid of a labelled diagram, how a pure spectrum of white light can be produced on a screen. – 4mks
4. Show with the aid of diagrams explain how the following defects occur and also how they can be corrected (i) myopia – 2mks (ii) hypermetropia – 2mks(b)Define the following terms (i) persistence of vision – 1mk (ii) binocular vision- 1mk (c) State (i) two similarities between the eye and the camera- 2mks (ii) two differences the eye and the camera.- 2mks