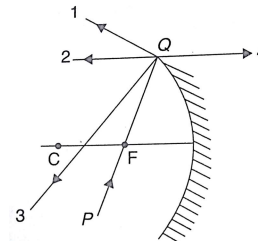


NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 12 (PHYSICS) DPP (Academy) 07/09/2024

1. A man can see clearly up to 3 m. Prescribe a lens for his spectacles so that he can see clearly up to 12 m.
2. The diameter of the eye ball of a normal eye is about 2.5 cm. The power of the eye lens varies from
3. Two points separated by a distance of 0.1 mm can just be resolved in a microscope when a light of wavelength 6000 Å is used. If the light of wavelength 4800 Å is used, this limit of resolution becomes
4. In a compound microscope, the focal lengths of two lenses are 1.5 and 6.25 cm. An object is placed at 2 cm from the objective, and the final image is formed at 25 cm from the eye lens. The distance between the two lenses is
5. The focal lengths of the objective and the eye piece of a compound microscope are 2.0 and 3.0 cm, respectively. The distance between the objective and the eye piece is 15.0 cm. The final image formed by the eye piece is at infinity. The two lenses are thin. The distances in cm of the object and the image produced by the objective measured from the objective lens are, respectively.
6. If the focal lengths of objective and eye lens of a microscope are 1.2 and 3 cm, respectively, and the object is put 1.25 cm away from the objective lens and the final image is formed at infinity, then the magnifying power of the microscope is
7. If an object subtends angle of 2° at eye when seen through telescope having objective and eyepiece of focal length $f = 60$ cm and $f = 5$ cm, respectively, then the angle subtended by image at eye piece will be
8. The diameter of moon is 3.5×10^3 km and its distance from the earth is 3.8×10^5 km. If it is seen through a telescope whose focal length for objective and eye lens are 4 m and 10 cm, respectively, then the angle subtended by the moon on the eye will be approximately
9. A compound microscope has a magnifying power 30. The focal length of its eye piece is 5 cm. Assuming the final image to be at the least distance of distinct vision. The magnification produced by the objective will be
10. A ray of light incident at an angle θ on a refracting face of a prism emerges from the other face normally. If the angle of the prism is 5° and the prism is made of a material of refractive index 1.5, the angle of incidence is
11. 2. A short pulse of white light is incident from air to a glass slab at normal incidence. After travelling through the slab, the first colour to emerge is
12. An object approaches a convergent lens from the left of the lens with a uniform speed 5 m/s and stops at the focus. The image

13. A passenger while in an aeroplane
 - (a) will never see a rainbow
 - (b) may see a primary and a secondary rainbow as concentric circles
 - (c) may see a primary and a secondary rainbow as concentric arcs
 - (d) will never see a secondary rainbow
14. You are given four sources of light each one providing a light of a single colour-red, blue, green and yellow. Suppose the angle of refraction for a beam of yellow light corresponding to a particular angle of incidence at the interface of two media is 90° . Which of the following statements is correct if the source of yellow light is replaced with that of other lights without changing the angle of incidence?
15. The radius of curvature of the curved surface of a plano convex lens is 20 cm. If the refractive index of the material of the lens be 1.5, it will
16. The phenomenon involved in the reflection of radio- waves by ionosphere is similar to
17. The direction of ray of light incident on a concave mirror is shown by PQ, while the direction in which the ray would travel after reflection is shown by four rays marked 1, 2, 3 and 4 (figure). Which of the four rays; correctly shows the direction of reflected ray?



18. Two vertical plane mirrors are inclined at an angle of 60° with each other. A ray of light travelling horizontally is reflected first from one mirror and then from the other. The resultant deviation is
19. What should be the angle between two plane mirrors so that whatever is the angle of incidence, the incident ray and the reflected ray from the two mirrors be parallel to each other?
20. A plane mirror reflecting a ray of incident light is rotated through an angle θ about an axis through the point of incidence in the plane of the mirror perpendicular to the plane of incidence, then

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 12 (CHEMISTRY) DPP (Academy) 07/09/2024

- Haloforms are trihalo – derivatives of :
(a) ethane (b) methane (c) propane (d) benzene
- Which is not a good reagent to convert alcohols into alkyl chloride ?
(a) NaCl (b) HCl + ZnCl₂ (c) PCl₃ (d) SOCl₂
- Among the following, which yields chloroform ?
(a) Methanol (b) Hexanone-3
(c) Propanol-1 (d) Propanol-2
- Product obtained when C₂H₅Br reacts with AgNO₂(alc.) is:
(a) ethane (b) ethene
(c) nitroethane (d) ethyl nitrite
- A primary amine, chloroform and alc. KOH on heating forms an offensive smelling liquid. This reaction is called:
(a) Wurtz reaction (b) Kolbe reaction
(c) Carbylamine reaction (d) Clemmensen reaction
- Among the following, which pair gives butanenitrile on heating ?
(a) Propyl alcohol and KCN (b) Butyl alcohol and KCN
(c) Butyl chloride and KCN (d) Propyl chloride and KCN
- Slow oxidation of chloroform by air in presence of light gives:
(a) formyl chloride
(b) phosgene
(c) trichloroacetic acid
(d) formic acid
- Phosgene is:
(a) PH₃
(b) POCl₃
(c) CS₂
(d) COCl₂
- $$\text{R} - \text{Cl} + \text{NaI} \xrightarrow{\text{sowent}} \text{R} - \text{I} + \text{NaCl}$$

This reaction is called:
(a) Huns dicker
(b) Darzen reaction
(c) Finkelstein reaction
(d) Wurtz reaction
- Aniline, chloroform and alc. KOH are heated together Compound formed is:
(a) C₆H₅NC (b) C₆H₅ NHCl
(c) C₆H₅NCl₂ (d) C₆H₅CN
- The product obtained when chloroform is boiled with caustic soda is:
(a) sodium acetate
(b) sodium formate
(c) sodium oxalate
(d) methyl alcohol
- Which acts as refrigerant ?
(a) CH₂F₂ (b) CCl₄ (c) CF₄ (d) CF₂Cl₂
- C₂H₅Cl reacts with to form C₂H₅OH
(a) KOH (aic.) (b) KOH(aq)
(c) H₂O (d) H₂O₂
- Alkyl halides on heating with dry Ag₂O yields:
(a) Esters (b) Ethers (c) Ketones (d) AgCl + hydrocarbons
- Chloroform is used as:
(a) insecticide (b) fungicide
(c) industrial solvent (d) absorbent
- Chloroform is manufactured by reaction between acetone and
(a) phosgene (b) CaOCl₂ (c) Cl₂ (d) NaCl
- Some ethanol is added in the bottles containing chloroform. Function of ethanol is:
(a) It decreases the oxidation of chloroform
(b) It decreases the anaesthetic property of alcohol
(c) It increase the anaesthetic property of chloroform
(d) It increases the sowest property of chloroform
- Chloroform is used as anaesthetic. Purity of chloroform is tested by:
(a) silver nitrate (b) lead nitrate
(c) mercuric chloride (d) cuprous chloride
- True statement:
(a) S_N¹ reaction proceeds in two steps
(b) In S_N² reaction, racemisation occurs
(c) In S_N¹ reaction, inversion occurs
(d) S_N² reaction proceeds in two steps
- In nucleophilic substitution reactions, aryl halides are less reactive than alkyl halides. It is due to:
(a) formation of less stable carbocation ion
(b) resonance stabilization
(c) longer C-H bond length
(d) Inductive effect

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 12 (BIOLOGY) DPP (Academy) 07/09/2024

1. What is corpus luteum?
2. Where does fertilisation normally take place in a human female?
3. Define spermiogenesis. Where does it occur?
4. Where are the sperms stored in the male?
5. Mention the function of trophoblast in human embryo.
6. Where is acrosome present in humans? Write its functions.
7. When do the oogenesis and the spermatogenesis initiate in human females and males respectively?
8. Explain the function of umbilical cord.
9. Who discovered Sertoli cells? Mention their role in spermatogenesis.
10. Where are the Leydig cells present? What is their role in reproduction?
11. Write the function of each of the following:
12. (a) Seminal vesicle (b) Acrosome of human sperm
13. Write the function of each one of the following:
(a) Oviducal fimbriae (b) Oxytocin
14. Draw a schematic representation of spermatogenesis in humans.
15. Draw a labelled diagram of the microscopic structure of a human sperm.
16. (a) When does oogenesis begin?
17. When and where do chorionic villi appear in humans? State their function.
18. Construct a flow chart exhibiting sequential events of oogenesis.
19. Explain the hormonal regulation of the process of spermatogenesis in humans.
20. Mention their source and function they perform hCG, LH, FSH and relaxin.

NEW STANDARD ACADEMY

SEMRI KOTHI SUPER MARKET, RAEBARELI
CLASS 12 (MATH'S) DPP (Academy) 07/09/2024

1. Prove that : $4(\cot^{-1}3 + \operatorname{cosec}^{-1}\sqrt{5}) = \pi$
2. If $\tan^{-1}x - \cot^{-1}x = \tan^{-1}\frac{1}{\sqrt{3}}$, $x > 0$, find the value of x and hence, find the value of $\sec^{-1}\left(\frac{2}{x}\right)$.
3. Prove that $\tan^{-1}\sqrt{x} = \frac{1}{2} \cos^{-1}\left(\frac{1-x}{1+x}\right)$.
4. Write the value of $\tan\left(2 \tan^{-1}\frac{1}{5}\right)$
5. Find the principal values of : $\sin^{-1}\left(\cos\frac{33\pi}{5}\right)$
6. Evaluate : $\sin\left(\sin^{-1}\left(-\frac{4}{5}\right)\right)$
7. Write the range of one branch of $\sin^{-1}x$, other than the principal branch
8. Write the range of one branch of $\cos^{-1}x$, other than the principal branch.
9. Write the domain and range (principal value branch) of the function $f(x) = \tan^{-1}x$.
10. Draw the graph of $\cos^{-1}x$, where $x \in [-1,0]$. Also write its range.
11. A is a matrix of the type 3×5 and R is a row of A, then what is the type of R as a matrix?
12. If a matrix has 12 elements, what are the possible orders it can have? What, if it has 7 elements?
13. If A is a matrix of type $p \times q$ and R is a row of A, then what is the type of R as a matrix?
14. If A is a column matrix with 5 rows, then what type of matrix is a row of A?
15. If $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$, then find $(3A-B)$.
16. If A = diagonal $[1,-2,5]$ and B = diagonal $[3, 0,-4]$, then find $3A-2B$.
17. If A,B and C are three matrices such that $A+B=A+C$, then $B = C$.
18. Find matrices X and Y, if $X+y = \begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}$ and $X - Y = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$.
19. If $A = [-1 \ 2 \ -5]$ and $B = \begin{bmatrix} 2 \\ -1 \\ 7 \end{bmatrix}$, write the orders of Ab and BA and BA.
20. If A is a matrix of order 3×3 and B is a matrix of order 2×3 , can you find Ab?