

[KD 224]      APRIL 2001      Sub. Code : 2237

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Branch V — Anatomy

Paper III — HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES

Time : Three hours

Maximum : 100 marks

1. Describe the histological structure of different parts of respiratory system and correlate their functions with their structure. (25)
2. Describe the various thalamic nuclei, their connections and blood supply (25)
3. Write briefly on : (5 × 10 = 50)
  - (a) Microscopic anatomy and ultra structure of renal corpuscle.
  - (b) Edinger west-phal nucleus.
  - (c) Fornix
  - (d) Embedding media.
  - (e) Fixatives.

**NOVEMBER 2001**

**[KE 224]**

**Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

**(Revised Regulations)**

**Branch V — Anatomy**

**Paper III — HISTOLOGY, NEUROANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions.**

1. Describe the histology of blood vessels and correlate their structure with function. (25)
2. Describe the pathways responsible for carrying the sensations of touch and pressure. (25)
3. Write briefly on : (5 × 10 = 50)
  - (a) Microscopic anatomy and ultrastructural appearance of skeletal muscle.
  - (b) Nucleus of tractus solitarius
  - (c) Corpus callosum.
  - (d) Embalming a cadaver.
  - (e) Golgi complex.

**[KG 224] MARCH 2002 Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

**(Revised Regulations)**

**Branch V — Anatomy**

**Paper III — HISTOLOGY AND NEUROANATOMY  
AND MUSEUM TECHNIQUES**

**Time : Three hours Maximum : 100 marks**

**Answer ALL questions.**

1. With necessary illustrations describe all types of follicles in a ovary of human female. (26)
2. With illustrations describe the blood supply of human brain. (26)
- 3 Write in detail :
  - (a) Plastination. (24)
  - (b) Preservation of human fetuses. (24)

**SEPTEMBER 2002**

**[KH 224]**

**Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

**Branch V — Anatomy**

**Paper III — HISTOLOGY, NEUROANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions.**

1. With necessary illustrations describe all the cell types in a seminiferous tubule of man. (26)
  2. With illustrations describe the blood supply of the spinal cord. (26)
  3. Write in detail :
    - (a) Describe micro anatomy of thymus correlating it with functional requirement. (24)
    - (b) Preservation of wet specimen. (24)
-

[KI 224]      **APRIL 2003**      Sub. Code : 2237

M.S. DEGREE EXAMINATION.

(Revised Regulations)

Anatomy

Paper III — HISTOLOGY, NEUROANATOMY AND  
MUSEUM TECHNIQUES

Time : Three hours      Maximum : 100 marks

Answer ALL questions.

1. Describe the anatomical basis of the optic pathway. Mention the effects of lesions at different levels along the optic pathway. (25)
  2. Describe the microanatomy of the Pancreas. (25)
  3. Write briefly on : (5 × 10 = 50)
    - (a) Method of making and preserving gross anatomy cross sections
    - (b) Staining techniques for nerve tissue
    - (c) Ultrastructure of juxta glomerular apparatus
    - (d) Spermatogenesis
    - (e) Myelination.
-

**[KJ 224] OCTOBER 2003 Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

(Revised Regulations)

**Anatomy**

**Paper III — HISTOLOGY, NEUROANATOMY AND  
MUSEUM TECHNIQUES**

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
                    forty minutes

M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks

M.C.Q. must be answered **SEPARATELY** on the  
answer sheet provided as per the instructions on the  
first page of M.C.Q. Booklet.

Answer ALL questions.

Draw suitable diagrams wherever necessary.

Write an essay on :

1. Transverse section of medulla at sensory  
decussation. (15)
2. Histology of the G.I. Tract. (15)

3. Write short notes on : (10 × 5 = 50)

- (a) PAS staining.
- (b) Preparation of casts of the bronchial tree.
- (c) Floor of IVth ventricle.
- (d) Axon.
- (e) Mounting an organ.
- (f) Histology of retina.
- (g) Histology of ovary.
- (h) Histology of Penis.
- (i) Microscopic anatomy of skeletal muscle.
- (j) Nuclei of Trigeminal Nerve.

**[KK 224]                      APRIL 2004                      Sub. Code : 2237**

**M.S. DEGREE EXAMINATION,  
(Revised Regulations)**

**Anatomy**

**Paper III — HISTOLOGY, NEUROANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours                      Maximum : 100 marks**

**Theory : Two hours and                      Theory : 80 marks  
forty minutes**

**M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks**

**Answer ALL the questions.**

**A. Write an Essay on :                      (2 × 15 = 30)**

- (1) Describe the histology of spleen.
- (2) Discuss the Blood supply of cerebral hemispheres.

**B. Write short notes on :                      (10 × 5 = 50)**

- (1) Pineal gland
- (2) Insula
- (3) Structure of testes
- (4) Periodic Acid Schiff reaction (PAS)

- (5) Lentic form nucleus
  - (6) Histology of lung
  - (7) Neurobiotaxis
  - (8) Plastination technique
  - (9) Embalancing of HIV infected dead bodies
  - (10) Blood brain barrier.
-

**AUGUST 2004**

**[KL 224]**

**Sub. Code : 2237**

**M.S. DEGREE EXAMINATION**

**(Revised Regulations)**

**Anatomy**

**Paper III — HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Theory : Two hours and  
forty minutes**

**Theory : 80 marks**

**MCQ : Twenty minutes**

**MCQ : 20 marks**

**Answer ALL questions.**

**I. Write an Essay on : (2 × 15 = 30)**

**(1) Describe the course and branches of  
mandibular division of Trigeminal nerve**

**(2) Describe the micro-anatomy of lung.**

**II. Write short notes on : (10 × 5 = 50)**

**(a) P.A.S. Staining.**

**(b) Microtome.**

**(c) Electron microscope.**

**(d) Optic nerve.**

**(e) Nuclei of Thalamus.**

**(f) Fourth ventricle.**

**(g) Histology of Bone.**

**(h) Mounting an organ**

**(i) Australopithecus**

**(j) Methylene blue.**

**FEBRUARY 2005**

**[KM 224]**

**Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

**(Revised Regulations)**

**Branch V — Anatomy**

**Paper III — HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Theory : Two hours and  
forty minutes**

**Theory : 80 marks**

**M.C.Q. : Twenty minutes**

**M.C.Q. : 20 marks**

**Answer ALL questions.**

**Draw suitable diagrams wherever necessary.**

**I. Write an Essay on :**

**(2 × 15 = 30)**

**(1) Describe the origin, functional components,  
branches and applied anatomy of Facial nerve.**

**(2) Describe the micro anatomy of pituitary  
gland giving their applied importance.**

**II. Write Short notes on :**

**(10 × 5 = 50)**

- (a) Pterygo palatine ganglion.**
- (b) Cerebellar nuclei and their functions.**
- (c) Sharpening of microtome blade.**
- (d) Microstructure of stomach.**
- (e) Internal capsule.**
- (f) Cerebral dominance.**
- (g) Special stains used for connective tissue staining.**
- (h) Auditory pathway.**
- (i) Microscopic structure of Prostate.**
- (j) Preservative fluids used for museum specimens.**

**FEBRUARY 2006**

**[KO 224]**

**Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

**(Revised Regulations)**

**Branch V — Anatomy**

**Paper III —HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours**

**Maximum : 100 marks**

**Theory : Two hours and**

**Theory : 80 marks**

**forty minutes**

**M.C.Q. : Twenty minutes**

**M.C.Q. : 20 marks**

**Answer ALL questions.**

**Draw suitable diagrams wherever necessary.**

**I. Write essays on :**

**(2 × 15 = 30)**

**(1) Describe the lobes, gyri and sulci of the cerebral hemisphere.**

**(2) Describe the microscopic feature of pancreas in detail.**

**II. Write short notes on :**

**(10 × 5 = 50)**

**(a) Extra pyramidal system**

**(b) Ciliary ganglion.**

**(c) Dentate nucleus.**

**(d) Cysterna.**

**(e) Histological differences between thymus, tonsil lymph node.**

**(f) Juxta glomerular apparatus.**

**(g) Embalming process.**

**(h) Maintenance of museum.**

**(i) Sensory decussation of Medulla (neat labelled diagram only)**

**(j) Choroid plexus.**

**SEPTEMBER 2006**  
**[KP 224]** **Sub. Code : 2237**

**M.S. DEGREE EXAMINATION.**

**(Revised Regulations)**

**Branch V — Anatomy**

**Paper III — HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES**

**Time : Three hours                      Maximum : 100 marks**

**Theory : Two hours and                      Theory : 80 marks  
forty minutes**

**M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks**

**Answer ALL questions.**

**Draw suitable diagrams wherever necessary.**

**I. Write essays on :**

**(1) Describe the structural organization of the  
reticular formation. (20)**

**(2) Give a detailed histological account of the  
kidney. (15)**

**(3) Describe the functional histology of urinary  
system. (15)**

**II. Write short notes on : (6 × 5 = 30)**

- (a) Blood brain barrier**
  - (b) Gut associated lymphoid tissue**
  - (c) Mixed salivary gland**
  - (d) Cerebellar cortex**
  - (e) Contractile apparatus of skeletal muscle**
  - (f) Corrosion cast preparation.**
-

[KQ 220] MARCH 2007 Sub. Code : 2237

M.S. DEGREE EXAMINATION.

Branch V —Anatomy

HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES

Common to

Paper III — (Old/New/Revised Regulations)

(Candidates admitted from 1988–89 onwards)

and

Paper III — (for candidates admitted from 2004–2005  
onwards)

Time : Three hours Maximum : 100 marks

Theory : Two hours and Theory : 80 marks  
forty minutes

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

1. Classify Lymphoid Organs. Describe their  
microstructure with functional correlation. (20)

2. Describe the Facial Nerve (15)

3. Discuss Blood supply of Spinal Cord. (15)

II. Short notes : (6 × 5 = 30)

(a) Plastination.

(b) Enteric nervous system

(c) Neuroglia

(d) Formalin

(e) Sertoli cell

(f) Chemical basis and principles of  
Haematoxylin and Eosin staining.

**SEPTEMBER 2007**

**KR 230]**

**Sub. Code : 2235**

**M.S. DEGREE EXAMINATION.**

**Branch V — Anatomy**

**HISTOLOGY, NEURO ANATOMY AND  
MUSEUM TECHNIQUES**

**Common to**

**Paper III — (Old/New/Revised Regulations)**

**(Candidates admitted upto 2003-04)**

**and**

**Paper III — (For candidates admitted from 2004-2005  
onwards)**

**Time : Three hours**

**Maximum : 100 marks**

**Theory : Two hours and  
forty minutes**

**Theory : 80 marks**

**M.C.Q. : Twenty minutes**

**M.C.Q. : 20 marks**

**Answer ALL questions.**

**Draw suitable diagrams wherever necessary.**

**I. Essay questions :**

**(1) Describe the histology of cerebellum.  
Describe their microstructure with functional  
correlation (20)**

**(2) Describe the oculomotor nerve. (15)**

**(3) Discuss blood supply of rectum and anal  
canal. (15)**

**II. Short notes : (6 × 5 = 30)**

**(a) Juxtaglomerular apparatus**

**(b) Special visceral afferent column**

**(c) Museum mounting**

**(d) Embalming**

**(e) Myoepithelial cell**

**(f) Histological differences between thymus,  
tonsil, lymphnode.**

March-2008

**[KS 230]**

**Sub. Code : 2235**

**M.S. DEGREE EXAMINATION.**

**Branch V — Anatomy**

**HISTOLOGY, NEURO ANATOMY AND MUSEUM  
TECHNIQUES**

**(Common to all candidates)**

**Q.P. Code : 222235**

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions.**

**I. Essay questions : (2 × 20 = 40)**

(1) Describe the microscopic anatomy of respiratory pathway.

(2) Describe the fourth ventricle of brain in detail.

**II. Short notes : (10 × 6 = 60)**

(1) Microscopic structure of pancreas.

(2) Microscopic structure of suprarenal gland.

(3) Microscopic structure of spleen.

(4) Microscopic structure of bone.

(5) Nerve supply to the tongue.

(6) Trochlear nerve.

(7) Embalming fluid.

(8) Preservation of museum specimens.

(9) Otic ganglion.

(10) Haematoxyline and eosin staining.

**September 2008**

**[KT 230]**

**Sub. Code: 2235**

**M.S. DEGREE EXAMINATION**

**Branch V – ANATOMY**

**Paper III – HISTOLOGY, NEUROANATOMY AND  
MUSEUM TECHNIQUES**

**(Common to all candidates)**

***Q.P. Code : 222235***

**Time : Three hours**

**Maximum : 100 marks**

**Draw suitable diagram wherever necessary.**

**Answer ALL questions.**

**I. Essay questions :**

**(2 X 20 = 40)**

1. Describe the microscopic structure of lining epithelium of male genital system.
2. Describe the internal capsule and add a note on blood supply.

**II. Write short notes on :**

**(10 X 6 = 60)**

1. Double embedding.
  2. Plastination techniques.
  3. Clearing agents.
  4. Blood brain barrier.
  5. Histology of growing end of long bone.
  6. Mounting of brain sections.
  7. Histology of lung.
  8. Cochlea.
  9. Basal ganglion and its connections.
  10. Histology of pituitary gland.
-

**March 2009**

**[KU 230]**

**Sub. Code: 2235**

**M.S. DEGREE EXAMINATION**

**Branch V – ANATOMY**

**(Common to all candidates)**

**Paper III – HISTOLOGY, NEUROANATOMY  
AND MUSEUM TECHNIQUES**

***Q.P. Code : 22235***

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions**

**Draw suitable diagram wherever necessary.**

**I. Essay questions :**

**(2 x 20 = 40)**

1. Describe the gross anatomy and histological features of the cerebellum.
2. Describe the histology of the liver.

**II. Write short notes on :**

**(10 x 6 = 60)**

1. Method of making casts of the tracheo bronchial tree.
2. Connective tissue stains.
3. Clearing agents.
4. Histology of pancreas.
5. Circumventricular organs.
6. Diffuse neuro endocrine system.
7. Venous drainage of cerebrum.
8. Pyramidal tract.
9. Nucleus ambiguus.
10. Electron microscopy of Glomerular filtration.

**\*\*\*\*\***

September 2009

[KV 230]

Sub. Code: 2235

**M.S. DEGREE EXAMINATION**

**Branch V – ANATOMY**

**(Common to all candidates)**

**Paper III – HISTOLOGY, NEUROANATOMY  
AND MUSEUM TECHNIQUES**

***Q.P. Code : 222235***

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions**

**Draw suitable diagram wherever necessary.**

**I. Essay questions :**

**(2 x 20 = 40)**

1. Give a detailed account of functional histology of lymphoid organs.
2. Mention the nuclei, course, relations and distribution of glossopharyngeal nerve.

**II. Write short notes on :**

**(10 x 6 = 60)**

1. Micro anatomy of pituitary gland.
2. Microtome.
3. Microscopic structure of cardiac muscle.
4. Histological structure of liver.
5. Preparation of resin casts of blood vessels.
6. Blood supply of spinal cord.
7. Subarachnoid cisterns.
8. Cerebral angiography
9. Nuclei of cerebellum.
10. Preparation of illustrated catalogues of mounted museum specimens.

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**March 2010**

**[KW 230]**

**Sub. Code: 2235**

**M.S. DEGREE EXAMINATION**

**Branch V – ANATOMY**

**(Common to all candidates)**

**Paper III – HISTOLOGY, NEUROANATOMY  
AND MUSEUM TECHNIQUES**

***Q.P. Code : 22235***

**Time : Three hours**

**Maximum : 100 marks**

**Answer ALL questions**

**Draw suitable diagram wherever necessary.**

**I. Essay questions :**

**(2 x 20 = 40)**

1. Describe the limbic system in detail.
2. Describe the microscopic structure of digestive system at various levels.

**II. Write short notes on :**

**(10 x 6 = 60)**

1. Corpora quadrigemina and their connections.
2. Blood supply of internal capsule.
3. Commissures of brain.
4. Subarachnoid cisterns.
5. Embalming techniques.
6. Microtome.
7. Plastination.
8. Double embedding.
9. Juxta Glomerular apparatus.
10. Microscopic structure of suprarenal gland.

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**MAY 2011**

**[KY 118]**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**HISTOLOGY, NEUROANATOMY AND MUSEUM TECHNIQUES**

**Q.P. Code : 202091**

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**I. Essay :**

|                                                                                | <b>Pages<br/>(Max.)</b> | <b>Time<br/>(Max.)</b> | <b>Marks<br/>(Max.)</b> |
|--------------------------------------------------------------------------------|-------------------------|------------------------|-------------------------|
| 1. Mention the nuclei, course, relations and distribution of the facial nerve. | 6                       | 15                     | 10                      |
| 2. Describe the microscopic anatomy of the testis and epididymis.              | 6                       | 15                     | 10                      |

**II. Short Questions:**

|                                     |   |   |   |
|-------------------------------------|---|---|---|
| 1. Membranous ossification.         | 3 | 8 | 5 |
| 2. Scanning electron microscope.    | 3 | 8 | 5 |
| 3. Microscopic structure of kidney. | 3 | 8 | 5 |
| 4. Basal nuclei.                    | 3 | 8 | 5 |
| 5. Methylene blue.                  | 3 | 8 | 5 |
| 6. Nerve fibre stains.              | 3 | 8 | 5 |
| 7. Sertoli cell.                    | 3 | 8 | 5 |
| 8. Red pulp of spleen.              | 3 | 8 | 5 |

**III. Reasoning Out:**

Each of the following questions has a stem followed by five options. Mention whether the options are TRUE or FALSE and mention the REASON.

|                                    |   |    |   |
|------------------------------------|---|----|---|
| 1. The duodenum has                |   |    |   |
| a) Villi                           |   |    |   |
| b) Crypts of Lieberkuhn            |   |    |   |
| c) Valves of Kerkring              |   |    |   |
| d) Muscularis mucosa               |   |    |   |
| e) Serous glands in the submucosa. | 4 | 10 | 5 |

**(PTO)**

|                                                                                            | <b>Pages<br/>(Max.)</b> | <b>Time<br/>(Max.)</b> | <b>Marks<br/>(Max.)</b> |
|--------------------------------------------------------------------------------------------|-------------------------|------------------------|-------------------------|
| 2. An oligodendrocyte                                                                      |                         |                        |                         |
| a) Has a rounded cell body                                                                 |                         |                        |                         |
| b) Has numerous processes                                                                  |                         |                        |                         |
| c) Can provide a myelin sheath for three axons                                             |                         |                        |                         |
| d) Is related to a node of Ranvier                                                         |                         |                        |                         |
| e) Is mesodermal in origin.                                                                | 4                       | 10                     | 5                       |
| 3. Immuno-histochemistry                                                                   |                         |                        |                         |
| a) Involves localization of neurotransmitters                                              |                         |                        |                         |
| b) Makes use of monoclonal antibodies                                                      |                         |                        |                         |
| c) Can label proteins                                                                      |                         |                        |                         |
| d) Makes use of enzymes                                                                    |                         |                        |                         |
| e) Makes use of fluorescent dyes.                                                          | 4                       | 10                     | 5                       |
| 4. The microscopic structure of the cerebellum                                             |                         |                        |                         |
| a) There are olivo-cerebellar mossy fibres                                                 |                         |                        |                         |
| b) Granule cells form parallel fibres                                                      |                         |                        |                         |
| c) Basket cells are in the granular layer                                                  |                         |                        |                         |
| d) Golgi cells are in the molecular layer                                                  |                         |                        |                         |
| e) Purkinje cells ramify in the long axis of the folia                                     | 4                       | 10                     | 5                       |
| <b>IV. Very Short Answers :</b>                                                            |                         |                        |                         |
| 1. Name the two types of adipose tissue.                                                   | 1                       | 4                      | 2                       |
| 2. Name the two layers of the dermis.                                                      | 1                       | 4                      | 2                       |
| 3. Name the two parts of the gastro-intestinal tract with submucosal Glands.               | 1                       | 4                      | 2                       |
| 4. Name the two types of cells found in the parathyroid gland.                             | 1                       | 4                      | 2                       |
| 5. Name the papillae that contain taste buds.                                              | 1                       | 4                      | 2                       |
| 6. Which nucleus of the trigeminal nerve contains first order neurons?                     | 1                       | 4                      | 2                       |
| 7. Which cell of the cerebellum forms the parallel fibres?                                 | 1                       | 4                      | 2                       |
| 8. The lateral lemniscus is part of which pathway.                                         | 1                       | 4                      | 2                       |
| 9. Mention the chemicals used in defatting in the preparation of stained foetal skeletons. | 1                       | 4                      | 2                       |
| 10. Name one substance used in corrosion casts.                                            | 1                       | 4                      | 2                       |

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October 2011

[KZ 118]

Sub. Code: 2091

**M.D. DEGREE EXAMINATION**  
**BRANCH XXIII – ANATOMY**  
**HISTOLOGY, NEUROANATOMY AND MUSEUM TECHNIQUES**  
**Q.P. Code : 202091**

**Time : 3 hours**  
**(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**Pages Time Marks**  
**(Max.) (Max.) (Max.)**

**I. Essay:**

- |                                         |   |    |    |
|-----------------------------------------|---|----|----|
| 1. Describe lateral ventricle of Brain. | 6 | 15 | 10 |
| 2. Histology of Kidney.                 | 6 | 15 | 10 |

**II. Short Questions:**

- |                                    |   |   |   |
|------------------------------------|---|---|---|
| 1. Corpus callosum.                | 3 | 8 | 5 |
| 2. Multipolar neurons.             | 3 | 8 | 5 |
| 3. Nuclei in medulla.              | 3 | 8 | 5 |
| 4. Nucleus in inferior colliculus. | 3 | 8 | 5 |
| 5. Structure of parotid gland.     | 3 | 8 | 5 |
| 6. Histology of cardiac muscle.    | 3 | 8 | 5 |
| 7. Structure of uterus.            | 3 | 8 | 5 |
| 8. Histology of mammary gland.     | 3 | 8 | 5 |

**III. Reasoning Out:**

Each of the following sentences have a stem and are followed by five options.  
Mention whether the options are TRUE or FALSE and mention the REASON

1. Lung
- |                                                           |   |    |   |
|-----------------------------------------------------------|---|----|---|
| a) Alveoli lined by squamous epithelium.                  |   |    |   |
| b) Clara cells secrete surfactant.                        |   |    |   |
| c) Contain much fibromuscular tissue.                     | 4 | 10 | 5 |
| d) Lining epithelium is transitional.                     |   |    |   |
| e) Trachea and larger bronchi lined by ciliated columnar. |   |    |   |
2. Liver
- |                                                                    |   |    |   |
|--------------------------------------------------------------------|---|----|---|
| a) Cells are radiating from the central vein.                      |   |    |   |
| b) Portal triad is present in the periphery.                       |   |    |   |
| c) Central vein drains in to hepatic veins.                        | 4 | 10 | 5 |
| d) Blood from portal vein and hepatic artery flow in to sinusoids. |   |    |   |
| e) Bile canaliculi has no wall.                                    |   |    |   |

(PTO)

|                                             | <b>Pages<br/>(Max.)</b> | <b>Time<br/>(Max.)</b> | <b>Marks<br/>(Max.)</b> |
|---------------------------------------------|-------------------------|------------------------|-------------------------|
| 3. Uterine tube                             |                         |                        |                         |
| a) Line by ciliated columnar epithelium.    |                         |                        |                         |
| b) Has numerous folding.                    |                         |                        |                         |
| c) Corpora amylacea present.                | 4                       | 10                     | 5                       |
| d) Intercalary cells present.               |                         |                        |                         |
| e) Secreting cells called pegcells present. |                         |                        |                         |
| 4. Cerebellum                               |                         |                        |                         |
| a) Cortex has 3 layers.                     |                         |                        |                         |
| b) Purkinje cells are present.              |                         |                        |                         |
| c) Granular layer is characteristic.        | 4                       | 10                     | 5                       |
| d) Mossy fibres present.                    |                         |                        |                         |
| e) Most of the fibres are climbing fibres.  |                         |                        |                         |

#### IV. Very Short Answers :

|                           |   |   |   |
|---------------------------|---|---|---|
| 1. Pineal gland.          | 1 | 4 | 2 |
| 2. Mamillary body.        | 1 | 4 | 2 |
| 3. Uncus.                 | 1 | 4 | 2 |
| 4. Dentate gyrus.         | 1 | 4 | 2 |
| 5. Olfactory epithelium.  | 1 | 4 | 2 |
| 6. Types of ossification. | 1 | 4 | 2 |
| 7. Intervertebral disc.   | 1 | 4 | 2 |
| 8. Hair follicles.        | 1 | 4 | 2 |
| 9. Spinal ganglion.       | 1 | 4 | 2 |
| 10. Tastebud.             | 1 | 4 | 2 |

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[LA 118]

April 2012

Sub. Code: 2091

**M.D. DEGREE EXAMINATIONS**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEUROANATOMY AND MUSEUM TECHNIQUES**

*Q.P. Code : 202091*

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

| <b>Pages<br/>(Max.)</b> | <b>Time<br/>(Max.)</b> | <b>Marks<br/>(Max.)</b> |
|-------------------------|------------------------|-------------------------|
|-------------------------|------------------------|-------------------------|

**I. Essay:**

- |                                                                                 |   |    |    |
|---------------------------------------------------------------------------------|---|----|----|
| 1. Mention the nuclei, course, relations and distribution of Hypoglossal nerve. | 9 | 15 | 10 |
| 2. Describe the microscopic anatomy of Liver and Gall bladder.                  | 9 | 15 | 10 |

**II. Short Questions:**

- |                                                    |   |   |   |
|----------------------------------------------------|---|---|---|
| 1. Type 1 collagen fibers                          | 3 | 8 | 5 |
| 2. Objective lens of a microscope                  | 3 | 8 | 5 |
| 3. Islets of pancreas                              | 3 | 8 | 5 |
| 4. Lamina present in anterior horn of spinal cord  | 3 | 8 | 5 |
| 5. Principles of Haematoxylin and eosin staining   | 3 | 8 | 5 |
| 6. Orison stain for elastic fibres                 | 3 | 8 | 5 |
| 7. Histological features parietal cells of stomach | 3 | 8 | 5 |
| 8. Germinal centre of lymph node                   | 3 | 8 | 5 |

**III. Reasoning Out:**

Each of the following questions has a stem followed by five options. Mention whether the options are TRUE or FALSE and mention the REASON.

- |                                                           |   |    |   |
|-----------------------------------------------------------|---|----|---|
| 1. Microscopic structure of fundic part of stomach        |   |    |   |
| a) The lining epithelium is simple columnar               |   |    |   |
| b) Gastric glands are simple tubular glands               |   |    |   |
| c) Gastric pits are deeper in the pyloric part of stomach | 5 | 10 | 5 |
| d) Gastric glands are found in the submucosa              |   |    |   |
| e) Chief cells are found throughout the gland             |   |    |   |

(PTO)

## April 2012

### 2. Satellite cell

- |                                                         |   |    |   |
|---------------------------------------------------------|---|----|---|
| a) They provide structural support                      |   |    |   |
| b) They are more numerous in spinal ganglia             |   |    |   |
| c) They form the capsule of the ganglion                | 5 | 10 | 5 |
| d) They can give rise to Schwann cells                  |   |    |   |
| e) They help to transport substances to the nerve cells |   |    |   |

### 3. M cells

- |                                                          |   |    |   |
|----------------------------------------------------------|---|----|---|
| a) They are found throughout the small intestine         |   |    |   |
| b) They are associated with groups of lymphoid follicles |   |    |   |
| c) They help in antigen uptake                           | 5 | 10 | 5 |
| d) They lack microvilli                                  |   |    |   |
| e) They are cuboidal in shape                            |   |    |   |

### 4. Microscopic structure of pituitary

- |                                                          |   |    |   |
|----------------------------------------------------------|---|----|---|
| a) Chromophils are more numerous than chromophobes       |   |    |   |
| b) Chromophobes are degranulated cells                   |   |    |   |
| c) Pituicytes are supporting cells found in pars nervosa | 5 | 10 | 5 |
| d) Cells in pars intermedia are acidophils               |   |    |   |
| e) Herring bodies are found in pars distalis             |   |    |   |

## IV. Very Short Answers :

- |                                                                                |   |   |   |
|--------------------------------------------------------------------------------|---|---|---|
| 1. Name the cells found in the intestinal gland.                               | 1 | 4 | 2 |
| 2. What constitutes the blood air barrier?                                     | 1 | 4 | 2 |
| 3. Name two substances found in the extracellular matrix of connective tissue. | 1 | 4 | 2 |
| 4. Name two cells rich in smooth endoplasmic reticulum                         | 1 | 4 | 2 |
| 5. When is gelatin used as an embedding medium?                                | 1 | 4 | 2 |
| 6. Name two stains used for muscle fibres.                                     | 1 | 4 | 2 |
| 7. What are centroacinar cells?                                                | 1 | 4 | 2 |
| 8. Name two glands where striated ducts are present.                           | 1 | 4 | 2 |
| 9. Name two nuclear fixatives.                                                 | 1 | 4 | 2 |
| 10. Name two types of cell junctions.                                          | 1 | 4 | 2 |

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[LB 118]

OCTOBER 2012

Sub. Code: 2091

**M.D. DEGREE EXAMINATIONS**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEUROANATOMY AND MUSEUM TECHNIQUES**

**Q.P. Code : 202091**

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

| <b>Pages<br/>(Max.)</b> | <b>Time<br/>(Max.)</b> | <b>Marks<br/>(Max.)</b> |
|-------------------------|------------------------|-------------------------|
|-------------------------|------------------------|-------------------------|

**I. Essay:**

- |                                                                           |   |    |    |
|---------------------------------------------------------------------------|---|----|----|
| 1. Mention the nuclei, course, relations and distribution of Vagus nerve. | 9 | 15 | 10 |
| 2. Describe the microscopic anatomy of Small Intestine.                   | 9 | 15 | 10 |

**II. Short Questions:**

- |                                                           |   |   |   |
|-----------------------------------------------------------|---|---|---|
| 1. Matrix of hyaline cartilage                            | 3 | 8 | 5 |
| 2. Method of honing a knife                               | 3 | 8 | 5 |
| 3. Histological features of interstitial cells of Leydig. | 3 | 8 | 5 |
| 4. Ventral posterolateral nucleus of thalamus             | 3 | 8 | 5 |
| 5. Delafield's haematoxylin                               | 3 | 8 | 5 |
| 6. Use of Periodic Acid Schiff stain in Diagnostic work   | 3 | 8 | 5 |
| 7. Thyrotrophs of anterior lobe of pituitary.             | 3 | 8 | 5 |
| 8. Graafian follicle                                      | 3 | 8 | 5 |

**III. Reasoning Out:**

Each of the following questions has a stem followed by five options. Mention whether the options are TRUE or FALSE and mention the REASON.

- |                                                                                                                                                        |   |             |   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------|---|
| 1. The jejunum has<br>a) Villi<br>b) Crypts of Lieberkuhn<br>c) Valves of Kerkring<br>d) Muscularis mucosa<br>e) Peyer's patches in the lamina propria | 5 | 10<br>(PTO) | 5 |
| 2. Schwann cells<br>a) Produce myelin for nerves in the peripheral nervous system<br>b) Node of Ranvier is a segment of myelin produced                |   |             |   |

|                                                                                  |   |    |   |
|----------------------------------------------------------------------------------|---|----|---|
| by a Schwann cell                                                                |   |    |   |
| c) A single Schwann cell can produce myelin sheath for only a single nerve fibre | 5 | 10 | 5 |
| d) Unmyelinated axons can be found invaginated into a Schwann cell               |   |    |   |
| e) They develop from mesoderm                                                    |   |    |   |
| 3. Paraffin wax                                                                  |   |    |   |
| a) It is the most commonly used wax                                              |   |    |   |
| b) It is a mixture of hydrocarbons                                               |   |    |   |
| c) Softer paraffin wax is used for friable tissues                               | 5 | 10 | 5 |
| d) It is a water soluble wax                                                     |   |    |   |
| e) It is used to embed nervous tissue                                            |   |    |   |
| 4. Microscopic structure of cerebrum                                             |   |    |   |
| a) Horizontal cells of Cajal are found in the molecular layer                    |   |    |   |
| b) Cells of Martinotti are found in laminae VI                                   |   |    |   |
| c) Outer band of baillarger is prominent in the visual cortex                    | 5 | 10 | 5 |
| d) Inner band of baillarger is found in lamina V                                 |   |    |   |
| e) Stellate cells are found throughout the cerebral cortex                       |   |    |   |

#### IV. Very Short Answers :

|                                                         |   |   |   |
|---------------------------------------------------------|---|---|---|
| 1. Name two features of an osteoblast.                  | 1 | 4 | 2 |
| 2. What is substantia propria of the cornea made up of? | 1 | 4 | 2 |
| 3. Name two stains used for collagen fibres.            | 1 | 4 | 2 |
| 4. What fibres are found in the stroma of a gland?      | 1 | 4 | 2 |
| 5. What is a sarcomere?                                 | 1 | 4 | 2 |
| 6. What is stria vascularis?                            | 1 | 4 | 2 |
| 7. Name two functions of Sertoli cells.                 | 1 | 4 | 2 |
| 8. What is meant by resin embedding?                    | 1 | 4 | 2 |
| 9. Name two mounting media.                             | 1 | 4 | 2 |
| 10. Name two properties of Bouin's fluid.               | 1 | 4 | 2 |

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**M.D. DEGREE EXAMINATIONS**  
**BRANCH XXIII – ANATOMY**  
**PAPER III – HISTOLOGY, NEUROANATOMY AND MUSEUM**  
**TECHNIQUES**  
**Q.P. Code : 202091**

**Time: Three Hours****Maximum: 100 marks****I. Essay: (2X10=20)**

1. Mention the nuclei, course, relations and distribution of Glossopharyngeal nerve.
2. Describe the microscopic anatomy of uterus and fallopian tube.

**II. Short Questions: (8X5=40)**

1. Zones present in endochondral ossification.
2. Principles of Transmission Electron Microscopy.
3. Microscopic structure of cortex of suprarenal gland
4. Posterior limb of internal capsule
5. Mallory's trichrome stain
6. Oil red O stain for fat
7. Somatotrophs of anterior lobe of pituitary gland
8. Pencillar artery of spleen

**III. Reasoning Out: (4X5=20)**

Each of the following questions has a stem followed by five options. Mention whether the options are TRUE or FALSE and mention the REASON.

1. The jejunum has
  - a) Villi
  - b) Crypts of Leiberkuhn
  - c) Valves of Kerkring
  - d) Muscularis mucosa
  - e) Serous glands in the submucosa
2. Astrocytes
  - a) They are star shaped cells
  - b) Their processes frequently end in relation to blood vessels
  - c) Fibrous astrocytes are seen mainly in grey matter
  - d) Helps to maintain the blood brain barrier
  - e) Act as phagocytes
3. Fixing of tissues in histology is done to
  - a) Prevent autolysis
  - b) Preserve colour of tissues
  - c) Preserve enzymes
  - d) Prevent putrefaction
  - e) Make tissues rigid

**(PTO)**

4. Microscopic structure of retina

- a) Outer nuclear layer contains the cell bodies and nuclei of rods and cones
- b) Inner nuclear layer contains the cell bodies and nuclei of bipolar neurons
- c) Muller's cells present are supporting cells
- d) Inner limiting membrane is formed by axons of ganglion cells
- e) Amacrine cells are found in the inner nuclear layer

**IV. Very Short Answers:**

**(10X2=20)**

- 1. Name two types of fibres produced by the fibroblast.
- 2. Name the layers of the choroid.
- 3. Name two parts of the gastrointestinal tract that have lymphoid follicles in the lamina propria.
- 4. What is meant by closed circulation of spleen?
- 5. Name two supporting cells found in the organ of corti.
- 6. Name the two cells found in pineal gland.
- 7. Name the cells found in a taste bud.
- 8. Name two clearing agents.
- 9. What is meant by double embedding?
- 10. Mention two agents used to decalcify bone.

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[LE 118]

APRIL 2014

Sub. Code: 2091

**M.D. DEGREE EXAMINATION  
BRANCH XXIII – ANATOMY  
PAPER III –HISTOLOGY, NEURO ANATOMY AND MUSEUM  
TECHNIQUES  
Q.P. Code :202091**

**Time : Three Hours**

**Maximum : 100 marks**

**I. Essay:**

**(2X10=20)**

1. Describe the nuclei, course, relations and distribution of Facial nerve.
2. Describe the microscopic structure of the lining epithelium of Respiratory tract.

**II. Write short notes on:**

**(8X5=40)**

1. Cells present in the Pineal gland.
2. Histology of Vermiform Appendix.
3. Corpuscles of Hassall.
4. Rotary Microtome.
5. Tectum of Midbrain.
6. Circle of Willis.
7. Cells of connective tissue.
8. Juxta glomerular apparatus.

**III. Reasoning Out:**

**(4X5=20)**

**State whether each of the following is TRUE and FALSE and reason out.**

1. Routine Embalming procedures involve bathing of abdominal viscera in the injected embalming fluid.
2. More than two lobules of the mammary gland are drained by a single lactiferous duct, all of which converge to open independently.
3. The cerebral aqueduct is narrow due to the roof plate of midbrain remaining thick during development.
4. Presence of intercalated discs and branching pattern are functional adaptations of the cardiac muscles.

**IV. Very Short Answers:**

**(10X2=20)**

1. Name the two layers of perichondrium.
2. What are kupffer cells?
3. Describe Medullary rays.
4. Draw the structure of the rod cell.
5. Name two fixatives.
6. Name the cells found in the pyloric gland.
7. Name the parts of the corpus striatum.
8. Give two examples for multipolar neurons.
9. Give the formation of the cerebro spinal fluid.
10. Name the types of RNA.

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[LF 118]

OCTOBER 2014

Sub. Code: 2091

M.D. DEGREE EXAMINATION

BRANCH XXIII – ANATOMY

PAPER III – HISTOLOGY, NEUROANATOMY AND MUSEUM  
TECHNIQUES

*Q.P. Code :202091*

**Time : Three Hours**

**Maximum : 100 marks**

**I. Essay:**

**(2 x 10 = 20)**

1. Describe the structure and connections of corpus striatum.
2. Describe the microscopic anatomy of small intestine.

**II. Write short notes on:**

**(8 x 5 = 40)**

1. Osteoprogenitor cells.
2. Masson's trichrome stain.
3. Clearing agents.
4. Ventral tier of thalamic nuclei.
5. Microscopic anatomy of fallopian tube.
6. Supporting cells of Organ of Corti.
7. Taste bud.
8. Microscopic anatomy of Pars nervosa.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following is TRUE or FALSE and reason out.**

1. Tissues are kept under running tap water after staining with haematoxylin.
2. In lower motor neuron lesion of the facial nerve, the entire half of the face is affected.
3. The microtome knife is stropped before it is honed.
4. Cilia are present on the apical portion of the cells lining the villus.

**IV. Very Short Answers:**

**(10 x 2 = 20)**

1. Name the two layers of the periosteum.
2. What is Space of Disse?
3. What are corpora arenacea?
4. Name two basophils.
5. Name the cells found in the gastric gland.
6. Give two examples for bipolar neurons.
7. What is meant by progressive staining?
8. What is meant by gap junction?
9. Name two stains for myelinated nerve fibres.
10. What are Langerhan cells?

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**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

**Q.P.Code: 202091**

**Time: Three Hours**

**Maximum: 100 marks**

**Answer ALL questions**

**I. Essay:**

**(2 x 10 = 20)**

1. Describe the Histology of Stomach.
2. Discuss the lateral ventricles of the brain.

**II. Short Questions:**

**(8 x 5 = 40)**

1. Impregnation.
2. Histology of thyroid gland.
3. Tectum of Midbrain.
4. Spleen-structure.
5. Structure of muscular artery.
6. Structure of Uterus.
7. Microtomes.
8. Histology of thin skin.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Height (Length) of the cell, indicates it's activity.
2. Choroid plexus secretes cerebro spinal fluid.
3. Paraffin wax is used for embedding.
4. Xylene is used for clearing.

**IV. Very Short Answers:**

**(10 x 2 = 20)**

1. Purkinje cells.
2. Leydig cells.
3. Podocytes.
4. Astrocytes.
5. Satellite cells.
6. Cell Nests.
7. Intercalated Disc.
8. Hepatocyte.
9. Goblet cell.
10. Pseudo stratified Epithelium.

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

**Q.P. Code : 202091**

**Time: Three Hours**

**Maximum: 100 marks**

**Answer ALL questions**

**I. Essay: (2 x 10 = 20)**

1. Describe in detail the internal capsule. Add a note on its blood supply.
2. Describe the microscopic anatomy of lymphoid tissue.

**II. Short Questions: (8 x 5 = 40)**

1. Granulosa lutein cells.
2. Oligodendrocytes.
3. Microscopic anatomy of retina.
4. Paraffin wax.
5. Limbic lobe.
6. Reticular fibres.
7. Apoptosis.
8. Bone matrix.

**III. Reasoning Out: (4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. In a lesion of the functional areas 44 and 45, the patient cannot articulate or write normally.
2. In Parkinsonism, there are tremors at rest.
3. Fenestrated capillaries are seen in connective tissue.
4. Oesophagus is lined by nonkeratinized stratified squamous epithelium.

**IV. Very Short Answers: (10 x 2 = 20)**

1. Give two examples of mucosa associated lymphoid tissue.
2. Where are apocrine sweat glands found?
3. Name the fixative used for electron microscopic work.
4. Glycocalyx.
5. Name two stains used to demonstrate elastic fibres.
6. Mention the causes for sections to crumble during cutting.
7. Draw the structure of a cone cell.
8. Describe a portal acinus.
9. What are mesangial cells?
10. What is woven bone?

[LI 118]

**APRIL 2016**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

**Q.P. Code : 202091**

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:**

**(2 x 10 = 20)**

1. Describe the Histology of Excretory system.
2. Discuss the blood supply of Cerebrum.

**II. Write short notes on:**

**(8 x 5 = 40)**

1. Microscopic Structure of Retina.
2. Microscopic Structure of Elastic Artery.
3. Microscopic Structure of Prostate Gland.
4. Microscopic Structure of Uterine Tube.
5. Edinger Westphal Nucleus.
6. Insula.
7. PAS – Stain.
8. Plastination.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following is TRUE or FALSE and reason out.**

1. M Cells are Cuboidal in Nature.
2. Paraffin wax is water soluble.
3. Small Swelling called Gliosomes present in the process of Astrocytes.
4. Oligo dendrocyte provides Myelin Sheath to nerve fibre.

**IV. Very Short Answers:**

**(10 x 2 = 20)**

1. Myoepithelial cells.
2. Basket cells.
3. Microvilli.
4. Crypts of Leiberkhun.
5. Germinal Centre.
6. Chondrocytes.
7. Transitional Epithelium.
8. Cells of Clara.
9. Osteoblast.
10. Tancytes.

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## M.D. DEGREE EXAMINATION

## BRANCH XXIII – ANATOMY

## PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES

Q.P. Code : 202091

Time : Three Hours

Maximum : 100 Marks

## I. Essay:

(2 x 10 = 20)

1. Describe in detail about Nucleus, Functional Component, Branches of Hypoglossal nerve.
2. Describe microscopic structure of 'Lung' in detail.

## II. Write short notes on:

(8 x 5 = 40)

1. Blood Brain Barrier.
2. Growing end of Long Bone.
3. Microscopic Structure of Urinary Bladder.
4. Histology of Mixed Salivary Gland.
5. Periodic Acid Schiff reaction.
6. Neuro Biotaxis.
7. Collagen Fiber.
8. Epiphyseal Plate.

## III. Reasoning Out:

(4 x 5 = 20)

State whether each of the following is TRUE or FALSE and reason out.

1. Jejunum has Peyer's patch in Lamina propria.
2. Microscopic Structure of pituitary bodies are found in pars distalis is – Herring bodies.
3. Unmyelinated Axons are seen in Pituitary gland.
4. Vas deferens contains outer and inner thin layers of longitudinal muscles and middle well defined circular muscles.

## IV. Very Short Answers:

(10 x 2 = 20)

1. Basal cell.
2. Fibroblast
3. Osteoclast.
4. Thymic corpuscles.
5. Kupffer's cell.
6. Stereocilia.
7. Ependymal cell.
8. Satellite cells.
9. M-Cells.
10. Paneth cell.

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[LK 118]

**MAY 2017**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION  
BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

**Q.P. Code : 202091**

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:**

**(2 x 10 = 20)**

1. Describe in detail epithelial tissue.
2. Describe the floor of fourth ventricle.

**II. Write short notes on:**

**(8 x 5 = 40)**

1. Tissue fixation.
2. Rotary microtome.
3. Structure of suprarenal gland.
4. Histology of a large artery.
5. Structure of stomach with relation to fundus.
6. Histology of cerebellum.
7. Structure of mammary gland.
8. Histology of compact bone.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following is TRUE or FALSE and reason out.**

1. Arachnoid granulations absorb cerebro spinal fluid.
2. Corpora amylacea is present in prostate.
3. Muscularis mucosae is absent in gallbladder.
4. Villi are absent in colon.

**IV. Very Short Answers:**

**(10 x 2 = 20)**

1. Syncytium.
2. Brunner's gland.
3. Rods and cones.
4. Sweat gland.
5. Cilia.
6. Optic radiation.
7. Olfactory bulb.
8. Forceps minor.
9. Cover slip.
10. Central vein in liver Micro structure.

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[LL 118]

**OCTOBER 2017**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code : 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:**

**(2 x 10 = 20)**

1. Describe the structure of compact bone.
2. Describe the internal capsule of Brain.

**II. Write short notes on:**

**(8 x 5 = 40)**

1. Tissue sectioning.
2. Superior colliculus.
3. Mammillary body.
4. Structure of cerebellum.
5. Histology of parotid gland.
6. Elastic cartilage.
7. Architecture of smooth muscle.
8. Structure of uterus.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following is TRUE or FALSE and reason out.**

1. Perichondrium is absent in fibro cartilage.
2. Periosteum is absent in sesamoid bone.
3. Glomerulus is present in kidney and cerebellum.
4. Hassall's corpuscles are present in abundance in fetal thymus.

**IV. Very Short Answers:**

**(10 x 2 = 20)**

1. Cuboidal epithelium.
2. Zona glomerulosa.
3. Lining of vaginal mucosa.
4. Function of uterine endometrial glands.
5. Function of cilia in uterine tube.
6. Sharpening of microtome knife.
7. Eosin stain.
8. Pinealocytes.
9. Villi in small intestine.
10. Transitional epithelium.

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**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code : 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:**

**(2 x 15 = 30)**

1. Describe facial nerve under following headings  
functional components and nuclei, course and relations, branches and  
distribution and applied anatomy.
2. Describe the histology of respiratory tract under the following headings  
nasal cavity, pharynx, larynx, trachea and the lungs.

**II. Short notes:**

**(10 x 5 = 50)**

1. Spiral organ of corti.
2. Fat stain.
3. Cavity embalming.
4. Histology of testis.
5. Corpus striatum.
6. Third ventricle.
7. Transverse section of midbrain at the level of superior colliculus.
8. Blood supply of spinal cord.
9. Haematoxylin.
10. Histology of hyaline cartilage.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Serous demilunes are frequently present in submandibular gland.
2. Xylene is used as a dehydrating agent.
3. Circumvalate papillae is supplied by chorda tympani nerve.
4. Lesion of the left optic tract gives a right homonymous hemianopia.

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**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

*Q.P. Code: 202091*

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:**

**(2 x 15 = 30)**

1. Describe glossopharyngeal nerve under following headings functional components and nuclei, course and relations, branches and distribution and applied anatomy.
2. Describe the histology of small intestine under following headings duodenum, jejunum and ileum and discuss the various specialized epithelial cells present in the mucosa.

**II. Short notes:**

**(10 x 5 = 50)**

1. Periodic acid schiff's stain.
2. Embedding.
3. Composition of embalming fluid.
4. Histology of cerebrum.
5. Inferior colliculus.
6. Fourth ventricle.
7. Corpus callosum.
8. Hypothalamus.
9. Histology of prostate.
10. Histology of elastic artery.

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Merocrine type of sweat glands are present in axilla.
2. In the testis, sertoli cells support developing germ cells and provide with nutrition.
3. Hemisection of spinal cord causes loss of pain and temperature on the opposite side below the level of lesion.
4. In bell's palsy the entire half of the face is paralysed.

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**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** (2 x 15 = 30)

1. Describe the microscopic anatomy of the Liver.
2. Write an essay about the Thalamus, its nuclei and connections.

**II. Short notes:** (10 x 5 = 50)

1. Embedding media.
2. Third ventricle.
3. Microstructure of pancreas.
4. Histology of duodenum.
5. Embalming a cadaver.
6. Electron microscopy.
7. Circle of Willis.
8. Nuclei of Cerebellum.
9. Structure of Serous salivary gland.
10. Hassall's corpuscles.

**III. Reasoning Out:** (4 x 5 = 20)

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Clara cells in lung contain cytochrome P-450 enzymes which engulf airborne Toxins.
2. Mossy fibres are present in cerebellum.
3. The hypothalamus act as a thermostat to control body temperature.
4. Light bands of skeletal muscle are A bands which are formed by overlapping actin and myosin filaments.

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**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay: (2 x 15 = 30)**

1. Describe trigeminal nerve under following headings - functional components and nuclei, course and relations, branches and distribution and applied anatomy.
2. Describe the histology of the uterus and fallopian tube. Add a note on their functional correlations.

**II. Short notes: (10 x 5 = 50)**

1. Association fibres.
2. Histology of retina.
3. Auditory pathway.
4. Desmosomes.
5. Clearing agents.
6. Histology of liver.
7. Reticular fibres.
8. Cells of epidermis.
9. Substantia nigra.
10. Fixation.

**III. Reasoning Out: (4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Lesions of Wernicke's area in the dominant hemisphere result in inability to identify an object by its feel.
2. In cerebellar ataxia, the patient has a wide based gait.
3. The function of the stereocilia on the lining cells of the epididymis help in the absorption of the seminal fluid.
4. The matrix in hyaline cartilage has a homogenous appearance, since the matrix has no fibres in it.

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[LQ 118]

**AUGUST 2020**  
**(MAY 2020 SESSION)**  
**M.D. DEGREE EXAMINATION**  
**BRANCH XXIII – ANATOMY**

Sub. Code: 2091

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:**

**(2 x 15 = 30)**

1. Describe in detail about internal capsule. Add a note on its applied anatomy
2. Describe in detail about the microstructure of kidney

**II. Short notes:**

**(10 x 5 = 50)**

1. Postmortem embalming
2. Neurobiotaxis
3. Fixatives
4. Edinger-westphal nucleus
5. Microscopic structure of lung
6. Lateral lemniscus
7. Cerebellar glomerulus
8. Microstructure of tongue
9. Special stains.
10. Ovarian follicle

**III. Reasoning Out:**

**(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Herring body is seen in adenohypophysis
2. Anterior nucleus of thalamus is concerned with memory
3. Interpeduncular cistern contains circular arteriosus
4. Glands of Bowman are seen in olfactory epithelium

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[LS 118]

**NOVEMBER 2020**  
**(OCTOBER 2020 SESSION)**  
**M.D. DEGREE EXAMINATION**

**Sub. Code: 2091**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM  
TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** **(2 x 15 = 30)**

1. Describe in detail about perfusion of brain. Add a note on its applied anatomy
2. Describe in detail about the microstructure of mucosa associated lymphoid tissue.

**II. Short notes:** **(10 x 5 = 50)**

1. Embalming fluids
2. Thalamic nuclei
3. Preparation of museum specimen
4. Microtome
5. Microscopic structure of renal corpuscle
6. Brain sand
7. Restiform body
8. Corpora quadrigemina
9. Lateral ventricle.
10. Urothelium

**III. Reasoning Out:** **(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Barrett's mucosa is seen at pharyngo oesophageal junction
2. Divergent squint is due to paralysis of abducent nerve
3. Peg cells are seen in ovary
4. Mamillary body is seen in papez circuit

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[MD 0721]

**JULY 2021**  
**(MAY 2021 SESSION)**  
**M.D. DEGREE EXAMINATION**  
**BRANCH XXIII – ANATOMY**

Sub. Code: 2091

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** **(2 x 15 = 30)**

1. Describe and correlate the microstructure of skin and its appendages with its functions.
2. Describe in detail about the chemo architectonic nuclear arrangement of Reticular formation.

**II. Short notes:** **(10 x 5 = 50)**

1. Cranial nerve nuclei in midbrain with their functional components.
2. Cerebellar circuitry.
3. Lateral ventricle.
4. Embalmer's legal responsibility.
5. Kaiserling fluid used in museum technique.
6. Requisites for best performance of a microscope.
7. Staining of nervous tissue.
8. Apical domain of a cell and its modifications.
9. Blood Air barrier.
10. Microstructure of Juxtaglomerular apparatus.

**III. Reasoning Out:** **(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Centroacinar cells are characteristic feature of serous salivary gland.
2. Pineal gland is an important regulator of circadian rhythm.
3. Splanchnic nerves are postganglionic parasympathetic fibres.
4. In syringomyelia loss of pain and temperature sensations occur in hands and arms bilaterally.

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[MD 1121]

**NOVEMBER 2021**  
**(OCTOBER 2021 SESSION)**  
**M.D. DEGREE EXAMINATION**

Sub. Code: 2091

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

*Q.P. Code: 202091*

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** (2 x 15 = 30)

1. Describe the composition and microstructure of connective tissue with functional correlation.
2. Write in detail the components of limbic system and its major connections.

**II. Short notes:** (10 x 5 = 50)

1. Cranial nerve nuclei in medulla with their functional components.
2. Structure and connections of cerebellar cortex.
3. Fourth ventricle.
4. Establishment of embalming facilities.
5. Kaiserling fluid fixation technique.
6. Cleaning and maintenance of microscope.
7. Immunohistochemical staining.
8. Lateral domain of cell and its junctional complexes.
9. Blood testis barrier.
10. Microstructure of cardioesophageal junction.

**III. Reasoning Out:** (4 x 5 = 20)

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Ito cells are the macrophages present in liver.
2. Spinal cord segments does not correspond to the vertebral column segments in adults.
3. White rami communicantes are postganglionic parasympathetic efferent fibres supplying sweat glands.
4. Hypothalamohypophyseal portal system delivers growth hormone to the pituitary gland.

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**THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY**

**[MD 0522]**

**MAY 2022**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** (2 x 15 = 30)

1. Classify Lymphoid organs. Describe their microstructure with functional correlation.
2. Describe the various thalamic nuclei, their connections and blood supply.

**II. Short notes:** (10 x 5 = 50)

1. Plastination.
2. Contractile apparatus of skeletal muscle.
3. Chemical basis and Principles of Eosin & Haematoxylin staining.
4. Cells in the gastric glands in fundus and body of the stomach.
5. Nuclei of the Vagus Nerve.
6. Cytoskeleton.
7. Compare and contrast the cerebral and spinal meninges.
8. Blood supply of Internal capsule.
9. Medial Medullary Syndrome.
10. Restiform Bodies.

**III. Reasoning Out:** (4 x 5 = 20)

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. The more distal the injury to the nerve, the more effective the regeneration.
2. The mossy fibres in cerebellum are the terminal efferent fibres of the Olivo cerebellar tract and make contact with 1-10 Purkinje neurons.
3. Brush cells present in tracheal mucosal layer function as sensory receptor cells.
4. Melanophores are cells that are located in the stratum granulosum layer of epidermis and are responsible for synthesis of Melanin.

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**THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY**

**[MD 1022]**

**OCTOBER 2022**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** (2 x 15 = 30)

1. Describe the microscopic anatomy of Pancreas.
2. Write an essay about the internal capsule and its blood supply.

**II. Short notes:** (10 x 5 = 50)

1. Blood Air Barrier.
2. Histology of Pituitary Gland.
3. Nuclei of cerebellum.
4. Haematoxylin and Eosin staining.
5. Circle of Willis.
6. Hassall's corpuscles.
7. Electron microscopy and its use.
8. Floor of IV<sup>th</sup> ventricle.
9. Preservation of museum specimens.
10. Histology of cardiac muscle.

**III. Reasoning Out:** (4 x 5 = 20)

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. In Lung, Clara cells secrete surfactant.
2. Paraffin wax is used to embed nervous tissue.
3. Astrocytes help to maintain blood brain barrier.
4. In Pituitary gland pituicytes are found in pars nervosa.

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**THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY**

**[MD 0723]**

**JULY 2023  
(MAY 2023 EXAM SESSION)**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** **(2 x 15 = 30)**

1. Describe the microanatomy of the urinary tract with functional correlation.
2. Elaborate on the components of the limbic system.

**II. Short notes:** **(10 x 5 = 50)**

1. Microanatomy of the pituitary gland.
2. Midbrain-superior colliculus level-illustrate.
3. Layers of epidermis.
4. Decalcification.
5. Histology of appendix.
6. Microanatomy of intervertebral disc.
7. Embedding.
8. Corpus callosum.
9. Auditory pathway.
10. Junctional complexes.

**III. Reasoning Out:** **(4 x 5 = 20)**

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Formalin becomes turbid as a result of long storage due to the white precipitate of paraformaldehyde.
2. The sharpness of the microtome knife can be ascertained by the naked eye.
3. The hepatic sinusoids drain into the canals of Hering.
4. Gyrus fasciolaris forms a part of ventral fornix.

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**THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY**

**[MD 1223]**

**DECEMBER 2023  
(OCTOBER 2023 EXAM SESSION)**

**Sub. Code: 2091**

**M.D. DEGREE EXAMINATION**

**BRANCH XXIII – ANATOMY**

**PAPER III – HISTOLOGY, NEURO ANATOMY AND MUSEUM TECHNIQUES**

***Q.P. Code: 202091***

**Time : Three Hours**

**Maximum : 100 Marks**

**I. Essay:** (2 x 15 = 30)

1. Trace the ultrastructure of the respiratory system from the external nares to the alveoli with functional correlation.
2. Describe the Hypothalamus and its connections.

**II. Short notes:** (10 x 5 = 50)

1. Fixatives.
2. Microanatomy of liver.
3. Connective tissue stains.
4. Trochlear nerve.
5. Third ventricle.
6. Circumventricular organs.
7. Histology of epiglottis.
8. Soft embalming.
9. Myelination of axons.
10. Histology of cardiac muscle.

**III. Reasoning Out:** (4 x 5 = 20)

**State whether each of the following statement is TRUE or FALSE and reason out.**

1. Microglia originate in the bone marrow.
2. Interstitial cells of Leydig form the blood testis barrier.
3. The gallbladder does not have muscularis mucosae.
4. The thalamic reticular nucleus belongs to the reticular activating system.

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