

Qn No. 1

Chapter Name:2. Windows of knowledge

Qn.

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

Rod cells	Cone cells

Hint.

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

Marks :(3)

Hide Answer

Qn No. 2

Chapter Name:2. Windows of knowledge

Qn.

Arrange columns B and C according to column A.

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

Hint.

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

Marks :(3)

Hide Answer

Qn No. 3

Chapter Name:2. Windows of knowledge

Qn.

Arrange the flowchart correctly.

Hint.
a-c-d-b-e-g-h-f-j-i

Marks :(4)

Hide Answer

Qn No. 4

Chapter Name:2. Windows of knowledge

Qn.
Find the given wordpair relationship and fill.
ear ossicles : transmits the vibrations of tympanum to the internal ear
eustachian tube :

Hint.
An. Helps in maintains the balance of pressure on either side of the tympanum

Marks :(1)

Hide Answer

Qn No. 5

Chapter Name:2. Windows of knowledge

Qn.
We can see nearby and distant objects clearly.
a) The ability of the eye to adjust the focal length is called ----- .
b) What change occurs in the curvature of lens while viewing near objects?
c) How the above change in the curvature of lens is accomplished?

Hint.
a) Power of accommodation of the eye.
b) Curvature of lens increases.
c) Ciliary muscles contract and the ligaments get relaxed.

Marks :(4)

Hide Answer

Qn No. 6

Chapter Name:2. Windows of knowledge

Qn.
From the following, select the correct statements.
1. Semicircular canal and vestibule help in body balancing.
2. Perilymph is seen in the membranous labyrinth of inner ear.
3. Organ of Corti helps in maintaining body balance.
4. The hair cells in semicircular canals helps maintains body balance.

Hint.

1. Semicircular canal and vestibule help in body balancing.

4. The hair cells in semicircular canals help maintain body balance.

Marks :(1)

Hide Answer

Qn No. 7

Chapter Name:2. Windows of knowledge

Qn.

Base on the hints given, complete the column B in accordance with column A.

Eye defect	
Myopia	
Hypermetropia	
Night blindness	
Glaucoma	

Marks :(2)

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.

Hint.

Hide Answer

Qn No. 8

Chapter Name:2. Windows of knowledge

Qn.

The activities related to the sensation of taste is given below. Arrange them in the correct order.

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.

Hint.

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.

Marks :(2)

Hide Answer

Chapter Name:2. Windows of knowledge

Qn.
Answer the following questions related to the sensation of taste.

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

1.

Hint.

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.

Marks :(3)

Hide Answer

Qn No. 10

Chapter Name:2. Windows of knowledge

Qn.

From the following box, select the parts seen in the sclera, choroid and retina.

Conjunctiva, Blind spot, Cornea, Yellow spot, Pupil

Hint.

Sclera- Conjunctiva, cornea

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

Marks :(3)

Hide Answer

Qn No. 11

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

- a) The deficiency of vitamin A causes the deficiency of Rhodopsin. Hence vision in dim light decreases.
- b) Xerophthalmia.

Marks :(2)

Hide Answer

Chapter Name:2. Windows of knowledge

Qn.
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?

Hint.
a) Semicircular canals, vestibule (Utricle and saccule)
b) Organ of Corti/ Cochlea.

Marks :(2)

Hide Answer

Qn No. 13

Chapter Name:2. Windows of knowledge

Qn.
Select the correct pair from the following.

- a) The vibration of stapes : The movement of fluid in cochlea.
b) The hair cells in the basilar membrane: Maintenance of body balance.

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

Marks :(1)

Hide Answer

Qn No. 14

Chapter Name:2. Windows of knowledge

Qn.
Analyse the following table and make suitable pairs based on the parts and their functions.

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

Hint.

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.

Marks :(3)

Hide Answer

Qn No. 15

Chapter Name:2. Windows of knowledge

Qn.

Compare the activities in identifying taste and smell and complete the table.

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.

Hint.

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

Marks :(2)

Hide Answer

Qn No. 16

Chapter Name:2. Windows of knowledge

Qn.

The major parts related to the process of hearing is given. Prepare a flow chart by arranging them from cerebrum to oval window.

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

Hint.

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

Marks :(3)

Hide Answer

Qn No. 17

Chapter Name:2. Windows of knowledge

Qn.

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.
- d) The excess vitreous fluid.

Hint.

- c) The defect in the reabsorption of aqueous fluid.

Marks :(1)

Hide Answer

Qn No. 18

Chapter Name:2. Windows of knowledge

Qn.

Certain parts related to the process of hearing are given below. Write the major functions of each.

- a) Ear ossicles.
- b) Eustachian tube
- c) Round window

Hint.

- 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.

Marks :(3)

Hide Answer

Qn No. 19

Chapter Name:2. Windows of knowledge

Qn.

Write reasons for each of the following statements.

- a) We are able to view objects in three dimensional form.
- b) Vitamin A is needed for the resynthesis of rhodopsin.
- c) The disease glaucoma can be cured by laser treatment.

1.

Hint.

- 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 glaucoma. The reabsorption of aqueous fluid can be rectified by laser surgery.

Hide Answer

Qn No. 20

Chapter Name:2. Windows of knowledge

Qn.
 Arrange the following items related to the process of colour vision in a flow chart suitably.

- 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.

Hint.

- 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.

Marks :(3)

Hide Answer

Qn No. 21

Chapter Name:2. Windows of knowledge

Qn.
 Complete the following table related to photoreceptors.

Characteristics	Rod cells	Cone cells
Shape
Pigment
Function

Hint.

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

Hide Answer

Qn No. 22

Chapter Name:2. Windows of knowledge

Qn.
Copy the following figure and label the parts based on the hints.



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

Hint.
To copy the diagram- 1

a) Retina b) Pupil c) Lens

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

Marks :(4)

Hide Answer

Qn No. 23

Chapter Name:2. Windows of knowledge

Qn.
Analyse the following figure and answer the questions.



- Identify the figure.
- Name the vitamin necessary for the pigment in this cell.

Hint.
a) Rod cell
b) Vitamin A

Marks :(2)

Hide Answer

Qn.
Find the word pair and fill.

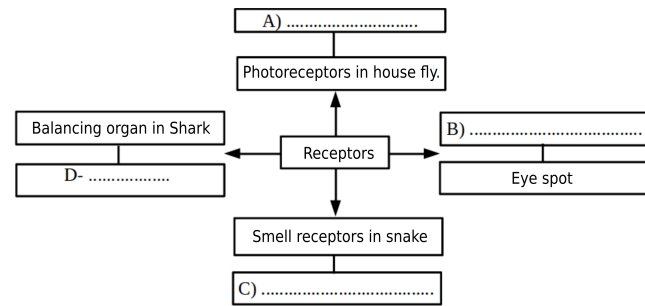
The opaque of lens: Cataract
.....: Xerophthalmia.

Hint.
Cornea becomes opaque/ Cornea dries.

Marks :(1)

Hide Answer

Qn.
Complete the following illustration.



Hint.
A- Ommatidium
B- Planaria
C- Jacobson's organ
D- Lateral line

Marks :(4)

Hide Answer

Qn.
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.

Hint.
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.

Marks :(2)

Hide Answer

Qn No. 27

Chapter Name:2. Windows of knowledge

Qn.
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.

Hint.

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.

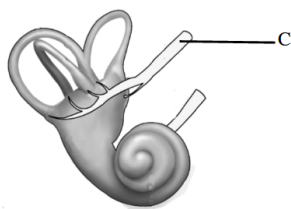
Marks :(3)

Hide Answer

Qn No. 28

Chapter Name:2. Windows of knowledge

Qn.
Observe the given 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?

Hint.

- a) Vestibule, Semicircular canals, Vestibular nerve.
- b) Cerebellum

Hide Answer

Qn No. 29

Chapter Name:2. Windows of knowledge

Qn.
Compare the activities in identifying taste and smell and complete the table.

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.

Hint.
a) Smell particles b) Taste receptors c) Gustatory nerve d) Cerebrum

Marks :(2)

Hide Answer

Qn No. 30

Chapter Name:2. Windows of knowledge

Qn.
Complete the following table related to the structure of the eye.

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

Marks :(4)

Hint.

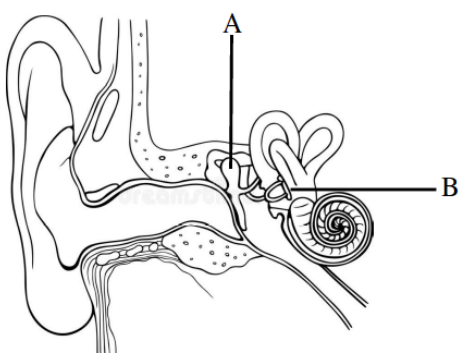
Part	On viewing nearby objects	On viewing distant objects
Ciliary muscles	Contracts	Relaxes
Ligaments	Relaxes	Contracts
The curvature of lens	Increases	Decreases
Focal distance	Decreases	Increases

Hide Answer

Qn No. 31

Chapter Name:2. Windows of knowledge

Qn.
Analyse the following figure and answer the questions given below.



- a) The part where sound receptors are located.
- b) The part that maintains the pressure on both sides of the ear drum.
- c) The part that leads sound waves to auditory canal.

Hint.
To copy the picture – 1 score.

- a) Cochlea
- b) Eustachian tube.
- c) Ear pinna.

(To label correctly- 1x3=3)

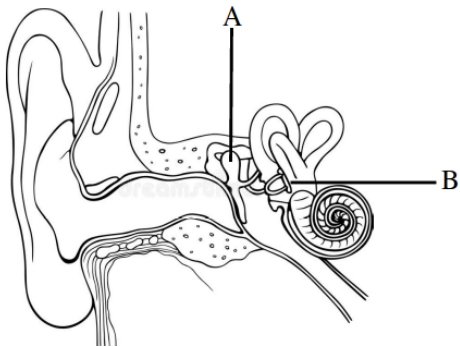
Marks :(4)

Hide Answer

Qn No. 32

Chapter Name:2. Windows of knowledge

Qn.
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'.

- Hint.
- a) Malleus
 - b) Oval window

Marks :(2)

Hide Answer

Chapter Name:2. Windows of knowledge

Qn.
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.

Hint.

- a) Prolonged night blindness leads to xerophthalmia.
- c) Sound receptors are found in Organ of Corti.

Marks :(2)

Hide Answer

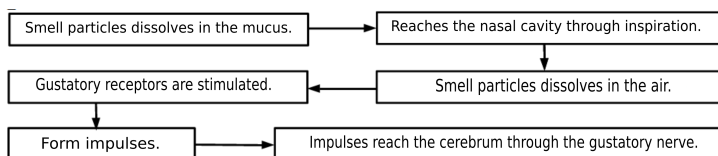
Qn No. 34

Chapter Name:2. Windows of knowledge

Qn.

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)

Hint.

Hide Answer

Qn No. 35

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

- d) In vestibular apparatus and cochlea.

Marks :(1)

Hide Answer

Qn No. 36

Chapter Name:2. Windows of knowledge

Qn.

The following table shows the parts related to the structure of human ear. Identify the missing words.

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

Hint.

A- Auditory canal B- Auditory ossicles, C- Cochlea, D- Vestibule

Marks :(2)

Hide Answer

Qn No. 37

Chapter Name:2. Windows of knowledge

Qn.

Arrange the columns B and C in accordance with column A.

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.

Hint.

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

Marks :(4)

Hide Answer

Qn No. 38

Chapter Name:2. Windows of knowledge

Qn.From the following, select the correct statements.

- a) There is difference in the aminoacids 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.

Hint.

- a) There is difference in the aminoacids of the opsin molecules of the three types of cone cells.
- e) The sound receptors are present in the organ of Corti.

Marks :(2)

Hide Answer

Qn No. 39

Chapter Name:2. Windows of knowledge

Qn.

Select the correct 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- No vision in in dim light.

Hint.

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

Marks :(2)

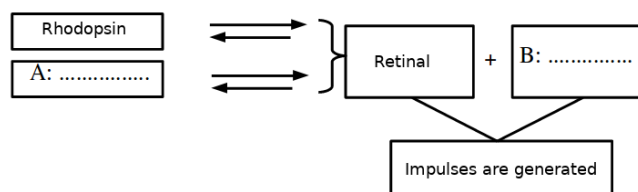
Hide Answer

Qn No. 40

Chapter Name:2. Windows of knowledge

Qn.

Complete the folloing flow chart.



Hint.

A- Photopsin, B- Opsin

Marks :(2)

Hide Answer

Qn No. 41

Chapter Name:2. Windows of knowledge

Qn.
Based on the model, make pairs using the items from the box.

Model: Shark- Lateral line.

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

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

Marks :(2)

Hide Answer

Qn No. 42

Chapter Name:2. Windows of knowledge

Qn.
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.

Hint.
b) i and iii are correct.

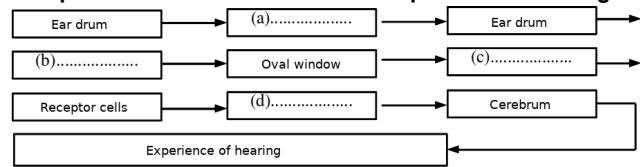
Marks :(1)

Hide Answer

Qn No. 43

Chapter Name:2. Windows of knowledge

Complete the flowchart related to the process of hearing.



Hint.

a) Ear canal b) Ear ossicles c) Cochlea d) Auditory nerve

Marks :(2)

Hide Answer

Qn No. 44

Chapter Name:2. Windows of knowledge

Qn.

Based on the curvature of the eye lens, identify the pictures showing the changes on viewing the distant and nearby objects.



Picture A



Picture B

Hint.

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

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

Marks :(2)

Hide Answer

Qn No. 45

Chapter Name:2. Windows of knowledge

Qn.

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?

Hint.

Ciliary muscles contract

Ligaments relax

Curvature of lens increases

Marks :(3)

Hide Answer

Qn No. 46

Chapter Name:2. Windows of knowledge

Qn.

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

Hint.

a)Xerophthalmia

b)Aqueous humor

c)Vestibular nerve

Marks :(3)

Hide Answer

Qn No. 47

Chapter Name:2. Windows of knowledge

Qn.

Deficiency of Rhodopsin leads to Night blindness and deficiency of Photopsin leads to colour blindness. Evaluate this statement and justify your opinion.

Hint.

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.

Marks :(3)

Hide Answer

Qn No. 48

Chapter Name:2. Windows of knowledge

Qn.

A person is suffering from dryness of his cornea. Formulate any three hypothesis on the circumstances that may lead to this condition.

Hint.

May be deficiency of vitamin A.

Conjunctiva may loses the ability to secrete mucus.

Tear secretion may be blocked.

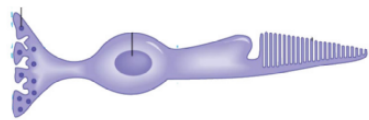
Marks :(3)

Hide Answer

Qn.
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.

Hint.

- 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) .

Marks :(3)

Hide Answer

Qn.
Pick the odd one from the following and justify.
a.Organ of Corti, b.Malleus, c.Umami, d.Incus

Hint.
c.Umami-taste

Marks :(1)

Hide Answer

Qn.
Some of the parts related to the process of hearing are given below. Write the major function of each.

- Ear ossicles
- Eustachian tube
- Round window

Hint.

- 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.

Marks :(3)

Qn No. 52

Chapter Name:2. Windows of knowledge

Qn.

From the following options, select the correct reason for the excess pressure inside the eye in the condition called 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.
- d) The excess amount of vitreous fluid.

Hint.

.c) The defect in the reabsorption of aqueous fluid.

Marks :(1)

Hide Answer

Qn No. 53

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

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

Marks :(3)

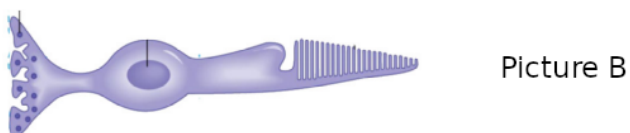
Hide Answer

Qn No. 54

Chapter Name:2. Windows of knowledge

Qn.

.Observe the following figures and answer the questions.



- a) Identify the picture A and B.
- b) Deficiency of the pigment of which cell causes night blindness?
- c) The defect of which cell causes color blindness.

Hint.

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

Marks :(3)

Hide Answer

Qn No. 55

Chapter Name:2. Windows of knowledge

Qn.

Compare the activities given in the table to identify the taste and smell and complete suitably.

- | | |
|--|------------------------------------|
| 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. |

- Hint.
- a) Smell particles b) Taste receptors c) Gustatory nerve d) Cerebrum

Marks :(2)

Hide Answer

Qn No. 56

Chapter Name:2. Windows of knowledge

Qn.
Answer the following questions.

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

- Hint.
- 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 aminoacid in the opsin molecule.

Marks :(4)

Hide Answer

Qn.

Select the suitable pair from the following.

- a) The movement of fluid in cochlea: The vibration of Stapes.
- b) The hair cells in the basilar membrane: Maintenance of body balance.

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

Marks :(1)

Hide Answer

Qn.

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?

Hint.

- a) Semicircular canals, vestibule (Utricle and saccule)
- b) Organ of Corti and Cochlea.

Marks :(2)

Hide Answer

Qn.

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.

Hint.

- b) i, iii are correct.

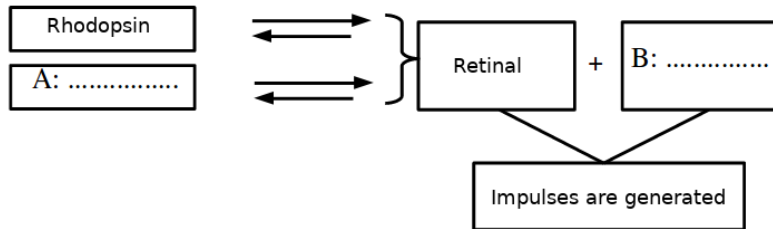
Hide Answer

Qn No. 60

Chapter Name:2. Windows of knowledge

Qn.

Complete the flow chart.



Hint.

A- Photopsin, B- Opsin

Marks :(2)

Hide Answer

Qn No. 61

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

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

Marks :(1)

Hide Answer

Qn No. 62

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

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.

Marks :(2)

Hide Answer

Qn No. 63

Chapter Name:2. Windows of knowledge

Qn.

Arrange the items in column A in accordance with the items in Column B.

A

Braille letter

Cone cells

Vitreous fluid

Aqueous fluid

B

Nutrients to eye tissues

The shape of the eye ball.

Iodopsin

Touch receptors

Eye spot

Hint.

A

Braille letter

Cone cells

Vitreous fluid

Aqueous fluid

B

Touch receptors

Iodopsin

The shape of the eye ball.

Nutrients to eye tissues

Marks :(2)

Hide Answer

Qn No. 64

Chapter Name:2. Windows of knowledge

Qn.

Evaluate the following items in the box and tabulate suitably.

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

Hint.

Related to hearing

Cochlea

Ear ossicles

Ear canal

Related to body balancing

Semicircular canals

Vestibule

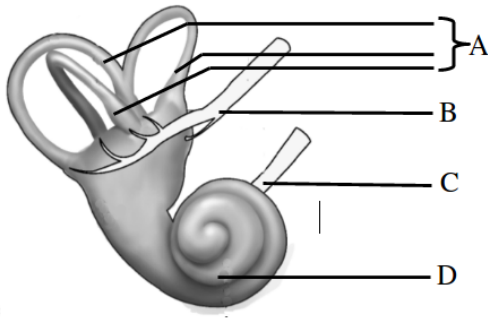
Cochlea

Marks :(4)

Hide Answer

Chapter Name:2. Windows of knowledge

Qn.
Observe the following figure and answer the following questions.



- a) Identify the parts labelled 'B' and 'D'.
b) Write the functions of the parts A and C.

Hint.
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.

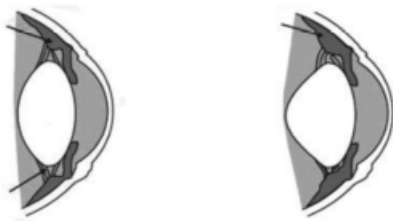
Marks :(3)

Hide Answer

Qn No. 66

Chapter Name:2. Windows of knowledge

Qn.
Based on the curvature of the eye lens, identify the pictures which show the changes while viewing the distant and nearby objects.



Picture A

Picture B

Hint.
The picture showing the changes in viewing nearby objects- Picture B
The picture showing the changes in viewing distant objects- Picture A

Marks :(1)

Hide Answer

Qn No. 67

Chapter Name:2. Windows of knowledge

Qn.
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.

Hint.

- 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.

Marks :(2)

Hide Answer

Qn No. 68

Chapter Name:2. Windows of knowledge

Qn.
Based on the model, make pairs using the items from the box.

Model: Shark- Lateral line.

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

Hint.

Planaria- Eye spot

Snake- Jacobson's organ

Snake- Lateral line

House fly- Ommatidium

Marks :(2)

Hide Answer

Qn No. 69

Chapter Name:2. Windows of knowledge

Qn.
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.

Hint.

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

b) Xerophthalmia.

Marks :(2)

Hide Answer

Qn No. 70

Chapter Name:2. Windows of knowledge

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.

Hint.

- a) The deficiency of vitamin A causes the deficiency of Rhodopsin. Hence vision in dimlight decreases.
- b) Xerophthalmia.

Marks :(2)

Hide Answer

Qn No. 71

Chapter Name:2. Windows of knowledge

Qn.

The activities related to the sensation of taste is given below. Arrange them in the correct order.

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

Hint.

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

Marks :(2)

Hide Answer

Qn No. 72

Chapter Name:2. Windows of knowledge

Qn.

Base on the hints given, complete the column B in accordance with column A.

Eye defect

Myopia

Hypermetropia

Night blindness

Glaucoma

Hint.

Eye defect

Solution

Myopia

Use of spectacles with Concave lens

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.

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

Marks :(4)

Hide Answer

Qn No. 76 Chapter Name:2. Windows of knowledge

Qn.
Arrange the columns B and C in accordance with column A.

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.

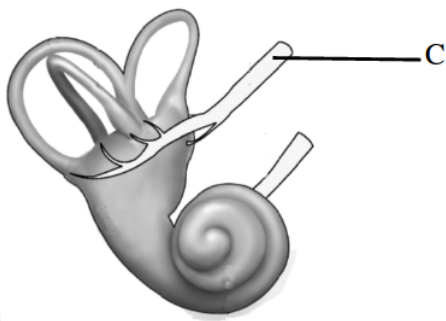
Hint.		
A	B	C
i) Myopia	Short eye ball	Spectacles with concave lens
ii)Cataract	Opaqueness of lens	Spectacles with convex lens
iii)Glaucoma	Increasing pressure in the eye	Laser surgery
iv)Conjunctivitis	Bacteria	Maintain personal hygiene.

Marks :(4)

Hide Answer

Qn No. 77 Chapter Name:2. Windows of knowledge

Qn.
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?

Hint.

- a) Vestibule, Semicircular canals, Vestibular nerve.
 b) Cerebrum

Marks :(4)

Hide Answer

Qn No. 78

Chapter Name:2. Windows of knowledge

Qn.

The following table shows the parts in the structure of human ear. Identify the missing words.

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

Hint.

A- Auditory canal B- Auditory ossicles, C- Cochlea, D- Vestibule

Marks :(2)

Hide Answer

Qn No. 79

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

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.

Marks :(3)

Hide Answer

Qn No. 80

Chapter Name:2. Windows of knowledge

Qn.

The hair cells in the internal ear is seen in:

a) In cochlea only.

b) In vestibule only.

c) In semicircular canals only.

d) In vestibular apparatus and cochlea.

Hint.

d) In vestibular apparatus and cochlea.

Marks :(1)

Hide Answer

Qn No. 81

Chapter Name:2. Windows of knowledge

Qn.

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.

Hint.

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.

Hide Answer

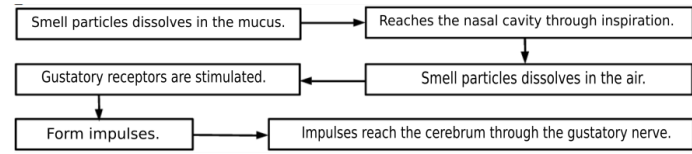
Qn No. 82

Chapter Name:2. Windows of knowledge

Qn. Using the following hints, prepare a flochart 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.

Hint.



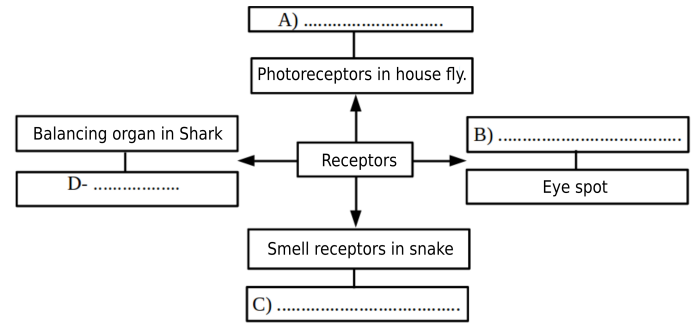
Marks :(4)

Hide Answer

Qn No. 83

Chapter Name:2. Windows of knowledge

Qn. Complete the following illustration.



- Hint.
- A- Ommatidium
 - B- Planaria
 - C- Jacobson's organ
 - D- Lateral line

Marks :(4)

Hide Answer

Qn No. 84

Chapter Name:2. Windows of knowledge

Qn.
From the following, 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.

Hint.
a) Prolonged night blindness leads to xerophthalmia.
c) Sound receptors are found in Organ of Corti.

Marks :(2)

Hide Answer

Qn No. 85

Chapter Name:2. Windows of knowledge

Qn.
From the following, 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.

Hint.
a) Prolonged night blindness leads to xerophthalmia.
c) Sound receptors are found in Organ of Corti.

Marks :(2)

Hide Answer

Qn No. 86

Chapter Name:2. Windows of knowledge

Qn.
Find the word pair and fill.

The opaque of lens: Cataract

.....: Xerophthalmia.

Hint.
Cornea becomes opaque/ Cornea dries.

Hide Answer

Marks :(1)

Qn.
From the following, select the reason of the disease, Night blindness.

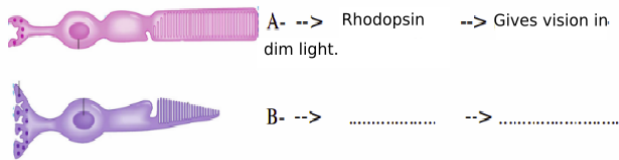
- i) The deficiency of Vitamin A.
- ii) The deficiency of Retinal
- iii) The deficiency of rhodopsin
- iv) Due to the hindrance of the formation of rhodopsin.

Hint.
d) All are correct.

Marks :(1)

Hide Answer

Qn.
Fill the blanks based on the model given.



Hint.
Photopsin/ Iodopsin.....> Helps to identify different colours.

Marks :(2)

Hide Answer

Qn.
Select the suitable options from the following and arrange them in the following table.

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

Hint.
Rod cells

Cone cells

Night blindness

Cone cells

Rhodopsin

Helps to see in dim light

Photopsin

Helps to see in bright light

Marks :(1)

Hide Answer

Qn No. 90

Chapter Name:2. Windows of knowledge

Qn.
Evaluate the following items in the box and tabulate suitably.

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

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

Marks :(2)

Hide Answer

Qn No. 91

Chapter Name:2. Windows of knowledge

Qn.
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.

Hint.
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.

Marks :(2)

Hide Answer

Qn No. 92

Chapter Name:2. Windows of knowledge

Qn.
Make pairs using the words given in the following box.

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

Hint.

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

Marks :(2)

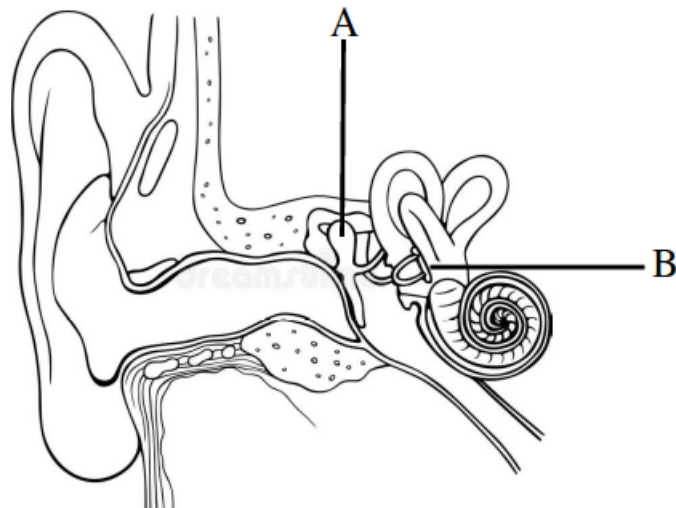
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Qn No. 93

Chapter Name:2. Windows of knowledge

Qn.

Analyse the following figure and answer the questions..



- Identify the figure and name the bone indicated by 'A'.
- Name the membrane attached to 'B'.

Hint.

- Malleus
- Oval window.

Marks :(2)

Hide Answer

Qn No. 94

Chapter Name:2. Windows of knowledge

Qn.



- Identify the cell.
- Name the vitamin necessary for the pigment in this cell.

Hint.

- Rod cell
- Vitamin A

Hide Answer