

**Q.4 (D) Comment on T.S of Mammalian Testis**

- Name the connective tissue covering of testis.
  - **Tunica albugenia**
- What is spermatid ?
  - **Non-functional, non-motile**, haploid male gamete is called spermatid.
- What are spermatozoa ?
  - **Functional, motile**, haploid male gametes.
- Name the structural & functional units of testis / name the site of sperm production.
  - **Seminiferous tubules**
- Name the two types of cells found in inner lining of seminiferous tubule.
  - **Spermatogonia** and **Sertoli cells**
- What is the functional role of Sertoli cells ?
  - **Nourishing** the sperms /spermatocytes
- Name the hormones that stimulates spermatogenesis.
  - **ICSH** (interstitial cell stimulating hormone) and **androgens**
- Name the cells that secrete androgens (testosterone and androsterone).

(OR)

Name the cells present in the spaces between the seminiferous tubules.

- **Leydig cells** = Interstitial cells
- Name the sequence of different cell stages of spermatogenesis.
  - Spermatogonia, primary spermatocytes, secondary spermatocytes, spermatids and spermatozoa.

**Q.4 (D) Comment on T.S of Mammalian Ovary**

- What is Graafian follicle ?
  - The **mature follicle** with well developed antrum and secondary oocyte.
- What is antrum ?
  - The **fluid filled cavity** present in Graafian follicle.
- Name the sequence of different cell stages of oogenesis.
  - Oogonia, primary oocytes, secondary oocytes, ootid / egg.
- What is ovulation ?
  - **Releasing** of secondary oocyte from the ovary by the rupturing of Graafian follicle.
- Name the hormone which stimulates ovulation.
  - **Luteinising hormone (LH)**
- What is corpus luteum ?
  - **Post-ovulatory phase** of Graafian follicle, which acts as a temporary endocrine gland.

- Name the hormone produced by corpus luteum.
  - **Progesterone**, also called **pregnancy hormone**
- What is corpus albicans ?
  - The **degenerating** stage of corpus luteum when the egg is not fertilized.

**Q.4 (D) Comment on V.S of Blastocyst**

- What are the main structures that you observe in T.S. of blastula ?
  - Blastoderm (trophoblast layer), inner cell mass, blastocoel cavity, zona pellucida, cells of Rauber.
- What is Blastocyst ?
  - **Single germ layered** embryo of mammals / human.
- What is blastulation ?
  - Formation of **single germ layered** embryo called blastula from morula / zygote.
- Name the outer single cell layer (germ layer) in blastocyst
  - **Trophoblast / Blastoderm**
- Name the fluid filled cavity present in blastocyst.
  - **Blastocoel**
- Name the earlier stage of embryo with solid ball of cells prior to blastula.
  - **Morula**
- Name the later stage of embryo next to blastula.
  - **Gastrula**
- Name the part of the blastula which develops into embryo proper.
  - **Inner cell mass / Embryoblast**
- What are cells of Rauber ?
  - These are **trophoblast cells** that cover the inner cell mass
- What is implantation ?
  - **Attachment** / anchorage of **blastocyst** to the wall of uterus ie, endometrium.

**Q5. (E) Comment on disease causing Organisms – Entamoeba histolytica**

- Name the two pathogenic protozoans
  - *Entamoeba* and *Plasmodium*
- What is the scientific name of Entamoeba ?
  - **Entamoeba histolytica**
- To which phylum Entamoeba belongs ?
  - **Phylum Protozoa / kingdom protista**
- Name the locomotory organelle of Entamoeba.
  - Single **pseudopodium**

- Plasmodium belongs to which phylum ?
  - Phylum **Protozoa**
- Name the disease caused by entamoeba.
  - **Amoebic dysentery / Amoebiasis**
- What are symptoms of Amoebiasis ?
  - Constipation, abdominal pain and cramps / spasms, frequent loose mucus filled watery stools, and blood clots.
- What is endoparasite ?
  - Parasite which lives inside the body of host / within the host cells.

**Q5. (E) Comment on disease causing Organisms – Plasmodium vivox**

- Which is the vector for malarian parasite ?
  - **Female Anopheles** mosquito
- Why Plasmodium is called digenetic parasite ?
  - Because it requires **two hosts** to complete its life cycle.
- Name the two hosts in which plasmodium completes its life cycle.
  - **Man** (primary host) and **mosquito** (secondary host).
- Name the disease caused by **Plasmodium vivox**.
  - Malaria
- Name the most diagnostic stage of malarian parasite in man.
  - **Signet ring** stage
- Name the infective stage of malarian parasite in man
  - **Sporozoite**
- What is the scientific name of malarian parasite ?
  - **Plasmodium vivox**
- To which phylum Entamoeba belongs ?
  - **Phylum Protozoa / kingdom protista**
- Which cells of malarian patient are infected by plasmodium ?
  - RBC – red blood corpuscles
- Name the two life cycles of plasmodium.
  - **Asexual cycle** in man and **sexual cycle** in mosquito.
- Mention the symptoms of malaria
  - release of a toxic substance, **haemozoin**, chilled fever,
  - and high fever **recurring** every three to four days.

**➤ Q5. (E) Comment on disease causing Organisms – Ascaris lumbricoides**

- Name the phylum to which Ascaris belongs.
  - Phylum **Aschelminthes**
- What is the scientific name of round worm ?  
**Ascaris lumbricoides**
- Why Ascaris is called monogenetic parasite ?
  - Because it requires **only one host** to complete its life cycle.
- Name the host organism for round worm.
  - **Human**, more common in children.
- Name the site in which round worm is inhabited in man as a parasite.
  - In **small intestine**
- How can you identify male Ascaris ?
  - By characters like short body, curved posterior end with penial setae (copulatory spicules)
- How can you identify female Ascaris ?
  - By characters like long body, straight posterior end without penial setae,
- Name the endoparasite in human small intestine
  - **Ascaris lumbricoides**
- Name the disease caused by Ascaris lumbricoides.
  - Ascariasis
- Mention the symptoms of Ascariasis.
  - internal bleeding, muscular pain (fatigue), fever, anemia and blockage of the intestinal passage, Irregular bowel, Indigestion, loss of appetite.
- How the round worm is infected to man / child ?
  - A healthy person acquires this infection through contaminated soil, water, vegetables, fruits, etc

**➤ Q5. (E) Comment on disease causing Organisms – Trichophyton rubrum**

- **Name the skin fungal parasite**
  - **Trichophyton rubrum**
- **What is the causative agent of ringworm disease ?**
  - **Trichophyton rubrum, a fungus**
- What is the scientific name of ring worm ?
  - **Trichophyton rubrum**
- What is the common name of Trichophyton rubrum ?
  - **Ring worm**
- **What does the ringworm feed on**
  - **Keratin of skin, scalp and nails**

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- What are symptoms of ring worm disease ?
  - Appearance of dry, scaly lesions on skin, nails and scalp, accompanied by intense itching.
- *Trichophyton* belongs to which group/ class?
  - **Fungi / Deuteromycetes**
- Name different genera to which ring worm belongs.
  - Ring worm belongs genera **Microsporum**, **Trichophyton** and **Epidermophyton**.
- Which conditions help to grow this fungi ?
  - Heat and moisture help these fungi to grow

### Q.6 (F) Wing of bird + Fore limb of man

- What are homologous organs ?
  - The organs of different organisms which are **similar** in **anatomy** / morphological structure and origin but **different in function**.
- Give an example for homologous organs in animals.
  - **Wing of bird + Fore limb (bones /skeleton) of human**
- What does the wing of bird and fore limb of man indicate in view of evolution ?
  - **Homologous organs**
- What is the similarity between **wing of bird and fore limb** of man ?
  - They share **similar anatomical** structure – ie, pattern of bones. Both of them have humerus, radius, ulna, carpals, metacarpals and phalanges in their forelimbs.
- What is the functional dissimilarity between wing of **bird and fore limb** of man ?
  - Wings of bird help in **flying** whereas in man fore limbs help in **handling** tools, holding objects.
- What does homologous organs indicate ?

(OR)

What kind of evolution does homologous organs signify ?

- Homologous organs indicate **common ancestry** and **divergent evolution** due to **different habitats / needs**

### Q.6 (F) Scale leaves of onion + spines of opuntia / cactus

- What are homologous organs ?
  - The organs of different organisms which are **similar** in **anatomy** / morphological structure and origin but **different in function**.
- Give an example for homologous organs in plants.
  - Scale leaves of onion+spines of opuntia/cactus

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- What does the scale leaves of onion and spines of opuntia indicate in view of evolution ?
  - **Homologous organs**
- What is the similarity between scale leaves of onion and spines of opuntia / cactus ?
  - They share **similar anatomical** structure – ie both are modified structures of **leaves**.
- How does the scale leaves of onion differ from spines of opuntia ?
  - In onion scale leaves are fleshy and **stores food**, whereas in opuntia spines are **defensive** in function.
- What does homologous organs indicate ?

(OR)

What kind of evolution does homologous organs signify ?

- Homologous organs indicate **common ancestry** and **divergent evolution** due to **different habitats / needs**.
- Name the leaf modifications in opuntia.
  - In opuntia leaves are modified into spines

### ➤ Q.6 (F) Wing of insect (cockroach) + wing of bird

- What are analogous organs ?
  - The organs of different organisms which are **similar in function** but **different in their anatomy** / morphological structure and origin.
- Give an example for analogous organs in animals.
  - **Wing of insect (cockroach) and wing of bird**.
- What does the wing of cockroach and wing of bird indicate in view of evolution ?
  - Analogous organs.
- How does the wing of cockroach differ from wing of bird ?
- Anatomically **wing of cockroach** with veins and nerves supported by trachea and chitinous exoskeleton. Whereas **wing of bird** is supported by fore limb **skeleton** (bones), muscles and covered with feathers.
- What does analogous organs indicate ?

(OR)

What kind of evolution does analogous organs signify ?

- Analogous organs indicate **different ancestry** and **convergent evolution** due to **similar habitat / needs**.

**Q.6(F) Rhizome of ginger + conical root in carrot**

**(OR)**

**Tuber in potato + fusiform root in radish**

**(any one set in the above)**

- What are analogous organs ?
  - The organs of different organisms which are **similar in function** but **different in their anatomy** / morphological structure and origin
- Give an example for analogous organs in plants.
  - Rhizome of ginger and conical root in carrot
  - Tuber in potato + fusiform root in radish
- What does the rhizome of ginger and conical root in carrot indicate in view of evolution ?
  - Analogous organs.
- How does the ginger differ from carrot ?
  - **Anatomically Rhizome in ginger** is an **underground stem** modification with nodes, internodes and scale leaves. Where as **conical root in carrot** is a tap root modification.
- What is the similarity between ginger and carrot ?
  - Both rhizome & conical root show similar function, that is **storage of food in the form of starch indicating analogous organs.**
- What does analogous organs indicate ?

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(OR)

What kind of evolution does analogous organs signify ?

- Analogous organs indicate **different ancestry** and **convergent evolution** due to **similar habitat / needs.**
- What does analogous organs indicate ?

(OR)

What kind of evolution does analogous organs signify ?
  - Analogous organs indicate **different ancestry** and **convergent evolution** due to **similar habitat / similar need.**
- What does forelimb of bat and wing of cockroach indicate in view of evolution ?
  - Analogous organs.

Concluded .....