



# Histology

*level 2*  
CNS  
2023

# MCQs

**Receptors & Ear**

L3

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### MCQ on Receptors & Ear

1. Touch receptor present in the basal layer of epidermis of sole is:
  - Pacinian corpuscle
  - Meissner's corpuscle
  - Merkel's complex
  - Ruffini corpuscle
  - Krause end bulb
2. Part of ear that directs sound waves towards external auditory unit is known as:-
  - Ear pinna
  - Ear canal
  - Eustachian tube
  - Ear drum
  - Ear lobe
3. Where are the sensory receptors for hearing:-
  - Saccule
  - Utricle
  - Organ of Corti
  - Semicircular canals
  - Utricle and saccule
4. Organ of Corti is a receptor for:-
  - Visceral sensations
  - Proprioception
  - Kinesthesia
  - Cutaneous sensation
  - Hearing sensation





## Receptors &amp; Ear

5. Which of the following is encapsulated receptor found in dermal papillae of skin especially on lips and fingers:-

- a) Merkel's discs
- b) Free nerve endings
- c) Meissner's corpuscles
- d) Ruffini corpuscles
- e) Golgi's tendon organ

6. Nuclear bag fibers of the muscle spindle:-

- a) Are numerous in number.
- b) Are thin and short.
- c) Have expanded central part.
- d) Contain a chain of nuclei.
- e) Have both primary and secondary afferent nerve endings

7. Which cell type is the receptor cell within the organ of Corti:-

- a) Cells of Hansen.
- b) Hair cells.
- c) Inner border cells.
- d) Outer phalangeal cells.
- e) Inner pillar cells

8. The ear auricle refers to:-

- a) The tube that carries sound deeper inside ear
- b) Thin sheet that vibrates when sound hits it
- c) The fluid in the inner ear
- d) Funnel shaped structure that collects sound from outside
- e) Bones in the middle ear

9. The tympanic membrane is lined by:

- a) Simple squamous epithelium on the middle ear side
- b) Cuboidal epithelium on the external ear side
- c) Cuboidal epithelium on the middle ear side
- d) Skin on the middle ear side
- e) Simple squamous epithelium on the external ear side





## Receptors &amp; Ear

**10. Which of the following receptors is not involved in kinesthesia perception:**

- a) Golgi tendon organ
- b) Muscle spindle
- c) Ruffini ending in joints
- d) Pacinian corpuscle
- e) Free nerve endings

**11. The middle ear contains which of the following structures:-**

- a) The modiolus
- b) The labyrinth
- c) The vestibular apparatus
- d) The ossicles
- e) The perilymph

**12. Parts of the inner ear responsible for sense of balance are:**

- a) Saccule & malleus
- b) Utricle & stapes
- c) SCC & vestibule
- d) Cochlea & SCC
- e) Cochlea & vestibule

**13. Which of the following structures is present between middle and inner ear:**

- a) Malleus
- b) Incus
- c) Oval window
- d) Pinna
- e) Tympanic membrane

**14. It receives sound vibrations and passes to ear drum:**

- a) Outer ear
- b) Middle ear
- c) Inner ear
- d) Eustachian tube
- e) Labyrinth

**15. The membranous labyrinth contains:**

- a) Cystolymph
- b) Otolymph
- c) Perilymph
- d) Endolymph





## Receptors &amp; Ear

**16. Which of the following receptors is responsible for proprioception:-**

- a) Muscle spindle
- b) Pacinian corpuscle
- c) Free nerve endings
- d) Tendon spindle
- e) Joint receptor

**17. Meissner's corpuscle is present in:-**

- a) Deep in the hypodermis
- b) Around hair follicle
- c) Dermo-epidermal border
- d) In the dermal papillae
- e) Between the muscle fibers

**18. Which of the following receptors is a rounded corpuscle:**

- a) Muscle spindle
- b) Pacinian corpuscle
- c) Ruffini corpuscle
- d) Meissner's corpuscle
- e) Krause end bulb

**19. Which structure in the cochlea analogues in composition and function to cupula in SCC:**

- a) Pillar cells
- b) Tectorial membrane
- c) Spiral ganglia
- d) Hair cells
- e) Sacculle

**20. Regarding hair cells of the organ of corti:**

- a) The inner hair cells are arranged in 3-5 rows on the inner phalangeal cells
- b) The outer hair cells are arranged in 1 row on the outer pillar cells
- c) The surface of the cell is provided with hair-like processes called stereocilia
- d) The inner hair cells are arranged in 1 row in the inner pillar cells
- e) Act as receptor for balance





## Receptors &amp; Ear

**21. Otolithic membrane is located in:**

- a) The ampulla of semicircular canal
- b) The cochlea
- c) The endolymphatic sac
- d) The modiolus
- e) The utricle

**22. Site of Peritrichial free nerve endings:**

- a) Dermo-epidermal border
- b) Dermal papillae
- c) Deep dermis
- d) CT sheath at base of hair follicle
- e) Hypodermis

**23. Organ of corti rests on:**

- a) Vestibular membrane
- b) Basilar membrane
- c) Tectorial membrane
- d) Scala vestibuli
- e) Scala tympani

**24. Otolithic membrane covers:**

- a) Macula
- b) Crista ampullaris
- c) Organ of corti
- d) Oval window
- e) Round window

**25. The auricle of the ear is characterized by:**

- a) It contains a plate of yellow elastic cartilage.
- b) It is covered by thin skin.
- c) Irregular shallow funnel.
- d) All of the above.
- e) None of the above.





## Receptors &amp; Ear

- 26. The external auditory meatus does not contain:**
- Thick skin.
  - Hair follicles.
  - Ceruminous glands.
  - Bony canal.
  - None of the above.
- 27. The tympanic membrane has all the following characters except:**
- Contains hair follicle.
  - Contains collagen fibers.
  - Covered by thin epidermis externally
  - Transmits sound waves to the middle ear.
  - Gives attachment to the bony ossicles.
- 28. All these statements concerning the middle ear are correct except:**
- It contains 3 ossicles.
  - The Eustachian tube is connected anteriorly to it.
  - Its medial wall is formed of tympanic membrane.
  - The oval and round windows are situated within its medial wall.
  - Its main function is to transmit sound vibrations.
- 29. The middle ear is lined mainly by:**
- Stratified squamous epithelium.
  - Simple squamous epithelium.
  - Simple cuboidal epithelium.
  - Stratified columnar epithelium.
  - Transitional epithelium.
- 30. The Lumen of the cochlea is divided into:**
- Two compartments.
  - Three compartments.
  - Four compartments.
  - Five compartments.
  - Only one compartment.





## Receptors &amp; Ear

**31. The Scala vestibuli:**

- a) Constitutes the lower part of the cochlea.
- b) Encloses the spiral lamina.
- c) Give origin to the vestibular nerve.
- d) Forms the upper part of the cochlea.
- e) Represents the membranous labyrinth of the vestibule

**32. The crista ampullaris and the macula of the saccule are similar in structure EXCEPT in:**

- a) Gelatinous glycoprotein in which the cells are embedded.
- b) The type of their receptor cells.
- c) The presence of otolithic crystals.
- d) The presence of stereocilia in their receptor cells.
- e) Abundant lysosomes in the sensory cells.

**33. The bony labyrinth is formed of:**

- a) Mastoid air cells and middle ear.
- b) Membranous utricle and saccule.
- c) Membranous saccule, utricle and endolymphatic duct.
- d) Three semicircular canals, bony cochlea and vestibule.
- e) All of the above.

**34. Stria vascularis are present in:**

- a) The lateral wall of the middle ear.
- b) The lateral wall of the inner ear.
- c) The lateral wall of cochlear duct.
- d) The tunnel of Corti.
- e) The scala vestibuli.

**35. All these cells are supporting cells EXCEPT:**

- a) Pillar cells.
- b) Border cells.
- c) Phalangeal cells.
- d) Hensen's cells.
- e) Hair cells.





## Receptors &amp; Ear

**36. Membranous labyrinth:**

- a) Contains endolymph.
- b) Contains perilymph.
- c) Surrounds the bony labyrinth.
- d) Contains auditory ossicles.
- e) All of the above.

**37. The hair cells of the organ of Corti are:**

- a) Supporting cells.
- b) Neuroepithelial cells.
- c) Secreting cells.
- d) Neuroglial cells
- e) None of the above.

**38. Which of the following is not part of the middle ear:**

- a) Auditory ossicles
- b) Auditory tube
- c) Auricle
- d) Tympanic membrane

**39. Which of the followings is characteristic of the cochlea:**

- a) Cristae ampullaris
- b) Maculae
- c) Glycoprotein layer cupula
- d) Tectorial membrane
- e) All of the above

**40. Where is the organ of Corti:**

- a) Saccule
- b) Utricle
- c) Crista ampullaris
- d) Semicircular canals
- e) Cochlea

**41. Which of the following structures contains endolymph:-**

- a) Scala vestibuli.
- b) Scala tympani
- c) Cochlear duct
- d) Bony SCC
- e) Bony vestibule





## Receptors &amp; Ear

**42. Regarding the ear:**

- a) The auricle is supported with hyaline cartilage.
- b) External auditory meatus is lined with stratified squamous keratinized epithelium
- c) The outer two thirds of the wall of external auditory meatus contains yellow elastic fibro-cartilage.
- d) Inner third of the wall of external auditory meatus is formed of spongy bone.
- e) Ear drum is lined by squamous epithelium on middle ear side.

**43. The tympanic cavity:**

- a) Communicates with oropharynx by Eustachian tube.
- b) Has 3 muscles
- c) Has 3 windows
- d) Has 3 bony ossicles
- e) Lined by simple squamous epithelium

**44. In organ of corti one of the followings is true:**

- a) Basilar membrane is lined by simple squamous epithelium
- b) Basilar membrane is formed of vascular C.T.
- c) Tectorial membrane is a jelly like substance Projects from the lateral angle of the cochlear duct.
- d) Cells of Hensen's form the outer most supporting cells
- e) Cells of Boettcher form the inner most supporting cells.

**45. The cochlear duct:**

- a) Separated from the scale tympani by the vestibular membrane
- b) Separated from the scale vestibuli by the basilar membrane
- c) Is filled with perilymph
- d) Organ of Corti is lying on vestibular membrane.
- e) The tectorial membrane present at its medial angle.

**46. Regarding vestibular system:**

- a) Maculae regulate position of body in relation to movements of head
- b) Cristae maintain the body equilibrium in relation to gravity.
- c) Otolithic membrane contains more calcium carbonate crystals
- d) Cross section of membranous vestibule is triangular.
- e) Saccule lies posterior to Utricle.





## Receptors &amp; Ear

47. Which of the following cells are arranged in 3-5 rows:-
- a) Hensen's cells
  - b) Claudius cells
  - c) Outer hair cells
  - d) Inner hair cells
  - e) Border cells
48. One of the following is an encapsulated receptor:
- a) Nocireceptors
  - b) Plexus of Bonnet
  - c) Thermoreceptors
  - d) Meissner's corpuscle
  - e) Merkel's complex
49. One of the following is true about nuclear chain fibers:
- a) Are extrafusal fibers of muscle spindles
  - b) Are few in number
  - c) Are thin and short
  - d) Contain a bag of nuclei
  - e) Have only 1ry endings
50. In Meissner's corpuscle, one of the following is true:
- a) Present in dermal papillae especially in fingers
  - b) Oval in shape with long axis parallel to the skin surface
  - c) Has a thin C.T capsule
  - d) Contains modified Schwann cells arranged in 20-80 layers
  - e) Contain axially arranged collagen fibers
51. Which of the following receptors has onion shape on long section:
- a) Merkel complex
  - b) Meissner's corpuscle
  - c) Ruffini corpuscle
  - d) Pacinian corpuscle
  - e) Krause end bulb





## Receptors &amp; Ear

*Answers*

1	C	18	E	35	E
2	A	19	B	36	A
3	C	20	C	37	B
4	E	21	E	38	C
5	C	22	D	39	D
6	C	23	B	40	E
7	B	24	A	41	C
8	D	25	D	42	B
9	C	26	A	43	D
10	E	27	A	44	D
11	D	28	C	45	E
12	C	29	C	46	C
13	C	30	B	47	C
14	A	31	D	48	D
15	D	32	C	49	C
16	B	33	D	50	A
17	D	34	C	51	D

