

## Written Q

1. Def refractive index , refractive power ?
2. Enumerate causes of corneal or lense transparency ?
3. Enumerate factors that maintain corneal transparency ?
4. Enumerate function of iris , choroid , lense ?
5. Def aphakia , prebyopia , cataract ?
6. Def with causes : myopia , hypermetropia and astigmatism ?
7. Def glaucoma ?
8. Enumerate function of aqueous and vitrous humer ?

## Formative MCQ

<p><b>1. Refractive media of eye include:</b></p> <ul style="list-style-type: none"><li>a) Cornea and sclera</li><li>b) Lense and iris</li><li>c) Retina and vitrous body</li><li>d) Cornea and lense</li><li>e) Ciliary body and process</li></ul>	<b>D</b>
<p><b>2. The main Refractive Medium of the eye is:</b></p> <ul style="list-style-type: none"><li>a) Sclera</li><li>b) Lens</li><li>c) Vitreous body</li><li>d) Aqueous humor</li><li>e) Cornea.</li></ul>	<b>E</b>

<p><b>3. About the Intraocular pressure, one of the following is correct:</b></p> <ul style="list-style-type: none"> <li>a) is normally about 100 mmHg.</li> <li>b) Depends on the rate of aqueous humour production &amp; drainage.</li> <li>c) Depends on the rate of passage of aqueous humour into the vitreous humour.</li> <li>d) When decreased it affects accommodation to far vision.</li> <li>e) Is measured by mercury manometer.</li> </ul>	<b>B</b>
<p><b>4. Refractive index of the aqueous humor is:</b></p> <ul style="list-style-type: none"> <li>a) 1.0</li> <li>b) 1.33</li> <li>c) 1.34</li> <li>d) 1.38</li> <li>e) 1.40</li> </ul>	<b>B</b>
<p><b>5. Refractive power of a lens with focal length 25 cm is:</b></p> <ul style="list-style-type: none"> <li>a) 4 diopters</li> <li>b) 10 diopters</li> <li>c) 25 diopters</li> <li>d) 50 diopters</li> <li>e) 100 diopters.</li> </ul>	<b>A</b>
<p><b>6. An increase in refractive power is produced by contraction of the:</b></p> <ul style="list-style-type: none"> <li>a) Iris</li> <li>b) Ciliary body</li> <li>c) Suspensory ligaments</li> <li>d) Extraocular muscles</li> <li>e) Pupil</li> </ul>	<b>B</b>

<p><b>7. The causes of corneal transparency include:</b></p> <ul style="list-style-type: none"> <li>a) Irregular arrangement of layer</li> <li>b) Presence of myelinated nerve fibers</li> <li>c) Presence of blood vessels</li> <li>d) Osmotic pump</li> <li>e) Corneal hydration.</li> </ul>	<b>D</b>
<p><b>8. About the cornea of the eye:</b></p> <ul style="list-style-type: none"> <li>a) Corneal dehydration is due to the presence of blood vessels.</li> <li>b) Astigmatism in the cornea is corrected by convex spherical lens</li> <li>c) Riboflavin is needed to maintain corneal transparency.</li> <li>d) Damage of the metabolic pump in the endothelial cells of the cornea causes keratoconus.</li> <li>e) It takes its glucose requirement from precorneal tear film.</li> </ul>	<b>C</b>
<p><b>9. The cornea is rich in:</b></p> <ul style="list-style-type: none"> <li>a) Pain receptors</li> <li>b) Touch receptors</li> <li>c) Proprioceptors</li> <li>d) Photoreceptors</li> <li>e) Chemoreceptors.</li> </ul>	<b>B</b>
<p><b>10. Vit A in cornea is essential for:</b></p> <ul style="list-style-type: none"> <li>a) Formation of new blood vessels.</li> <li>b) Healthy epithelium.</li> <li>c) Absorption of ultraviolet rays.</li> <li>d) Osmotic pump.</li> <li>e) Metabolic pump.</li> </ul>	<b>B</b>

<p><b>11. The aqueous humour:</b></p> <ul style="list-style-type: none"> <li>a) <i>Is one of the refractive media of the eye.</i></li> <li>b) <i>Is formed by passive filtration.</i></li> <li>c) <i>Is more easily drained when the pupil is dilated.</i></li> <li>d) <i>Is formed initially in the anterior chamber of the eye.</i></li> <li>e) <i>Its excess secretion results in cataract.</i></li> </ul>	<p><b>A</b></p>
<p><b>12. The aqueous humour normally is:</b></p> <ul style="list-style-type: none"> <li>a) <i>1 <math>\mu</math>l/min</i></li> <li>b) <i>5 <math>\mu</math>l/min</i></li> <li>c) <i>10 <math>\mu</math>l/min</i></li> <li>d) <i>20 <math>\mu</math>l/min</i></li> <li>e) <i>25 <math>\mu</math>l/min</i></li> </ul>	<p><b>A</b></p>
<p><b>13. The aqueous humour contains low concentration of:</b></p> <ul style="list-style-type: none"> <li>a) <i>Proteins</i></li> <li>b) <i>Na ions</i></li> <li>c) <i>Vit C</i></li> <li>d) <i>Bicarbonate</i></li> <li>e) <i>Lactic acid.</i></li> </ul>	<p><b>A</b></p>
<p><b>14. The aqueous humour formation occur by active secretion of:</b></p> <ul style="list-style-type: none"> <li>a) <i>Na ions</i></li> <li>b) <i>Cl ions</i></li> <li>c) <i>HPO<sub>4</sub> ions</i></li> <li>d) <i>HCO<sub>3</sub></i></li> <li>e) <i>H<sub>2</sub>O.</i></li> </ul>	<p><b>A</b></p>

<p><b>15. Functions of vitreous humor is:</b></p> <ul style="list-style-type: none"> <li>a) Buffering of acids produced by lens.</li> <li>b) Nourishing the avascular lens.</li> <li>c) Preventing spherical aberrations</li> <li>d) Supporting the crystalline lens</li> <li>e) Providing the lens with O<sub>2</sub>.</li> </ul>	<b>D</b>
<p><b>16. About the iris of the eye:</b></p> <ul style="list-style-type: none"> <li>a) The diameter of the pupil is controlled by sympathetic only</li> <li>b) The iris helps the spherical and chromatic aberrations.</li> <li>c) Its function is to regulate the amount of light entering the eye</li> <li>d) Chromatic aberrations mean that the light rays converge to different foci</li> <li>e) Spherical aberration means that light is analyzed to its original color.</li> </ul>	<b>C</b>
<p><b>17. Constriction of the pupils (miosis):</b></p> <ul style="list-style-type: none"> <li>a) It is mediated via sympathetic nerves.</li> <li>b) It increases the refractive power of the eye.</li> <li>c) It increases the depth of focus.</li> <li>d) It increases spherical aberrations.</li> <li>e) It increases chromatic aberrations.</li> </ul>	<b>C</b>
<p><b>18. The ciliary body:</b></p> <ul style="list-style-type: none"> <li>a) contains smooth muscles that attach to the lens by suspensory ligaments.</li> <li>b) produces the vitreous humor.</li> <li>c) is part of the iris of the eye.</li> <li>d) is part of the sclera.</li> <li>e) With the cornea, it forms the outer layer of the eye.</li> </ul>	<b>A</b>

<p><b>19. The lens normally focuses light onto the:</b></p> <ul style="list-style-type: none"> <li>a) optic disc.</li> <li>b) iris.</li> <li>c) macula lutea.</li> <li>d) cornea.</li> <li>e) ciliary body.</li> </ul>	<p><b>C</b></p>
<p><b>20. When emmetropic persons become presbyopic, their:</b></p> <ul style="list-style-type: none"> <li>a) Visual acuity increases</li> <li>b) Near point increases</li> <li>c) Far point decreases</li> <li>d) Total refractive power increases</li> <li>e) Ability to see distant objects decreases</li> </ul>	<p><b>B</b></p>
<p><b>21. Dilation of the pupil increases the:</b></p> <ul style="list-style-type: none"> <li>a) Amount of light entering the eye.</li> <li>b) Refractive power of the eye.</li> <li>c) Spherical aberration.</li> <li>d) Depth of focus.</li> <li>e) Field of vision.</li> </ul>	<p><b>A</b></p>
<p><b>22. In long-sightedness (hypermetropia):</b></p> <ul style="list-style-type: none"> <li>a) Objects at infinity cannot be focused sharply on the retina.</li> <li>b) Objects at the usual near-point are focused in front of the retina.</li> <li>c) Ciliary muscle contracts more strongly to bring objects in mid-visual range into clear focus.</li> <li>d) The range of unblurred vision (near-point to far-point) is greater than normal.</li> <li>e) The near-point can be brought closer to the eye by the use of a biconcave lens</li> </ul>	<p><b>C</b></p>

## Other MCQ

<p><b>1. Which of the following is INCORRECT for the cornea:</b></p> <ul style="list-style-type: none"><li>a) <i>It is transparent.</i></li><li>b) <i>It is a vascular.</i></li><li>c) <i>Its refractive power is 20 D.</i></li><li>d) <i>It has an active sodium pump.</i></li><li>e) <i>It contains unmyelinated nerve fibers.</i></li></ul>	<b>C</b>
<p><b>2. Refractive power of cornea normally equals:</b></p> <ul style="list-style-type: none"><li>a) 44 D.</li><li>b) 55 D.</li><li>c) 33 D.</li><li>d) 20 D.</li><li>e) 22 D.</li></ul>	<b>A</b>
<p><b>3. Which of the following is correct:</b></p> <ul style="list-style-type: none"><li>a) <i>aqueous humour is drained at ciliary processes.</i></li><li>b) <i>aqueous humour is secreted at iridocorneal angle.</i></li><li>c) <i>aqueous humour supplies cornea with nutrients.</i></li><li>d) <i>taste buds most sensitive to bitter sensation are located on the sides of the tongue.</i></li><li>e) <i>taste buds most sensitive to sour sensation are located on the tip of the tongue.</i></li></ul>	<b>C</b>
<p><b>4. Aqueous humour is formed by:</b></p> <ul style="list-style-type: none"><li>a) <i>ciliary process.</i></li><li>b) <i>iris.</i></li><li>c) <i>choroid.</i></li><li>d) <i>ciliary muscles.</i></li><li>e) <i>retina.</i></li></ul>	<b>A</b>

<p><b>5. The function of aqueous humour is to:</b></p> <ul style="list-style-type: none"> <li>a) increase sensitivity of rods.</li> <li>b) supply retina with O<sub>2</sub>.</li> <li>c) supply cornea with O<sub>2</sub>.</li> <li>d) decrease amount of light entering the eye.</li> <li>e) helps dark adaptation.</li> </ul>	<b>C</b>
<p><b>6. Concerning the formation of aqueous humour and the intraocular pressure (IOP):</b></p> <ul style="list-style-type: none"> <li>a) the initial process of formation is active transport of Na<sup>+</sup>.</li> <li>b) elevated systemic blood pressure usually increases the rate of formation.</li> <li>c) the normal range of IOP is 25 – 35 mmHg.</li> <li>d) both a &amp; b are correct.</li> <li>e) both b &amp; c are correct.</li> </ul>	<b>A</b>
<p><b>7. The aqueous humour:</b></p> <ul style="list-style-type: none"> <li>a) is a transparent fluid which fills the posterior segment of the eye.</li> <li>b) is formed as a result of active secretion of Na<sup>+</sup> by the ciliary processes.</li> <li>c) involves active secretion of both Cl<sup>-</sup> and HCO<sub>3</sub><sup>-</sup> in its formation.</li> <li>d) is more easily drained when the pupil is dilated.</li> <li>e) all of the above are correct.</li> </ul>	<b>B</b>
<p><b>8. Concerning the intraocular pressure:</b></p> <ul style="list-style-type: none"> <li>a) the normal value of intraocular pressure is 5 – 10 mmHg.</li> <li>b) the normal value of intraocular pressure is 15 – 20 mmHg.</li> <li>c) in glaucoma the intraocular pressure decreases.</li> <li>d) vitreous humor keeps the intraocular pressure.</li> <li>e) none of the above is correct.</li> </ul>	<b>B</b>

<p><b>9. Functions of iris include:</b></p> <ul style="list-style-type: none"> <li>a) controls amount of light entering eye.</li> <li>b) forms spherical and chromatic aberrations.</li> <li>c) decreases depth of focus.</li> <li>d) keeps spherical shape of eye ball.</li> <li>e) keeps normal curvature of cornea.</li> </ul>	<b>A</b>
<p><b>10. The near point of vision:</b></p> <ul style="list-style-type: none"> <li>a) is 50 cm at 20 years of age.</li> <li>b) is 20 cm at 50 years of age.</li> <li>c) is 30 cm in children.</li> <li>d) is decreased with age.</li> <li>e) depends on elasticity of the lens.</li> </ul>	<b>E</b>
<p><b>11. The power of the eye lens when accommodation is minimal is about:</b></p> <ul style="list-style-type: none"> <li>a) 10 diopters.</li> <li>b) 22 diopters.</li> <li>c) 32 diopters.</li> <li>d) 44 diopters.</li> <li>e) 60 diopters.</li> </ul>	<b>B</b>
<p><b>12. If the refractive power of the lens is +10 diopters, its focal length equals:</b></p> <ul style="list-style-type: none"> <li>a) 0.2 meter.</li> <li>b) 0.5 meter.</li> <li>c) 0.1 meter.</li> <li>d) 10 meters.</li> <li>e) 1 meter.</li> </ul>	<b>C</b>

<p><b>13. Myopia is:</b></p> <ul style="list-style-type: none"> <li>a) caused by too short eye ball.</li> <li>b) corrected by biconcave spherical lenses.</li> <li>c) caused by decreased power of lens.</li> <li>d) caused by irregular corneal curvature.</li> <li>e) corrected by biconvex spherical lenses.</li> </ul>	<b>B</b>
<p><b>14. Hypermetropia is:</b></p> <ul style="list-style-type: none"> <li>a) caused by short eye ball.</li> <li>b) corrected by cylindrical lenses.</li> <li>c) caused by long eye ball.</li> <li>d) corrected by concave lenses.</li> <li>e) caused by loss of lens elasticity.</li> </ul>	<b>A</b>
<p><b>15. Astigmatism is caused by:</b></p> <ul style="list-style-type: none"> <li>a) long eyeball.</li> <li>b) short eye ball.</li> <li>c) loss of lens elasticity.</li> <li>d) high refractive power of eye.</li> <li>e) irregular curvature of the cornea.</li> </ul>	<b>E</b>
<p><b>16. A patient whose eye lens has lost its elasticity is suffering from:</b></p> <ul style="list-style-type: none"> <li>a) glaucoma.</li> <li>b) cataract.</li> <li>c) presbyopia.</li> <li>d) astigmatism.</li> <li>e) myopia.</li> </ul>	<b>C</b>

<p><b>17. Presbyopia:</b></p> <ul style="list-style-type: none"> <li>a) occurs in old age.</li> <li>b) is caused by large eyeball.</li> <li>c) is caused by small eyeball.</li> <li>d) in presbyopia reading becomes easy.</li> <li>e) in presbyopia the power of accommodation increases.</li> </ul>	<b>A</b>
<p><b>18. About the refractive media of the eye, all are true except;</b></p> <ul style="list-style-type: none"> <li>a) The refractive media of the eye include; the cornea, aqueous humour, lens and the sclera.</li> <li>b) The main refracting surfaces of the eye are the cornea and the lens.</li> <li>c) The refractive power of the eye is about 59 diopters.</li> <li>d) The refractive power of the lens is +20 diopters, while that of the cornea is +39 diopters.</li> </ul>	<b>A</b>
<p><b>19. About the cornea of the eye, all are true except;</b></p> <ul style="list-style-type: none"> <li>a) Riboflavin is needed to maintain corneal transparency.</li> <li>b) Corneal dehydration is due to absence of blood vessels.</li> <li>c) The fine histological arrangement of the corneal cells is the cause of its transparency.</li> <li>d) Damage of the metabolic pump in the endothelial cells of the cornea causes corneal cloudness.</li> </ul>	<b>B</b>
<p><b>20. When parallel rays come to a focus behind the retina the condition is called:</b></p> <ul style="list-style-type: none"> <li>a) Myopia.</li> <li>b) Presbyopia.</li> <li>c) Hypermetropia.</li> <li>d) Emmetropia.</li> </ul>	<b>C</b>

<p><b>21. About the aqueous humor, all the followings are true except;</b></p> <ul style="list-style-type: none"> <li>a) <i>The filtration angle is the junction between the iris and the cornea.</i></li> <li>b) <i>Its rate of secretion is greater than the rate of drainage to overcome its evaporation.</i></li> <li>c) <i>The canal of Schlemm is a thin permeable canal that encircles the anterior chamber at the corneoscleral junction.</i></li> <li>d) <i>Normal intraocular pressure depends on a balanced rate of production-drainage of aqueous humor.</i></li> </ul>	<b>B</b>
<p><b>22. In Myopia:</b></p> <ul style="list-style-type: none"> <li>a) <i>The lens power is weaker than normal.</i></li> <li>b) <i>Near vision is more affected than for vision.</i></li> <li>c) <i>A circular object may appear oval.</i></li> <li>d) <i>The eyeball tends to be longer than normal.</i></li> </ul>	<b>D</b>
<p><b>23. About the lens of the eye, all the following are true except;</b></p> <ul style="list-style-type: none"> <li>a) <i>It is a vascular transparent biconvex lens.</i></li> <li>b) <i>It provides about 70% of total dioptric power of eye.</i></li> <li>c) <i>It enables the eye to see far and near objects clearly.</i></li> <li>d) <i>Glutathione is essential for its metabolism.</i></li> </ul>	<b>B</b>
<p><b>24. Presbyopia, all the following are true except;</b></p> <ul style="list-style-type: none"> <li>a) <i>It is due to sclerosis of the lens.</i></li> <li>b) <i>It is due to loss of elasticity of the suspensory ligaments.</i></li> <li>c) <i>It is due to loss of contractile power of ciliary muscle.</i></li> <li>d) <i>It affects far and near vision.</i></li> </ul>	<b>D</b>

<p><b>25. The aqueous humour is:</b></p> <ul style="list-style-type: none"> <li>a) One of the refractive media of the eye.</li> <li>b) Formed by passive filtration.</li> <li>c) More easily drained when the pupil is dilated.</li> <li>d) Formed initially in the anterior chamber of the eye.</li> </ul>	<b>A</b>
<p><b>26. About the aqueous humor, all the followings are true except :</b></p> <ul style="list-style-type: none"> <li>a) Decreased aqueous secretion affects metabolism of cornea and lens.</li> <li>b) Disturbance in aqueous humor system affects diopter power of eye.</li> <li>c) A normal IOP is essential for focusing of the eye</li> <li>d) A normal IOP is about 80 mmHg</li> </ul>	<b>D</b>
<p><b>27. In hypermetropia , All are true except :</b></p> <ul style="list-style-type: none"> <li>a) The far point is nearer than normal .</li> <li>b) The image is formed behind the retina.</li> <li>c) Convex lenses correct the condition.</li> <li>d) Presbyopia worsens the condition.</li> </ul>	<b>A</b>
<p><b>28. If focal distance (length) of a lens is 0.75 meter, its power is :</b></p> <ul style="list-style-type: none"> <li>a) 1.33 diopters.</li> <li>b) 10,3 diopters.</li> <li>c) 0.25 diopter.</li> <li>d) 0.75 diopter.</li> <li>e) 1.0 diopter</li> </ul>	<b>A</b>
<p><b>29. In refractive media of eye , the highest refractive index is that of:</b></p> <ul style="list-style-type: none"> <li>a) Cornea.</li> <li>b) Aqueous humour.</li> <li>c) Crystalline lens</li> <li>d) Vitreous humour.</li> </ul>	<b>C</b>

<p><b>30. In myopia :</b></p> <ul style="list-style-type: none"> <li>a) The eyeball tends to be longer than the average normal .</li> <li>b) The lens power is weaker than normal in most cases .</li> <li>c) The use of biconvex lenses corrects the error .</li> <li>d) Near vision is more seriously affected than far vision .</li> <li>e) A circular object may appear oval .</li> </ul>	<b>A</b>
<p><b>31. IF A Convex lens has a focal length of 1 cm (0.01 in), what is the refractive power of that lens in diopters?</b></p> <ul style="list-style-type: none"> <li>a) +0.04</li> <li>b) +0.10</li> <li>c) +1</li> <li>d) +10</li> <li>e) +100</li> </ul>	<b>E</b>
<p><b>32. In hypermetropia:</b></p> <ul style="list-style-type: none"> <li>a) The objects at Infinity cannot be clearly seen.</li> <li>b) ciliary muscle must contract more strongly than normal even during far vision</li> <li>c) The range of clear vision is greater than normal.</li> <li>d) Correction is obtained by use of converging (convex) lenses .</li> </ul>	<b>D</b>
<p><b>33. When parallel light rays pass through a concave lens, which of the following will occur?</b></p> <ul style="list-style-type: none"> <li>a) Rays converge toward each other</li> <li>b) Rays diverge away from each other</li> <li>c) They maintain parallel relationship</li> <li>d) They reflect back in the direction from where they came</li> <li>e) Rays refract to one focal point</li> </ul>	<b>B</b>

<p><b>34. What is the name of the condition whereby the lens of the eye becomes almost totally unaccommodating in persons over 70 years of age?</b></p> <p>a) Amblyopia  b) Emmetropia  c) Hyperopia  d) Myopia  e) Presbyopia</p>	<b>E</b>
<p><b>35. The condition of myopia is usually corrected by which of the following types of lens ?</b></p> <p>a) Compound lens  b) Convex lens  c) Spherical lens  d) Concave lens  e) Cylindrical lens</p>	<b>D</b>
<p><b>36. Which of the following is not correctly paired?</b></p> <p>a) Rhodopsin: retinal and opsin  b) Obstruction of the canal of Schlemm: elevated intraocular pressure  c) Myopia: convex lenses  d) Astigmatism: nonuniform curvature of the cornea  e) Inner segments of rods and cones: synthesis of the photosensitive compounds</p>	<b>C</b>
<p><b>37. Which of the following structures secretes intraocular fluid of the eye?</b></p> <p>a) Ciliary processes  b) Cornea  c) Iris  d) Lens</p>	<b>A</b>