AIIMS ESSENCE

Salient Features

- Authentic questions of AIIMS with exact language and options including all image-based questions
- Fully coloured, thoroughly revised, updated from 19th edition of Harrison, 27th edition of Bailey & Love, 9th edition of Robbins, 12th edition of Goodman Gillman, 10th edition of Schwartz, 20th edition of Sabiston, 41st edition of Gray's Anatomy, 24th edition of Park, 30th edition of Harper, 25th edition of Ganong
- Thoroughly verified answers from subject specialist, faculty members of PGMEI and PG aspirants
- Explanations in tabulated form
- Explanations incorporating only high yielding and relevant facts
- Highlighted important, golden facts and previously asked questions
- Controversial questions and image-based questions are handled with special care to clear the concept
- Explanations from latest editions of standard and most authentic text books
- Line diagrams to minimise tedious efforts
- Mnemonics for faster learning

Ambition is the first step towards success, the second is action. The action should be smart enough that can make you reach your goal. This book can help you achieve your dreams as the preparation is lacking if you don't know the correct answers to previous year's papers. AIIMS Essence is an attempt to provide you with the authentic questions and accurate answers with appropriate explanation of the topics asked. The confidence you gain from knowing the repeat questions will surely get you ahead in the race. The book has been updated from the most recent editions of Robbins, Harrison, Goodman Gillman, Schwartz, Sabiston, Gray's Anatomy, Park, Harper and Ganong. The answers have been meticulously revised by the subject specialists, faculty members of PGMEI as well as PG aspirants. Explanations incorporate high yielding and relevant facts. Explanations are presented in tabulated form along with line diagrams and mnemonics which makes the learning efficient and interesting. While writing this book, special emphasis has been given to controversial and image-based questions as they are the ones which really make the difference. There is no secret routine, the intelligence go in drain if it is not combined with consistent hard work. Make the right choices to build a better future. All the best…

Dr Pritesh Singh
Director PGMEI
MBBS (MAMC), MS (Surgery)
FMAS, FIAGES

Dr Pritesh Singh, graduate from Maulana Azad Medical College and postgraduate from Lady Hardinge Medical College, New Delhi, India, is an excellent teacher and has been taking awe inspiring classes in various countries since 2009. He is amongst the best faculty and is very popular with students because of his spellbinding classes. He is a renowned educationist and author of SURGERY ESSENCE, which needs no introduction and AIIMS ESSENCE and DPG entrance examination books. The students all over the country admire the way he teaches. He is not just a source of inspiration for his pupils rather he is their role model, as he is young and dynamic. He sets a positive example with his style of teaching, courtesy, cooperation and professionalism. Some students say he is a magician who keeps his students spellbound throughout his class. His performance speaks volumes about his knowledge and precision.

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4th EDITION

AIIMS ESSENCE

Pritesh Singh

Gold Standard Book for PGMEE Preparation

Volume 1

AIIMS ESSENCE

2017–2014

Authentic Questions of AIIMS PG Entrance Examination with Finest Explanations and References from Standard Textbooks

Pritesh Singh

4th EDITION

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AIIMS NOVEMBER 2017

Multiple Choice Questions

ANATOMY

1. Which of following is not the branch of external carotid artery in Kiesselbach's plexus?
a. Anterior and posterior ethmoidal
b. Sphenopalatine artery
c. Greater palatine artery
d. Septal branch of superior labial artery

2. Structure passing through the central tendon of the diaphragm:
a. Esophagus b. Aorta
c. IVC d. Sympathetic chain

3. Talocalcaneonavicular joint is what type of joint?
a. Saddle b. Hinge
c. Ellipsoid d. Ball and socket

4. Marked structure in the given image connects which of the following?

a. Striate cortex b. Orbital cortex
c. Hippocampus d. Dentate nucleus

5. Development the of heart is from which of the following marked structure?

a. a b. b
c. c d. d

6. Which of the following sinus grows till early adulthood?
a. Maxillary b. Ethmoidal
c. Frontal d. Sphenoid

7. What is the shape of the trapezius muscle?
a. Quadrangular b. Triangular
c. Strap d. Fusiform

8. Which of the marked muscle helps in the opening of jaw?

a. a b. b
c. c d. d

9. Dense irregularcollagen fibres are found inwhich of the following?
a. Tendon b. Ligament
c. Dermis d. Lamina propria

10. Holocrine cells in the given slide are:

a. a b. b
c. c d. d

11. Identify the marked nerve:

a. Abducent nerve b. Spinal accessory nerve
c. Hypoglossal nerve d. Labyrinthine artery

12. Whatistherootvalueofcremastericreflex?
a. L1-L2 b. L2-L3
c. L4-L5 d. S1-S2

13. All of the following are true about grey communicans *except*:
a. Unmyelinated
b. Connects to spinal nerves
c. Preganglionic
d. Present medial to the white ramus communicans

14. Which of the following junctional complexes are not seen in the marked region of the given slide?

a. Gap junction (communicating junctions)
b. Zonula occludens (tight junction)
c. Fascia adherens (adhering junction)
d. Macula adherens (desmosomes)

15. Which of the following layer contains abundant desmosomes?

a. A b. B
c. C d. D

16. Which of the following refers to the lateral semicircular canal in the specimen of cortical mastoidectomy with posterior tympanostomy?

a. a b. b
c. c d. d

PHYSIOLOGY

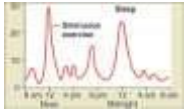
17. Slow waves are generated by:
a. Myenteric neurons
b. Smooth muscle
c. Interstitial cells of Cajal
d. Parasympathetic neurons

18. Reflex responsible fortachycardia during right atrial distension is:
a. Bezold-Jarischreflex b. Bainbridgereflex
c. Cushingreflex d. J-reflex

19. Identify the stage of sleep from the given picture:

a. Stage I NREM b. Stage II NREM
c. Stage III NREM d. REM

20. Identify the hormone from the picture:

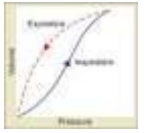


a. Growth hormone b. Cortisol
c. Estrogen d. Insulin

21. Feed forward control system is employed during the regulation of:
a. Blood volume b. pH
c. Temperature d. Blood pressure

22. Efferent arteriolar constriction causes all of the following *except*:
a. Decrease in GFR
b. Decreasesrenalbloodflow
c. Decreases oncotic pressure in peritubular capillaries
d. Increases hydrostatic pressure in glomerular capillaries

23. Difference in trajectory between inspiratory loop and the expiratory loop in the curve is due to:



a. Difference in alveolar pressure during inspiration and expiration
b. Difference in concentration of surfactant during inspiration and expiration
c. Difference in airway resistance during inspiration and expiration
d. Inspiration is active and expiration is passive

24. Absolute refractory period is due to:
a. Opening of calcium channels
b. Closure of potassium channels
c. Closure of active gates of sodium channel
d. Closure of inactive gates of sodium channel

Explanations

ANATOMY

1. Ans. a. Anterior and posterior ethmoidal *(Ref: Gray's 41/e p563, 40/e p554; Dhingra 7/e p197)*

Anterior and posterior ethmoidal arteries are branches of ophthalmic artery, which in turn is a branch of internal carotid artery. Sphenopalatine and greater palatine arteries are branches of maxillary artery, which in turn is branch of external carotid artery. Superior labial artery is the branch of facial artery, which in turn is branch of external carotid artery.

"Little's area: It is situated in the anterior inferior part of nasal septum, just above the vestibule. Four arteries, anterior ethmoidal, septal branch of superior labial, septal branch of sphenopalatine artery and the greater palatine, anastomose here to form a vascular plexus called "Kiesselbach's plexus". This area is exposed to the drying effect of inspiratory current and to finger nail trauma, and is the usual site for epistaxis in children and young adults." *- Dhingra 7/e p197*

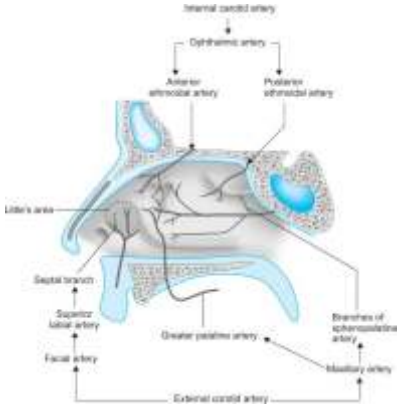


Fig. 1: Blood supply of nasal septum

Blood Supply of Nasal Septum	
Internal Carotid System	**External Carotid System**
• **Anterior & posterior ethmoidal artery** (Branch of **ophthalmic artery**)	• **Sphenopalatine artery** (branch of **maxillary artery**) gives **nasopalatine & posterior medial nasal branches**. • Septal branch of **greater palatine artery** (branch of **maxillary artery**) • Septal branch of **superior labial artery** (branch of **facial artery**).

2. Ans. c. IVC *(Ref: Gray's 41/e p899, 40/e p1008)*

Inferior vena cava (IVC) passes through central tendon of diaphragm.

"The vena caval aperture, the highest of the three large openings, lies at about the level of the disc between the eighth and ninth thoracic vertebrae. It is quadrilateral, and located at the junction of the right leaf with the central area of the tendon, and so its margins are aponeurotic. It is traversed by the inferior vena cava, which adheres to the margin of the opening, and by some branches of the right phrenic nerve." *-Gray's 40/e p1008*

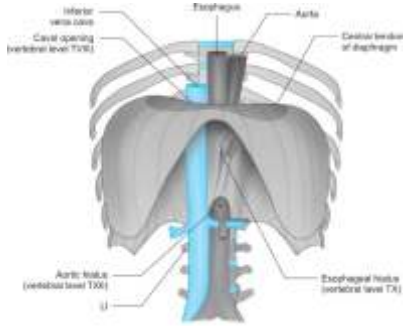


Fig. 2: Openings in diaphragm

Opening	Vertebral level	Part of diaphragm	Passing structure
Vena Caval	T_8	**Central tendon**	Inferior vena cava Right phrenic nerve
Esophageal	T_{10}	**Muscular portion derived from right crus**	**Esophagus** Esophageal branch of left gastric artery **Gastric or vagus nerve**
Aortic	T_{12}	**Osseoaponeurotic between right & lateral crus**	**Aorta** **Thoracic duct** **Azygous vein**

Small Openings in the Diaphragm		
Opening	**Location**	**Passing structure**
Medial lumbocostal Arch	Behind medial arcuate ligament	**Sympathetic chain**
Lateral lumbocostal arch	Behind arcuate ligament	**Subcostal nerve & vessels**
Larry's space / Foramen of Morgagni	**Between xiphoid & costal origin of diaphragm**	**Superior epigastric vessels some lymphatics**

AIIMS MAY 2017

Multiple Choice Questions

ANATOMY

1. The following coronal section of the abdomen is showing the relations of epiploic foramen. Which of the following structure forms its superior boundary as indicated in the figure below?

a. Lesser omentum
b. Duodenum
c. Inferior vena cava
d. Caudate lobe of liver

2. The following is the representation of a cervical vertebra. Which part lies in relation with the third part of vertebral artery?

a. A
b. B
c. C
d. D

3. Nucleus pulposus of intervertebral disc is a derivative of which of the following germ layers?

a. A
b. B
c. C
d. D

4. Which of the following part of scapula can be palpated in the infraclavicular fossa?

a. A
b. B
c. C
d. D

5. The following picture shows various foramina at the skull base. Mandibular nerve passes through which of the following foramen?

a. A
b. B
c. C
d. D

6. A patient came with inability to move his 4th and 5th digit, cannot hold a pen and he was not able to hold a piece of paper between his fingers. Which of the following site given below is the probable cause of injury to the nerve in the question?

a. A
b. B
c. C
d. D

7. A 5 years old child presented with absence of thymus, hypoparathyroidism and tetany. Which of the following marked area is defective in this case?

a. A
b. B
c. C
d. D

8. An area has been marked in the coronal section of the brain below. Defect in this area will lead to what pathology?

a. Alzheimer's disease
b. Huntington's chorea
c. Paralysis agitans
d. Dementia

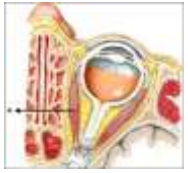
9. The muscle labeled in the following cross section is responsible for which movement of the jaw?

a. Protraction
b. Elevation
c. Retraction
d. Depression

10. The arrow marked structure in the given picture connects, which of the following structure?

a. Hippocampus
b. Amygdala
c. Mammillary bodies
d. Insular cortex

11. The muscle marked in diagram is supplied by the nerve, whose nucleus is situated at the level of:



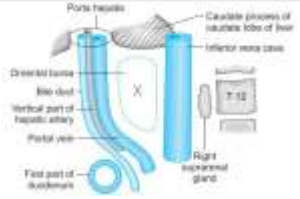
Explanations

ANATOMY

1. Ans. d. Caudate lobe of liver *(Ref: Gray's 41/e p1107)*

Caudate lobe of liver forms the superior boundary of epiploic foramen.

"The epiploic foramen (foramen of Winslow, aditus to the lesser sac), is a short, vertical slit, usually 3 cm in height in adults, in the upper part of the right border of the lesser sac. It leads into the greater sac. *The hepatoduodenal ligament, which is formed by the thickened right edge of the lesser omentum extending from the flexure between the first and second parts of the duodenum, forms the anterior margin of the foramen.* ***The anterior border contains the common bile duct (on the right), portal vein (posteriorly) and hepatic artery (on the left) between its two layers. Superiorly the peritoneum of the posterior layer of the hepatoduodenal ligament runs over the caudate lobe of the liver which forms the roof of the epiploic foramen."*** *-Gray' 41/e p1107*



Epiploic Foramen (Foramen of Winslow, aditus to the lesser sac)

- Epiploic foramen is the **space connecting the greater sac & lesser sac, lying between portal vein & IVC**.

Boundaries of Epiploic Foramen	
Anterior	**Hepatoduodenal ligament & portal triad** (portal vein, hepatic artery, CBD; cystic duct also present in free edge of lesser omentum[o]
Posterior	**IVC** & right suprarenal gland[o]
Superior	**Caudate process of caudate lobe**[o] of liver & inferior layer of coronary ligament
Inferior	**1st part of duodenum** & **transverse part of hepatic artery**[o]
Left lateral	**Splenorenal & gastrosplenic** ligament[o]

Pringle Maneuver (Total Inflow Occlusion)

- **Total clamping** of **hepatic pedicle**, by placing an **atraumatic clamp** across the **foramen of Winslow**[o].
  - **Appropriate-sized vascular clamp** or **loop snare** easily **controls hemorrhage** from **portal vein (effectively)** & **hepatic arteries**[o].
  - It **doesn't control bleeding** from **IVC & hepatic veins**[o].
- Inflow occlusion durations of up to **30 minutes** can be **tolerated safely** in **cirrhotic livers** and possibly up to **60 minutes** in **early disease**.
- If prolonged occlusion is required, intermittent clamping can be used with **repeated clampings** of **10-20 minutes** duration, each followed by **5 minutes declamping**.

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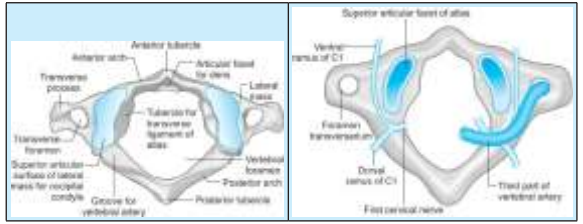
2. Ans. c. C *(Ref: Gray's 41/e p283)*

Third part of vertebral artery, which passes over the posterior aspect of atlas vertebra is represented by 'C'.

A	Transverse foramen
B	Anterior arch and articular facet for dens
C	Groove for vertebral artery
D	Articular surface for occipital condyle



"The vertebral artery arises from the superoposterior aspect of the first part of the subclavian artery. It passes through the foramina in the transverse processes of all of the cervical vertebrae except the seventh, curves medially behind the lateral mass of the atlas and enters the cranium via the foramen magnum. At the lower pontine border it joins its fellow to form the basilar artery. Occasionally it may enter the cervical vertebral column via the fourth, fifth or seventh cervical vertebra." —Gray's 41/e p283

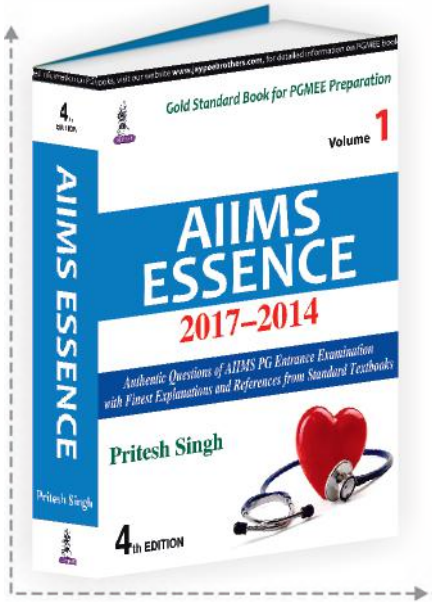
"The third part issues medial to rectus capitis lateralis, and curves backwards and medially behind the lateral mass of the atlas, with the first cervical ventral spinal ramus lying on its medial side. In this position it lies in a groove on the upper surface of the posterior arch of the atlas, and it enters the vertebral canal below the inferior border of the posterior atlanto-occipital membrane. *This part of the artery, covered by semispinalis capitis, lies in the suboccipital triangle." —Gray's 41/e p283*

"The vertebral artery ascends in the neck through the foramina in the transverse processes of the upper six cervical vertebrae. It passes medially above the posterior arch of the atlas and then ascends through the foramen magnum into the skull. *On reaching the anterior surface of the medulla oblongata of the brain at the level of the lower border of the pons, it joins the vessel of the opposite side to form the basilar artery." —Snells 9/e p599*

Vertebral Artery

- **Vertebral artery ascends in the neck through foramina** in the **transverse processes of upper six cervical vertebrae**[o].
- It **passes medially above the posterior arch of atlas** & then **ascends through foramen magnum into skull**[o].
- On reaching the anterior surface of medulla oblongata of brain at the **level of lower border of pons**, it **joins the vessel of the opposite side** to form the **basilar artery**[o].

Parts of Vertebral Artery		
Cervical part	First part	• Extends from **origin to foramen transversarium of C6** vertebra[o]. This part lies in the scalenovertebral triangle.
Vertebral part	Second part	• Lies **within foramen transversaria of upper six cervical vertebrae**
Suboccipital part	Third part	• Extends **from foramen transversarium of C1** vertebra **to the foramen magnum of skull**[o]. • This part **lies within the suboccipital triangle**[o].
Intracranial part	Fourth part	• Extends **from foramen magnum to the lower border of pons**[o].



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PREVIEW

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