

## Windows of knowledge

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**Que 1: Select suitable ones from the following and arrange them in the table given below.**

a) Helps to detect colours.

b) Night Blindness

c) Rhodopsin

d) Helps in bright light vision

e) Photopsin

f) Helps in dim light vision

**Marks :(3)**

Rod cells	Cone cells

**Ans:**

Rod cells	Cone cells
Night blindness	Helps to detect colours
Rhodopsin	Helps in bright light vision
Helps in dim light vision	Photopsin

**Que 2: Arrange columns B and C according to column A. Marks :(3)**

A	B	C
Presbyopia	Lens becomes opaque	Laser surgery
Glaucoma	Loses the ability of lens to change the curvature of the lens.	Lens replacement
Cataract	Eye pressure increases	Use spectacles with convex lens

**Ans:**

A	B	C
Presbyopia	Loses the ability of lens to change the curvature of the lens.	Use spectacles with convex lens

Glaucoma	Eye pressure increases	Laser surgery
Cataract	Lens becomes opaque.	Lens replacement

**Que 3: Arrange the flowchart correctly. Marks :(4)**

**Ans:** a-c-d-b-e-g-h-f-j-i

**Que 4: Find the given word pair relationship and fill.**

**ear ossicles :** transmits the vibrations of tympanicum to the internal ear

**Eustachian tube :** ..... **Marks :(1)**

**Ans:** Helps in maintains the balance of pressure on either side of the tympanum

**Que 5: We can see nearby and distant objects clearly. Marks :(4)**

- The ability of the eye to adjust the focal length is called ----- .
- What change occurs in the curvature of lens while viewing near objects?
- How the above change in the curvature of lens is accomplished?

**Ans:** a) Power of accommodation of the eye.

b) Curvature of lens increases.

c) Ciliary muscles contract and the ligaments get relaxed.

**Que 6: From the following, select the correct statements. Marks :(1)**

- Semicircular canal and vestibule help in body balancing.
- Perilymph is seen in the membranous labyrinth of inner ear.
- Organ of Corti helps in maintaining body balance.
- The hair cells in semicircular canals helps maintains body balance.

**Ans:** 1. Semicircular canal and vestibule help in body balancing.

4. The hair cells in semicircular canals helps maintains body balance.

**Que 7: Base on the hints given, complete the column B in accordance with column A.**

**Marks :(2)**

Eye defect	
Myopia	
Hypermetropia	
Night blindness	
Glaucoma	

**Ans:**

Eye defect	Solution
Myopia	Use of spectacles with Concave lens
Hypermetropia	Use of spectacles with convex lens
Night blindness	Include Vitamin A rich food in diet.
Glaucoma	Laser surgery.

**Que 8: The activities related to the sensation of taste is given below. Arrange them in the correct order.**  
**Marks :(2)**

1. Impulses are generated.
2. Taste receptors are stimulated.
3. Impulses reach the brain.
4. Experiences the sense of taste.
5. taste molecules dissolve in saliva.

**Ans:**

1. taste molecules dissolve in saliva.
2. Taste receptors are stimulated.
3. Impulses are generated.
4. Impulses reach the brain.
5. Experiences the sense of taste.

**Que 9: Answer the following questions related to the sensation of taste.**

1. Where do the chemoreceptors related to the sense of tastes located?
  2. Give the significances of taste buds.
  3. Name the tastes detected by the chemoreceptors in different taste buds.
- Marks :(3)**

**Ans:** 1. Inside the mouth and on the tongue.

2. The chemoreceptors to sense taste are located in taste buds.

3. The chemoreceptors in taste buds detect sweet, salt, sour, bitter and umami tastes.

**Que 10: From the following box, select the parts seen in the sclera, choroid and retina.**  
**Marks :(3)**

**Conjunctiva, Blind spot, Cornea, Yellow spot, Pupil**

**Ans:** Sclera- Conjunctiva, cornea

Choroid- Iris, pupil Retina- Blind spot, yellow spot.

**Que 11: The possibility of occurrence of night blindness in Vitamin A deficient children is high. Based on this statement, answer the following questions.**

**a) How does the deficiency of vitamin A relate to night blindness?**

**b) Name any other disease caused by vitamin A deficiency.      Marks :(2)**

**Ans:** a) The deficiency of vitamin A causes the deficiency of Rhodopsin. Hence vision in dimlight decreases.

b) Xerophthalmia.

**Que 12: Analyse the following figure and answer the following questions.**



**a) Identify the parts from the vestibular nerve receives impulses?**

**b) Name the location of the receptors that create messages to the auditory nerve?**  
**Marks :(2)**

**Ans:** a) Semicircular canals, vestibule (Utricle and saccule)

b) Organ of Corti/ Cochlea.

**Que 13: Select the correct pair from the following. Marks :(1)**

**a) The vibration of stapes : The movement of fluid in cochlea.**

**b) The hair cells in the basilar membrane: Maintenance of body balance.**

**Ans:** a) The vibration of stapes : The movement of fluid in cochlea.

**Que 14: Analyse the following table and make suitable pairs based on the parts and their functions.**  
**Marks :(3)**

Part	Function
1 Optic nerve	1 The size of this aperture increases and decreases depending on the intensity of light.
2 Pupil	2 The point of maximum visual clarity.
3 Conjunctiva	3 The part that refracts light rays to focus on the retina.
4 Yellow spot	4 Alters the curvature of lens.
5 Ciliary muscles	5 Covers and protects the front part of sclera except the cornea.
6 Cornea	6 Transmits impulses from photoreceptors to the visual centre in the brain.

**Ans:**

Part	Function
1 Optic nerve	1 Transmits impulses from photoreceptors to the visual centre in the brain.
2 Pupil	2 The size of this aperture increases and decreases depending on the intensity of light.
3 Conjunctiva	3 Covers and protects the front part of sclera except the cornea.
4 Yellow spot	4 The point of maximum visual clarity.
5 Ciliary muscles	5 Alters the curvature of lens.
6 Cornea	6 The part that refracts light rays to focus on the retina.

**Que 15: Compare the activities in identifying taste and smell and complete the table.**

**Marks : (2)**

a) ..... dissolves in mucus.	Food particles dissolve in saliva.
Olfactory receptors are stimulated.	b) ..... are stimulated.
Impulses are formed.	Impulses are formed.
c) impulses reach the brain through the ..... nerve.	Impulses reach the d) ..... nerve.

**e) Senses smell.**

**Senses taste.**

**Ans:** a) Smell particles b) Taste receptors c) Gustatory nerve d) Cerebrum

**Que 16:** The major parts related to the process of hearing is given. Prepare a flow chart by arranging them from cerebrum to oval window. **Marks :(3)**

**a) Auditory nerve b) Endolymph c) Hair cells d) Oval window e) Cerebrum f) Basilar membrane.**

**Ans:** Oval window- endolymph- basilar membrane- hair cells- auditory nerve- cerebrum.

**Que 17:** From the following, find the reason for excess pressure inside the eye in Glaucoma.

**a) The pressure in the eye exerted by the unabsorbed blood.**

**b) The defect in the formation of aqueous fluid.**

**c) The defect in the reabsorption of aqueous fluid) The excess vitreous fluid.**

**Marks :(1)**

**Ans:** c) The defect in the reabsorption of aqueous fluid.

**Que 18:** Certain parts related to the process of hearing are given below. Write the major functions of each. **Marks :(3)**

**a) Ear ossicles.**

**b) Eustachian tube**

**c) Round window**

**Ans:** a) Ear ossicles- Amplify and transmit the vibrations of the tympanum to the internal ear.

b) Eustachian tube- Protects the tympanum by balancing the pressure on either side of the tympanum.

c) Round window- Helps in the movement of fluid inside the cochlea.

**Que 19:** Write reasons for each of the following statements. **Marks :(3)**

**a) We are able to view objects in three dimensional form.**

**b) Vitamin A is needed for the resynthesis of rhodopsin) The disease glaucoma can be cured by laser treatment.**

**Ans:** a) The images from two sides of the same object are formed in the left and right eye. When these two images combine as a result of the activities of the brain, a three-dimensional image of the object is formed. So, we are able to view objects in three-dimensional form.

b) The retinal of rhodopsin is formed from Vitamin A. So after the dissociation of rhodopsin into retinal and opsin, vitamin A is necessary for the resynthesis of rhodopsin.d) If the reabsorption of aqueous humor does not occur, it causes an

increase in the pressure inside the eyes and is called galucoma. The reabsorption of aqueous fluid can be rectified by laser surgery.

**Que 20: Arrange the following items related to the process of colour vision in a flow chart suitably. Marks :(3)**

- Photopsin is dissociated.
- Cone cells are stimulated in the presence of light.
- Impulses are generated.
- Form retinal and opsin.
- Forms the experience of vision.
- Impulses reach the brain through the optic nerve.

**Ans:**

- Cone cells are stimulated in the presence of light.
- Photopsin is dissociated.
- Form retinal and opsin.
- Impulses are generated.
- Impulses reach the brain through the optic nerve.
- Forms the experience of vision.

**Que 21: Complete the following table related to photoreceptors. Marks :(3)**

Characteristics	Rod cells	Cone cells
Shape	.....	.....
Pigment	.....	.....
Function	.....	.....

**Ans:**

Characteristic	Rod cells	Cone cells
Shape	Rod shape	Cone shape
Pigment	Rhodopsin	Photopsin
Function	Helps to see objects in dim light	Helps in colour vision

**Que 22: Copy the following figure and label the parts based on the hints. Marks :(4)**



- a) Part where photoreceptors are seen.
- b) The opening of the eye in the middle of the iris.
- c) The part that focuses light rays in the retina.

**Ans:** To copy the diagram- 1

a) Retina b) Pupil c) Lens

(To label correctly-  $1/2 \times 3 = 1\frac{1}{2}$ )

**Que 23: Analyse the following figure and answer the questions.**



- a) Identify the figure.
- b) Name the vitamin necessary for the pigment in this cell. **Marks : (2)**

**Ans:** a) Rod cell

b) Vitamin A

**Que 24: Find the word pair and fill. Marks : (1)**

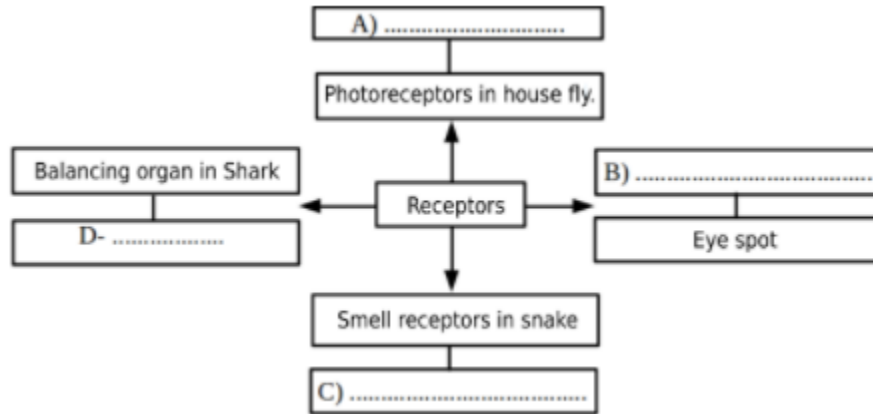
**The opaque of lens: Cataract**

**.....: Xerophthalmia.**

**Ans:** Cornea becomes opaque/ Cornea dries.

**Que 25: Complete the following illustration. Marks : (4)**





**Ans:** A- Ommatidium

B- Planaria

C- Jacobson's organ

D- Lateral line

**Que 26:** Correct the errors if any in the following statements related to the sensation of taste and arrange them in correct order. **Marks :(2)**

1. Food particles dissolve in saliva.
2. Impulses reach the cerebrum.
3. Experiences the sense of taste.
4. Impulses form.
5. Chemo-receptors are stimulated.

**Ans:**

1. Food particles dissolve in saliva.
2. Chemo-receptors are stimulated.
3. Impulses form.
4. Impulses reach the cerebrum.
5. Experiences the sense of taste.

**Que 27:** Identify the errors and correct if any in the following flow chart.

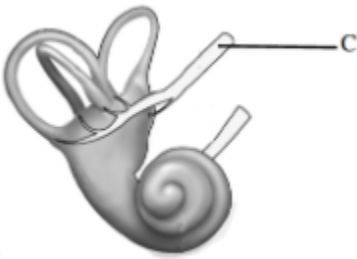
1. Impulse is formed.
2. Maintains body balance.
3. Movement of the fluid in the vestibular apparatus.
4. Impulses reach the cerebellum through the vestibular nerve.
5. Body movements.

**6. The movement of the hair cells. Marks :(3)**

**Ans:**

1. Body movements.
2. Movement of the fluid in the vestibular apparatus.
3. The movement of the hair cells.
4. Impulse is formed.
5. Impulses reach the cerebellum through the vestibular nerve.
6. Maintains body balance.

**Que 28: Observe the given figure and answer the following questions. Marks :(4)**



**a) Identify the parts that maintain body balance. Give their collective name.**

**b) To which part of the brain does “C” conveys messages?**

**Ans:** a) Vestibule, Semicircular canals, Vestibular nerve.

b) Cerebellum

**Que 29: Compare the activities in identifying taste and smell and complete the table. Marks :(2)**

a) ..... dissolves in mucus.	Food particles dissolve in saliva.
Olfactory receptors are stimulated.	b) ..... are stimulated.
Impulses are formed.	Impulses are formed.
c) impulses reach the brain through the ..... nerve.	Impulses reach the d) ..... nerve.
e) Senses smell.	Senses taste.

**Ans:** a) Smell particles b) Taste receptors c) Gustatory nerve d) Cerebrum

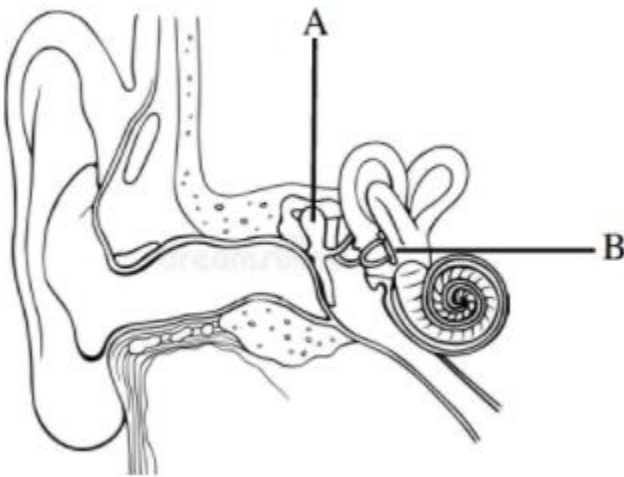
**Que 30: Complete the following table related to the structure of the eye. Marks :(4)**

Part	On viewing nearby objects	On viewing distant objects
Ciliary muscles		
Ligaments		
The curvature of lens		
Focal distance		

**Ans:**

Part	On viewing nearby objects	On viewing distant objects
Ciliary muscles	Contracts	Relaxes
Ligaments	Relaxes	Contracts
The curvature of lens	Increases	Decreases
Focal distance	Decreases	Increases

**Que 31:** Analyse the following figure and answer the questions given below.



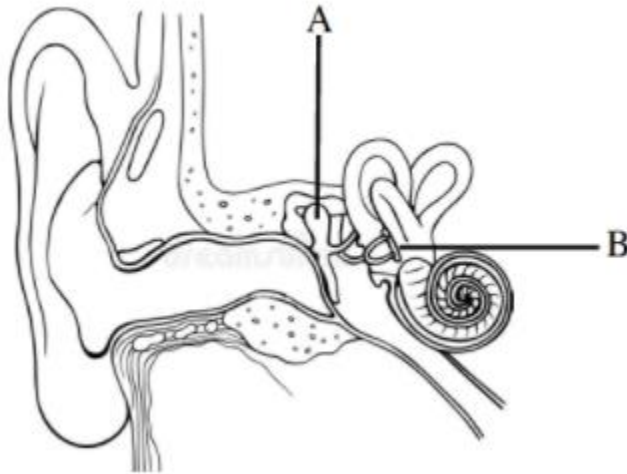
- The part where sound receptors are located.
- The part that maintains the pressure on both sides of the ear drum.
- The part that leads sound waves to auditory canal. **Marks :(4)**

**Ans:** To copy the picture – 1 score.

- Cochlea
- Eustachian tube.
- Ear pinna.

(To label correctly- 1x3=3)

**Que 32: Analyse the following figure and answer the questions.**



**a) Identify the picture and write the name of the bone indicated 'A'.**

**b) Name the membrane seen attached to 'B'.      Marks :(2)**

**Ans:** a) Malleus

b) Oval window

**Que 33: From the following statements, select the correct one.**

**a) Prolonged night blindness leads to xerophthalmia.**

**b) Many blood vessels are seen in Retina.**

**c) Sound receptors are found in Organ of Corti.**

**d) Jacobson's organs are located in the tongue of snake.      Marks :(2)**

**Ans:** a) Prolonged night blindness leads to xerophthalmia.

c) Sound receptors are found in Organ of Corti.

**Que 34: Using the following hints, prepare a flowchart showing the processes included in the sensation of smell.**

**a) Impulses reach the cerebrum through the gustatory nerve.**

**b) Smell particles dissolves in the mucus.**

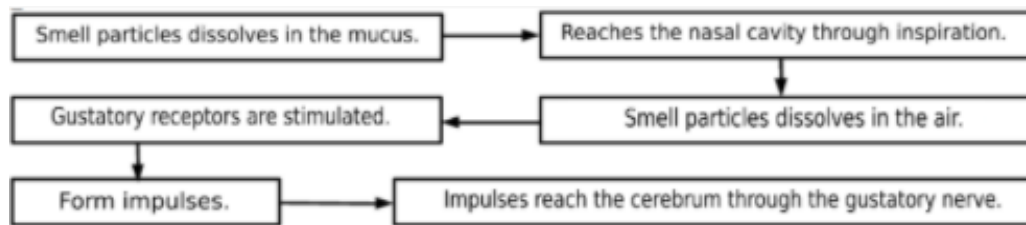
**c) Gustatory receptors are stimulated.**

**d) Smell particles dissolves in the air.**

**e) Reaches the nasal cavity through inspiration.**

**f) Form impulses.      Marks :(4)**

**Ans:**



**Que 35: The hair cells in the internal ear is seen in:**

- a) In the cochlea only.
- b) In the vestibule only.
- c) In the semicircular canals only.
- d) In the vestibular apparatus and cochlea. **Marks :(1)**

**Ans:** d) In vestibular apparatus and cochlea.

**Que 36: The following table shows the parts related to the structure of human ear. Identify the missing words. **Marks :(2)****

I	II	III
Ear	External ear	Ear pinna
		A .....
	Middle ear	Ear drum
		B .....
		Eustachian tube
		Semicircular canals
	Internal ear	C .....
		D .....
		Auditory nerve.

**Ans:** A- Auditory canal B- Auditory ossicles, C- Cochlea, D- Vestibule

**Que 37: Arrange the columns B and C in accordance with column A. **Marks :(4)****

A	B	C
i) Myopia	Bacteria	Spectacles with concave lens
ii) Cataract	Increasing pressure in the eye	Spectacles with convex lens
iii) Glaucoma	Opaqueness of lens	Lens replacement surgery
iv) Conjunctivitis	Short eye ball	Laser surgery

**Long eye ball**

**Maintain personal hygiene.**

**Ans:**

A	B	C
i) Myopia	Short eye ball	Spectacles with concave lens
ii) Cataract	Opacity of lens	Spectacles with convex lens
iii) Glaucoma	Increasing pressure in the eye	Laser surgery
iv) Conjunctivitis	Bacteria	Maintain personal hygiene.

**Que 38: From the following, select the correct statements.**

- a) There is difference in the amino acids of the opsin molecules of the three types of cone cells.
- b) The opacity of cornea is a symptom of cataract.
- c) The eustachian tube protects the ear drum.
- d) Perilymph is the fluid present inside the membranous labyrinth of internal ear.
- e) The sound receptors are present in the organ of Corti. **Marks : (2)**

**Ans:** a) There is difference in the amino acids of the opsin molecules of the three types of cone cells.

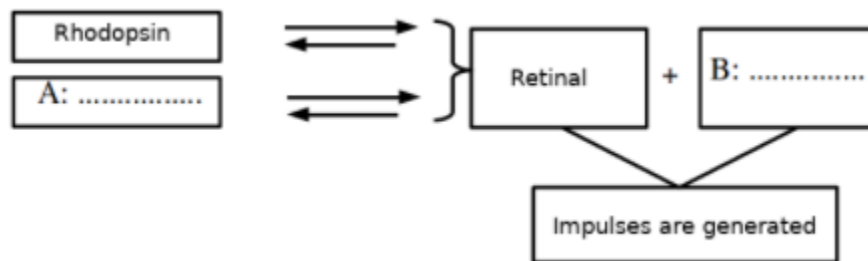
e) The sound receptors are present in the organ of Corti.

**Que 39: Select the correct pair from the following. Marks : (2)**

- 1. Night blindness: The condition in which one is unable to detect colour.
- 2. Glaucoma- The excess pressure experienced in the eye.
- 3. Conjunctivitis- The opacity of eye lens.
- 4. Xerophthalmia- No vision in dim light.

**Ans:** (2) Glaucoma- The excess pressure experienced in the eye.

**Que 40: Complete the following flow chart. Marks : (2)**



**Ans:** A- Photopsin, B- Opsin

**Que 41: Based on the model, make pairs using the items from the box.**

**Model:** Shark- Lateral line.

**Marks : (2)**

Planaria, Ommatidium, Eye spot, Jacobson's organ, Shark, House fly, Snake, Lateral line.

**Ans:** Planaria- Eye spot

Snake- Jacobson's organ

Shark- Lateral line

House fly- Ommatidium

**Que 42: From the following statements, identify the correct one.**

i) Touch receptors are not uniformly distributed all over the skin.

ii) Smell is experienced when the impulses from smell receptors reach the cerebellum.

iii) The tongue has taste buds to feel sweet, salt, sour, bitter and umami tastes.

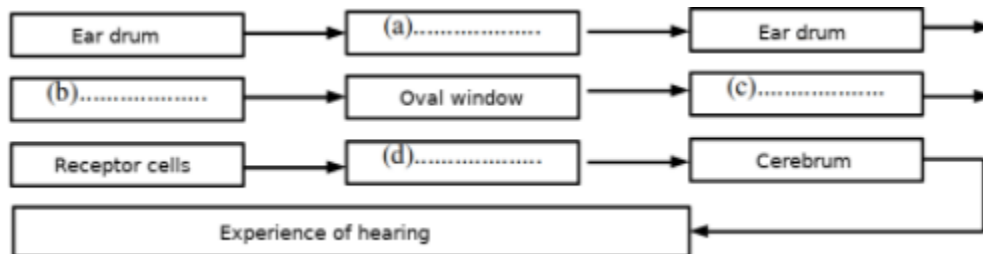
iv) The impulses of hearing are conveyed to cerebrum through the vestibular nerve.

a) i, ii are correct b) i, iii are correct c) i, iv are correct d) ii, iv are correct.

**Marks : (1)**

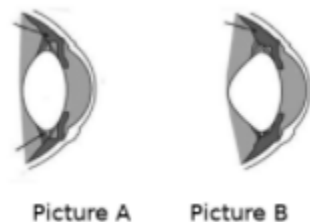
**Ans:** b) i and iii are correct.

**Que 43: Complete the flowchart related to the process of hearing. Marks : (2)**



**Ans:** a) Ear canal b) Ear ossicles c) Cochlea d) Auditory nerve

**Que 44: Based on the curvature of the eye lens, identify the pictures showing the changes on viewing the distant and nearby objects. Marks : (2)**



**Ans:** The picture showing the changes on viewing nearby objects- Picture A

The picture showing the changes on viewing distant objects- Picture B

**Que 45: A person heard a ringtone from his mobile phone, while viewing cricket match. Suddenly he looked at his mobile. What changes occurred in his eye lense and related muscles? Marks :(3)**

**Ans:** Ciliary muscles contract

Ligaments relax

Curvature of lens increases

**Que 46: Fill the blank based on the relationship between the words in the first pair.**

**a)Optic lens becomes opaque : Cataract**

**Cornea becomes opaque : .....**

**b)Cerebrospinal fluid : Brain tissues**

**..... : Eye tissues**

**c)Auditory nerve : Hearing**

**..... : Body balance Marks :(3)**

**Ans:** a) Xerophthalmia

b) Aqueous humor

c) Vestibular nerve

**Que 47: Deficiency of Rhodopsin leads to Night blindness and deficiency of Photopsin leads to colour blindness. Evaluate this statement and justify your opinion. Marks :(3)**

**Ans:** Partially correct-Deficiency of Rhodopsin leads to Night blindness. Second part of the statement is wrong. Retina contains cone cells which can detect red, green and blue colours. Due to the defect of concerned cone cells certain people cant differentiate red and green. This condition is colour blindness.

**Que 48: A person is suffering from dryness of his cornea. Formulate any three hypothesis on the circumstances that may lead to this condition. Marks :(3)**

**Ans:** May be deficiency of vitamin A.

Conjunctiva may loses the ability to secrete mucus.

Tear secretion may be blocked.

**Que 49: Observe the following figures and answer the questions.**





Picture A



Picture B

- Identify the picture A and B.
- Deficiency of the pigment of which cell causes night blindness?
- The defect of which cell causes color blindness. **Marks :(3)**

**Ans:** a) Picture A- Rod cell, B- Cone cell.

- The deficiency of the pigment in Picture A. (Rod cell).
- The defect of the cell in Picture B. (Cone cell).

**Que 50: Pick the odd one from the following and justify. Marks :(1)**

- Organ of Corti, b.Malleus, c.Umami, d.Incus

**Ans:** c.Umami-taste

**Que 51: Some of the parts related to the process of hearing are given below. Write the major function of each. Marks :(3)**

- Ear ossicles
- Eustachian tube
- Round window

**Ans:** a) Ear ossicles- Enhances and convey the vibrations of the ear drum/ tympanum to the internal ear.

- Eustachian tube- Keeps the pressure equal on both sides of the tympanum.
- Round window- Helps the movement of the fluid in the cochlea.

**Que 52: From the following options, select the correct reason for the excess pressure inside the eye in the condition called Glaucoma. Marks :(1)**

- The pressure in the eye exerted by the unabsorbed blood.
- The defect in the formation of aqueous fluid.
- The defect in the reabsorption of aqueous fluid.
- The excess amount of vitreous fluid.

**Ans:** c) The defect in the reabsorption of aqueous fluid.

**Que 53:** The major parts related to the process of hearing are given below. Prepare a flowchart by arranging the words given, starting from the Oval window till the Cerebrum.

a) Auditory nerve      b) Endolymph      c) Hair cells      d) Oval window      e) Cerebrum      f) Basilar membrane.      **Marks : (3)**

**Ans:** Oval window- endolymph- basilar membrane- hair cells- auditory nerve- cerebrum.

**Que 54:** Observe the following figures and answer the questions.



Picture A



Picture B

- Identify the picture A and B.
- Deficiency of the pigment of which cell causes night blindness?
- The defect of which cell causes color blindness.      **Marks : (3)**

**Ans:** a) Picture A- Rod cell, B- Cone cell.

- The deficiency of the pigment in Picture A. (Rod cell).
- The defect of the cell in Picture B. (Cone cell).

**Que 55:** Compare the activities given in the table to identify the taste and smell and complete suitably.      **Marks : (2)**

a) ..... dissolves in mucus.	Food particles dissolve in saliva.
Olfactory receptors are stimulated.	b) ..... are stimulated.
Impulses are formed.	Impulses are formed.
c) impulses reach the brain through the ..... nerve.	Impulses reach the d) ..... nerve.
e) Senses smell.	Senses taste.

**Ans:** a) Smell particles b) Taste receptors c) Gustatory nerve d) Cerebrum

**Que 56:** Answer the following questions.      **Marks : (4)**

- Which is the photoreceptor that enables colour vision?
- The change in amino acids in the opsin protein has a crucial role in colour vision. Substantiate.

**Ans:** a) Cone cell.

b) Colour vision is due to 3 types of cone cells that help to detect 3 primary colours. The 3 types of cone cells occur due to change in amino acid in the opsin molecule.

**Que 57: Select the suitable pair from the following. Marks :(1)**

a) The movement of fluid in cochlea: The vibration of Stapes.

b) The hair cells in the basilar membrane: Maintenance of body balance.

**Ans:** a) The movement of fluid in cochlea: The vibration of Stapes.

**Que 58: Analyse the following figure and answer the following questions.**



a) From where the vestibular nerve receive impulses?

b) Where do the receptors that produce impulses to the auditory nerve locate?

**Marks :(2)**

**Ans:** a) Semicircular canals, vestibule (Utricle and saccule)

b) Organ of Corti and Cochlea.

**Que 59: From the following statements, identify the correct one.**

i) Touch receptors are not uniformly distributed all over the skin.

ii) Smell is experienced when the impulses from smell receptors reach the cerebellum.

iii) The tongue has taste buds to feel sweet, salt, sour, bitter and umami tastes.

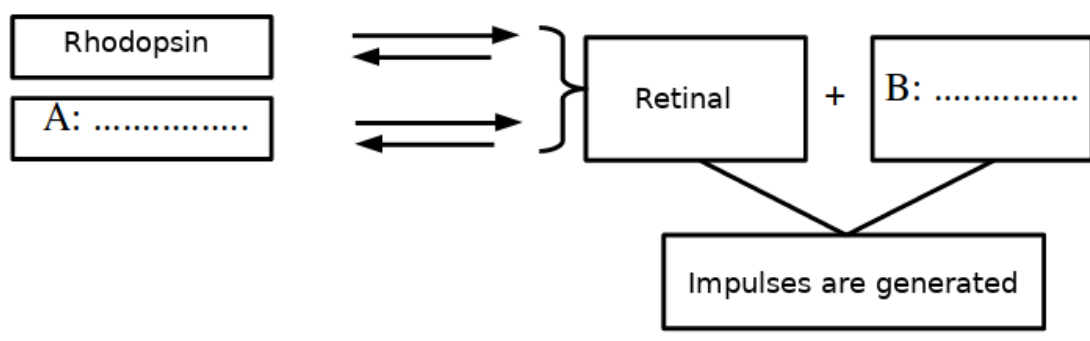
iv) The impulses of hearing are conveyed to cerebrum through the vestibular nerve.

a) i, ii are correct b) i, iii are correct c) i, iv are correct d) ii, iv are correct. **Marks :(1)**

**Ans:** b) i, iii are correct.

**Que 60: Complete the flow chart.**

**Marks :(2)**



Ans: A- Photopsin, B- Opsin

Que 61: Select the suitable pair from the following.

1. Night blindness: The condition in which one is unable to detect colour.
2. Glaucoma- The excess pressure experienced in the eye.
3. Conjunctivitis- The opaqueness of eye lens.
4. Xerophthalmia- Unable to see in dim light. Marks :(1)

Ans: (2) Glaucoma- The excess pressure experienced in the eye.

Que 62: Correct the errors if any in the underlined terms in the following statements.

- a) Aqueous fluid is formed from the blood.
- b) Vitreous fluid is seen in the cavity between the cornea and the lens.
- c) Cornea is the transparent part in front of the choroid.
- d) Choroid is the layer of the eye with blood vessels. Marks :(2)

Ans: b) Vitreous fluid is seen in the cavity between the cornea and the lens.

d) Choroid is the layer of the eye with blood vessels.

Que 63: Arrange the items in column A in accordance with the items in Column B. Marks :(2)

A	B
Braille letter	Nutrients to eye tissues
Cone cells	The shape of the eye ball.
Vitreous fluid	Iodopsin
Aqueous fluid	Touch receptors
	Eye spot

Ans:

A

Braille letter

Cone cells

Vitreous fluid

Aqueous fluid

B

Touch receptors

Iodopsin

The shape of the eye ball.

Nutrients to eye tissues

**Que 64: Evaluate the following items in the box and tabulate suitably.**

**Cochlea, semicircular canals, Ear ossicles, Vestibule, Ear canal, utricle**

**Marks :(4)**

**Ans:**

Related to hearing

Cochlea

Ear ossicles

Ear canal

Related to body balancing

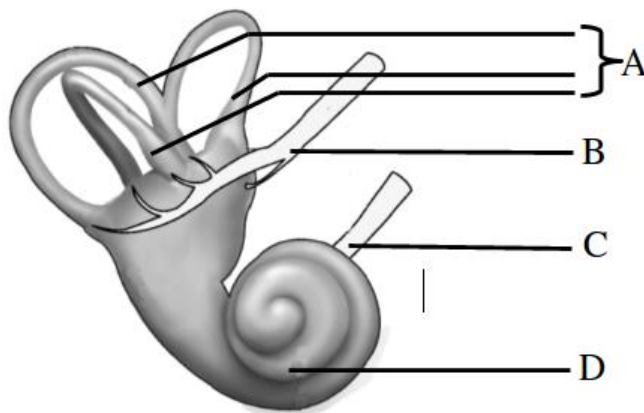
Semicircular canals

Vestibule

Cochlea

**Que 65: Observe the following figure and answer the following questions.**

**Marks :(3)**



**a) Identify the parts labelled 'B' and 'D'.**

**b) Write the functions of the parts A and C.**

**Ans:** a) B- Vestibular nerve, D- Cochlea

b) A- Semicircular canals- Helps to maintain body balance.

C- Auditory nerve- Conveys the messages of hearing to cerebrum.

**Que 66: Based on the curvature of the eye lens, identify the pictures which show the changes while viewing the distant and nearby objects. Marks :(1)**



Picture A



Picture B

**Ans:** The picture showing the changes in viewing nearby objects- Picture B

The picture showing the changes in viewing distant objects- Picture A

**Que 67: Identify the functions of each of the following related to the process of hearing.**

**A) Membranous labyrinth**

**B) Basilar membrane**

**C) The hair cells in Organ of Corti. Marks :(2)**

**Ans:** A) Membranous labyrinth- It includes the endolymph.

B) Basilar membrane- Holds the organ of Corti with hair cells.

C) The hair cells in Organ of Corti- Creates impulses of hearing.

**Que 68: Based on the model, make pairs using the items from the box.**

**Model: Shark- Lateral line. Marks :(2)**

**Planaria, Ommatidium, Eye spot, Jacobson's organ, Shark, House fly, Snake, Lateral line.**

**Ans:** Planaria- Eye spot

Snake- Jacobson's organ

Snake- Lateral line

House fly- Ommatidium

**Que 69: The possibility of occurrence of night blindness in children with deficiency of vitamin A is high. Based on this statement, answer the following questions.**

**a) How does the deficiency of vitamin A relate to night blindness?**

**b) Name any other disease caused by vitamin A deficiency. Marks :(2)**

**Ans:** a) The deficiency of vitamin A causes the deficiency of Rhodopsin. Hence vision in dimlight decreases.

b) Xerophthalmia.

**Que 70: The possibility of occurrence of night blindness in children with deficiency of vitamin A is high. Based on this statement, answer the following questions.**

**a) How does the deficiency of vitamin A relate to night blindness?**

**b) Name any other disease caused by vitamin A deficiency. Marks :(2)**

**Ans:** a) The deficiency of vitamin A causes the deficiency of Rhodopsin. Hence vision in dimlight decreases.

b) Xerophthalmia.

**Que 71: The activities related to the sensation of taste is given below. Arrange them in the correct order. Marks :(2)**

1. Impulses are generated.
2. Taste receptors are stimulated.
3. Impulses reach the brain.
4. taste molecules dissolve in saliva.
5. Experiences the sense of taste.

**Ans:**

1. taste molecules dissolve in saliva.
2. Taste receptors are stimulated.
3. Impulses are generated.
4. Impulses reach the brain.
5. Experiences the sense of taste.

**Que 72: Base on the hints given, complete the column B in accordance with column A. Marks :(2)**

**Eye defect**

**Myopia**

**Hypermetropia**

**Night blindness**

**Glaucoma**

**Ans:**

Eye defect	Solution
Myopia	Use of spectacles with Concave lens
Hypermetropia	Use of spectacles with convex lens
Night blindness	Include Vitamin A rich food in diet.
Glaucoma	Laser surgery.

**Que 73: From the following, select the reason for the disease color blindness.**

1. Due to less amount of Cone cells.
2. The defect of Cone cells
3. the defect of photosensitive cells.
4. The defect of rod cells.

a) i is correct b) ii and iii correct c) ii is correct d) iv is correct **Marks :(2)**

**Ans:** b) ii is correct.

**Que 74: From the following, select only the correct statements.**

- a) There is difference in the amino acids of the opsin molecules of the three types of cone cells.
- b) The opaqueness of cornea is a symptom of cataract.
- c) The eustachian tube protects the ear drum.
- d) Perilymph is the fluid present inside the membranous labyrinth of internal ear.
- e) The sound receptors are present in the organ of Corti. **Marks :(2)**

**Ans:** a) There is difference in the amino acids of the opsin molecules of the three types of cone cells.

e) The sound receptors are present in the organ of Corti.

**Que 75: Arrange the columns B and C in accordance with column A. Marks :(4)**

A	B	C
i) Myopia	Bacteria	Spectacles with concave lens
ii)Cataract	Increasing pressure in the eye	Spectacles with convex lens
iii)Glaucoma	Opaqueness of lens	Lens replacement surgery
iv)Conjunctivitis	Short eye ball	Laser surgery
	Long eye ball	Maintain personal hygiene.



**Ans:**

A	B	C
i) Myopia	Short eye ball	Spectacles with concave lens
ii)Cataract	Opacity of lens	Spectacles with convex lens
iii)Glaucoma	Increasing pressure in the eye	Laser surgery
iv)Conjunctivitis	Bacteria	Maintain personal hygiene.

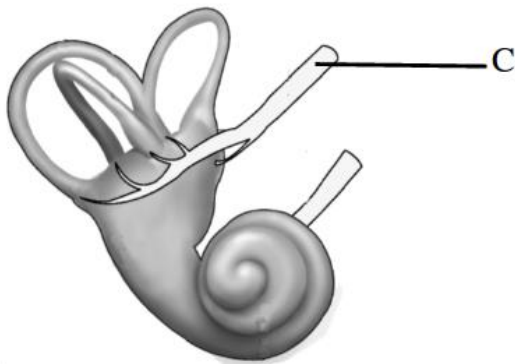
**Que 76: Arrange the columns B and C in accordance with column A. Marks :(4)**

A	B	C
i) Myopia	Bacteria	Spectacles with concave lens
ii)Cataract	Increasing pressure in the eye	Spectacles with convex lens
iii)Glaucoma	Opacity of lens	Lens replacement surgery
iv)Conjunctivitis	Short eye ball	Laser surgery
	Long eye ball	Maintain personal hygiene.

**Ans:**

A	B	C
i) Myopia	Short eye ball	Spectacles with concave lens
ii)Cataract	Opacity of lens	Spectacles with convex lens
iii)Glaucoma	Increasing pressure in the eye	Laser surgery
iv)Conjunctivitis	Bacteria	Maintain personal hygiene.

**Que 77: Observe the following figure and answer the following questions.**



**a) Identify the parts that maintain body balance. Give their collective name.**

**b) To which part of the brain does “C” conveys messages? Marks :(4)**

**Ans:** a) Vestibule, Semicircular canals, Vestibular nerve.

b) Cerebrum

**Que 78: The following table shows the parts in the structure of human ear. Identify the missing words. Marks :(2)**

I	II	III
	External ear	Ear pinna A .....
	Middle ear	Ear drum B .....
Ear		Eustachian tube
	Internal ear	Semicircular canals C ..... D ..... Auditory nerve.

**Ans:** A- Auditory canal B- Auditory ossicles, C- Cochlea, D- Vestibule

**Que 79: Identify the errors and correct if any in the following flow chart.**

1. Impulse is formed.
2. Maintains body balance.
3. Movement of the fluid in the vestibular apparatus.
4. Impulses reach the cerebellum through the vestibular nerve.
5. Body movements.
6. The movement of the hair cells. **Marks :(3)**

**Ans:**

1. Body movements.
2. Body movements.
3. Movement of the fluid in the vestibular apparatus.
4. The movement of the hair cells.
5. Impulse is formed.
6. Impulses reach the cerebellum through the vestibular nerve.
7. Maintains body balance.

**Que 80: The hair cells in the internal ear is seen in: Marks :(1)**

- a) In cochlea only.
- b) In vestibule only.
- c) In semicircular canals only.
- d) In vestibular apparatus and cochlea.

**Ans:** d) In vestibular apparatus and cochlea.

**Que 81:** Correct the errors if any in the following statements related to the sensation of taste and arrange them in correct order.

1. Food particles dissolve in saliva.
2. Impulses reach the cerebrum.
3. Experiences the sense of taste.
4. Impulses form.
5. Chemo-receptors are stimulated. *Marks :(2)*

**Ans:**

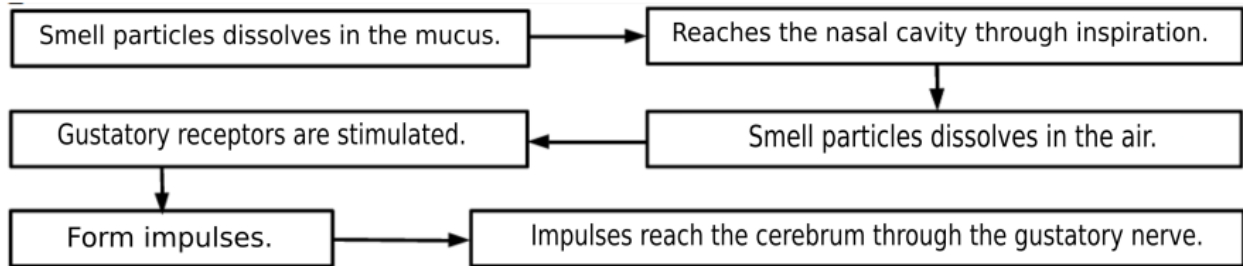
1. Food particles dissolve in saliva.
2. Chemo-receptors are stimulated.
3. Impulses form.
4. Impulses reach the cerebrum.
5. Experiences the sense of taste.

**Que 82:** Using the following hints, prepare a flowchart showing the processes included in the sensation of smell.

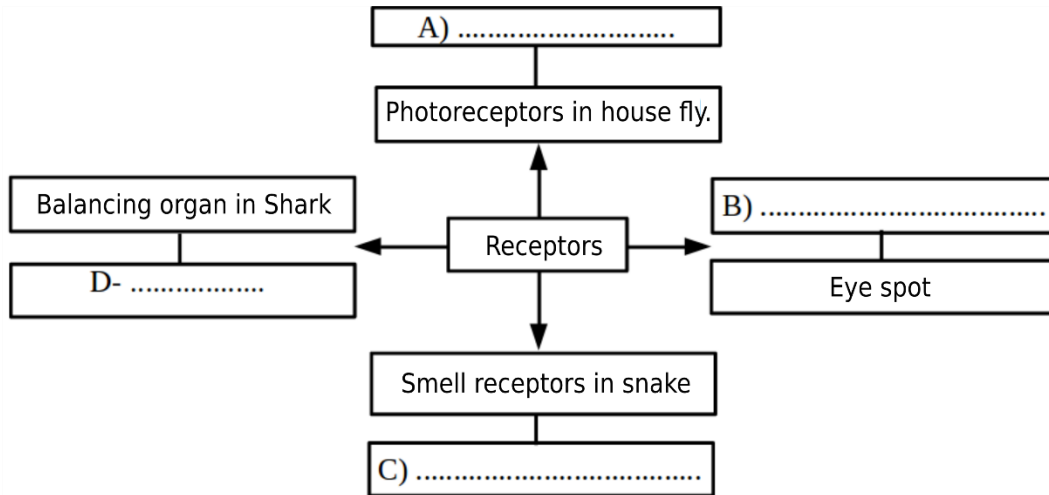
*Marks :(4)*

- a) Impulses reach the cerebrum through the gustatory nerve.
- b) Smell particles dissolves in the mucus.
- c) Gustatory receptors are stimulated.
- d) Smell particles dissolves in the air.
- e) Reaches the nasal cavity through inspiration.
- f) Form impulses.

**Ans:**



**Que 83: Complete the following illustration. Marks :(4)**



**Ans:** A- Ommatidium

B- Planaria

C- Jacobson's organ

D- Lateral line

**Que 84: From the following, select the correct one. Marks :(2)**

a) Prolonged night blindness leads to xerophthalmia.

b) Many blood vessels are seen in Retina.

c) Sound receptors are found in Organ of Corti.

d) Jacobson's organs are located in the tongue of snake.

**Ans:** a) Prolonged night blindness leads to xerophthalmia.

c) Sound receptors are found in Organ of Corti.

**Que 85: From the following, select the correct one. Marks :(2)**

a) Prolonged night blindness leads to xerophthalmia.

b) Many blood vessels are seen in Retina.

c) Sound receptors are found in Organ of Corti.

**d) Jacobson's organs are located in the tongue of snake.**

**Ans:** a) Prolonged night blindness leads to xerophthalmia.

c) Sound receptors are found in Organ of Corti.

**Que 86: Find the word pair and fill.**

**The opaque of lens: Cataract**

.....: **Xerophthalmia. Marks :(1)**

**Ans:** Cornea becomes opaque/ Cornea dries.

**Que 87: From the following, select the reason of the disease, Night blindness.**

i) The deficiency of Vitamin A.

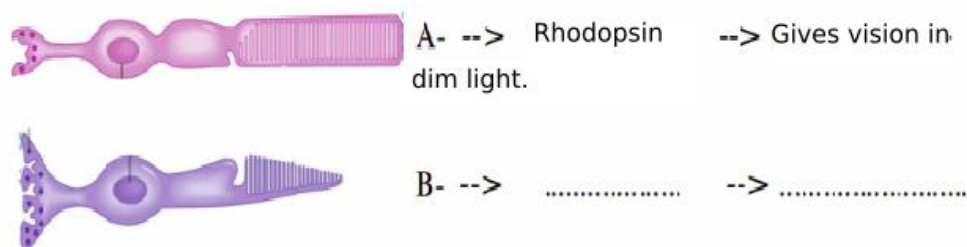
ii) The deficiency of Retinal

iii) The deficiency of rhodopsin

iv) Due to the hindrance of the formation of rhodopsin. **Marks :(1)**

**Ans:** d) All are correct.

**Que 88: Fill the blanks based on the model given. Marks :(2)**



**Ans:** Photopsin/ Iodopsin.....> Helps to identify different colours.

**Que 89: Select the suitable options from the following and arrange them in the following table. Marks :(1)**

1. Helps to detect colours.
2. Night blindness
3. Rhodopsin
4. Helps to see in bright color.
5. Photopsin
6. Helps to see in dim light.

**Rod cells**

**Cone cells**

**Ans:**

Rod cells	Cone cells
Night blindness	Cone cells
Rhodopsin	Helps to see in bright light
Helps to see in dim light	Photopsin

**Que 90: Evaluate the following items in the box and tabulate suitably.**

**Cochlea, semicircular canals, Ear ossicles, Vestibule, Ear canal, utricle**  
**Marks :(2)**

**Ans:**

Related to hearing	Related to body balancing
Cochlea	Semicircular canals
Ear ossicles	Vestibule
Ear canal	Cochlea

**Que 91: Correct the errors if any in the underlined terms in the following statements.**

- Aqueous fluid is formed from the blood.**
- Vitreous fluid is seen in the cavity between the cornea and the lens.**
- Cornea is the transparent part in front of the choroid.**
- Choroid is the layer of the eye with blood vessels. Marks :(2)**

**Ans:** b) Vitreous fluid is seen in the cavity between the cornea and the lens.

d) Choroid is the layer of the eye with blood vessels.

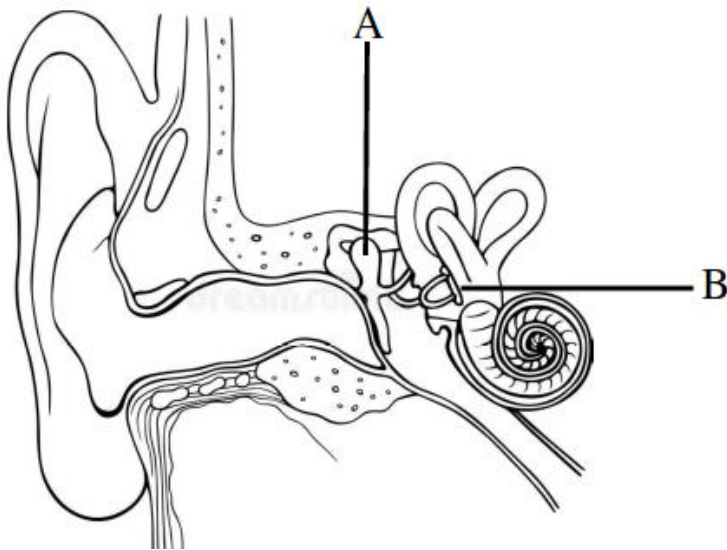
**Que 92: Make pairs using the words given in the following box. Marks :(2)**

**Laser surgery, Cone cells, Rhodopsin, Vitamin A, Glaucoma, Lens replacement, Cataract, Color blindness.**

**Ans:**

- Rhodopsin- Vitamin A
- Color blindness- Cone cells
- Glaucoma- Laser surgery
- Cataract- Lens replacement

**Que 93: Analyse the following figure and answer the questions.**



**a) Identify the figure and name the bone indicated by 'A'.**

**b) Name the membrane attached to 'B'. Marks :(2)**

**Ans:** a) Malleus

b) Oval window.

**Que 94:**



**a) Identify the cell.**

**b) Name the vitamin necessary for the pigment in this cell. Marks :(2)**

**Ans:** a) Rod cell

b) Vitamin A