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DISCLAIMER

This book contains questions based on topics asked in previous years' MCI Screening Exams. Often repeated topics and sub-topics have been included for students' benefit. We do not claim that these questions are exact or similar to the questions asked in MCI Exams. If any such similarity is found, it is purely coincidental and by chance.

Dedicated to

My Loving wife Renuka

Dr Deepak Marwah

My adorable daughter Sarah S. Ahmad
and

My Loving wife Dr Sadia H. Ahmad

Dr Siraj Ahmad

Dedicated to Education

Preface to the Eighth Edition

Dear Students,

We are happy to announce the release of the much-awaited 8th edition of FMGE SOLUTIONS for all of you after going through all the mind-boggling recalls collection.

This book has been divided into four sections:

1. Recall-based questions of all 19 subjects up to July 2023
2. Clinical Case-Based Scenarios
3. Image-Based Questions
4. Key Points Covering Important Points of All the Subjects for Last Minute Revision.

The latest pattern of examination typically has turned out more toward clinical scenarios, but at the same time, many short MCQs are also asked as per the feedback we have received. We have adapted to the new pattern and introduced many new features to the book including the clinical-based scenarios. In order to maintain the balance, we have kept some short questions as well in the book. Since, it has been a trend that exact MCQs are barely repeated, the topics are repeated frequently. So, our readers are advised to focus on explanations given for each MCQs, be it short or long. The recent edition of book not only includes clinical vignettes but also additional image-based questions to enhance students' skills and increase the strike rate in the actual exam.

This examination has always been challenging for the students and they describe it as a barrier in their career. In order to overcome this barrier, you will have to be ready in the format it is anticipated. For this, your preparation level should be from the very basics and it should be continued with persistence, and remember, persistence is a great substitute for talent.

“A river cuts through the rock, NOT because of its power but because of its persistence.”

As we always mention in our classes that **Hard work beats talent, when talent doesn't work hard**. This examination tests not only your talent, but also your dedication, your hard work, your capacity to sit for 12–14 hours per day. We have seen all of you studying the same matter with similar dedication, but only a handful of people taste the success of crossing the boundary line. Many a time, the most talented ones are also left behind. Ever wondered what is the thing that separates the winners from the rest of the population? The reasons can be many. But we could recite a few:

First and foremost is the **faith and belief that you can do it**. It is said, *“if you have acquired this belief that you can do it, half of the battle is already won.”* Now the question arises, is it just enough to believe that you can do it? The answer is NO. In addition to this belief, you also need to show the **consistency and will** to challenge what comes next. You will have to work accordingly.

Secondly, *“the extra mile they ran”*. After your full day exhaustive classes, it is practically impossible to sit with the notes once again for the next few hours. But dear students, this is what that makes the difference between a topper and an average performer. A top ranked student shows this toughness, aggressiveness and will to run that extra mile on the same evening. It is this very attitude that brings him or her one step closer to victory every day. Therefore, it is very much advisable to all of you, to revive yourself after all the tiredness and do the revision of that day, the same evening itself. *“This is your battle, push yourself for one more step, no one else is going to do it for you, the success lies right there.”*

Thirdly, the **willingness to explore the new and to accept the challenge**. Remember *“if it doesn't challenge you, it won't change you”* and *“old ways won't open new doors.”*

As the level of examination has been in most unpredictable way, you will have to accept the challenge and be ready to learn the new things that comes along. Remember, the percentage of repeat questions in the examination is very less but **“the topics are often repeated”**. Hence, your analytical and reading skills will determine your score. In the book, the explanation section covers information over and above those asked in the questions in each topic. Therefore, we would suggest you to read all the explanations in detail with at least 3–4 revisions including the **“Extra Mile”** boxes which are add-ons and golden points for your examination.

In order to keep it up to the exam, this time we have segregated the book in separate segments including *Clinical Questions, Image-Based Questions and “Key Points”*, which will be your most important revision tool in last few days of revision.

FMGE SOLUTIONS

Last but not least, it is the proper strategy and time management that make all the difference. Remember, you all get only 5–6 months for your preparation and in the same time, you have to finish the classes of all 19 subjects, revise them, give tests, which certainly is a lot of work in a very short span of time. Hence, you are advised to finish the first reading in first 3–4 months. In the 4th to 5th month your revisions should start. Whenever you start revision, remember to do 2 to 3 subjects per day (for example—One clinical/major subject + One paraclinical/Pre clinical + One Minor subject). Dry subjects, like Anatomy, Biochemistry, Microbiology should be in continuous touch. Give at least 90 minutes every day on your subjects alternatively and follow them religiously on priority basis.

“The key is NOT to prioritize what’s on your schedule, but to schedule your priorities.”

One more point which we would like to highlight is, keep yourself away from negative thoughts and negative people. It somehow degrades your confidence level from within. With positive mindset, you acquire the power to take tasks and be optimistic at all times.

“Your mind is a powerful thing, when you fill it with positive thoughts, your life will start to change.”

Every possible effort has been made to bring this book in the best shape possible. However, in case of any typographical errors, queries or suggestions, please write to us on: marwahmedicine@gmail.com/sirajahmad9@gmail.com

With these words we would like to extend our best wishes to all our readers across the globe.

Best Wishes!

Deepak Marwah

Siraj Ahmad



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Preface to the Previous Edition

Dear Students,

We convey our sincere regards and thanks to all our readers for the huge response to the previous edition of FMGE Solutions and making it as the best book for FMGE aspirants. In order to improvise further we are coming up with the 4th edition of this book.

The first edition of this book was launched in 2014 and since then it has been among the favourite books, not only for the FMGE students, but also among other NBE preparing students. The basic purpose and concept behind this book was to orient students with true concepts of exam pattern question and also to provide them genuine information and data from standard references all at one place. We continued to follow the same protocol in the further editions with more number of recent pattern questions, tabulated data and additional images.

The first edition was quite successful, and since then the students named it as “Bible for FMGEs” because of its easy tabulated contents and most recent hands-on information in the most simplified way. The huge belief of Readers and our continuous effort, dedication and persistency for this book, have made it as the most sought-after book among aspirants and the previous edition was labelled as the best-seller. The multi-coloured edition has given an edge to all the image pattern questions and the important mnemonics and tabulated data which are highlighted. At the end of the book, a separate section has been given entitled “Key Points” which includes the recent pattern question in one-liner forms, additional important tables and data all at one place for the last-minute revision.

The students are advised to go through all the explanations as there are a huge number of questions which have been asked on the topics being explained in the recent examinations. As we have mentioned earlier also that percentage of repeat question in this examination is very less, however the topics are often being repeated. Therefore, readers are advised to go through the book from cover to cover at least 3–4 times (as also recommended by toppers). The “extra mile/also know” boxes at the end of explanations have always been a saviour according to previous toppers. So for keeping yourself in continuous touch with the explanations, going through these important boxes is always advised.

Remember, there are hardly any obstacles that cannot be overcome by repeated practice; therefore, it is very important to practice the test and do multiple revisions. By continuously practicing the test, you are exposing yourself to the real-time exam experience, which will increase your mental training for exam and decrease the exam-day anxiety, so constant practice plays a crucial role in your performance.

Best Wishes!

Deepak Marwah

Siraj Ahmad

CBSPD

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Acknowledgments

We would like to thank all our readers across the globe and the people who helped and motivated us in bringing and shaping this book.

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- This book would be lacking its charisma without the contributions of subject matter specialists who have given their valuable time in rectifying the errors and providing constructive suggestions in shaping this book.
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- We sincerely thank and appreciate the continuous support and words of wisdom from Mr David Pillai, Mr Kadwin Pillai and Dr Herlad Miller from King's International Medical Academy and Transworld Educare.
- All others who showed interest and provided feedback on the previous edition which helped us in improvising the latest edition of this book. To mention some: Dr Megrath Donald, Dr Omkar, Dr Angad Rai, Dr Mansoori, Dr R Chaudhary, Dr Ali, Dr Amresh, Dr Khalid Ziaullah. There are many names we couldn't recall but our heartfelt gratitude and blessings are due to every single person who contributed to completion of this journey.
- We thank our office staff members, Mr Naveen and Mr Mukesh for their true efforts in completion of this book.
- No words can describe the role of all Medical Graduate Students in India and abroad, with whom we have ever interacted through online or offline mode. We sincerely extend our thanks and appreciation to these students for helping us while giving this book its final shape.

We would like to thank **Mr Satish Kumar Jain** (Chairman) and **Mr Varun Jain** (Managing Director), M/s CBS Publishers and Distributors Pvt Ltd for providing us the platform in bringing out the book. We have no words to describe the role, efforts, inputs and initiatives undertaken by **Mr Bhupesh Aarora** [Sr Vice President – Publishing and Marketing (Health Sciences Division)] for helping and motivating us.

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We sincerely thank the entire CBS team for bringing this colorful edition with utmost care and amazing presentation. We would like to thank Ms Nitasha Arora (Publishing Head & Content Strategist – PGME & Nursing Division), Ms Daljeet Kaur (Assistant Publishing Manager), Dr Anju Dhir (Product Manager cum Commissioning Editor – Medical), Mr Shivendu Bhushan Pandey (Senior Manager and Team Leader), Mr Ashutosh Pathak (Senior Proofreader cum Team Coordinator) for putting their hard work and efforts to bring out this book on time and all the production team members for devoting laborious hours in designing and typesetting of the book.

**From the Publisher's Desk**

We request all the readers to provide us their valuable suggestions/errors (*if any*) at:

feedback@cbspd.com

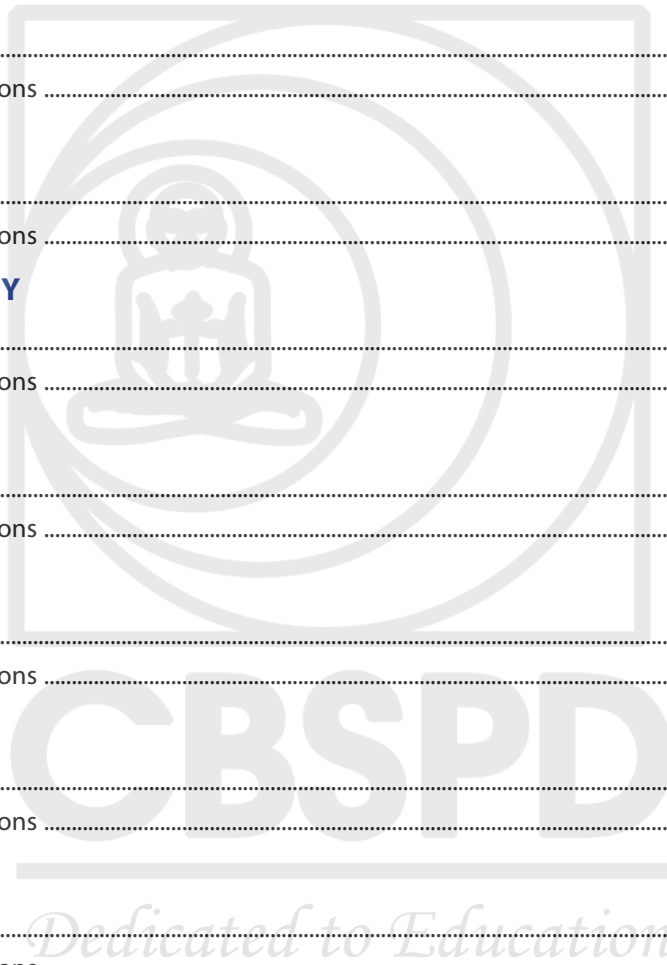
so as to help us in further improvement of this book in the subsequent editions.

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MOST RECENT QUESTIONS 2023

1. A patient underwent extraction of 3rd molar tooth and after this the patient was observed to have a loss of sensation from the anterior 2/3rd of the tongue and floor of the mouth. Which nerve is most likely to be damaged?

(Most Recent Question July 2023)

- a. Hypoglossal nerve
- b. Lingual nerve
- c. Accessory nerve
- d. Inferior alveolar nerve

2. A person had a road traffic accident and suffered from injury to the membranous urethra. Which will be the location of collection of urine due to this injury?

(Most Recent Question July 2023)

- a. Superficial perineal pouch
- b. Peritoneal cavity
- c. Anterior abdominal wall
- d. Ischiorectal fossa

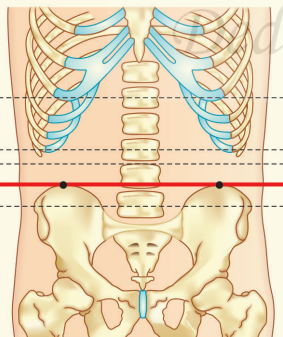
3. A needle has to be inserted by an intern for thoracentesis. Which is the most preferred site for this clinical procedure?

(Most Recent Question July 2023)

- a. Lower border of the upper rib
- b. Upper border of the lower rib
- c. Middle of the intercostal space
- d. Lower border of the lower rib

4. What is the vertebral level for the red colored line shown in the image?

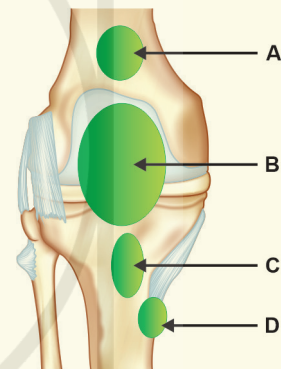
(Most Recent Question July 2023)



- a. L2-L3
- b. L3-L4
- c. L4-L5
- d. L5-S1

5. A maid in the house complained of pain and swelling at the knee. Which bursa can be involved in this condition?

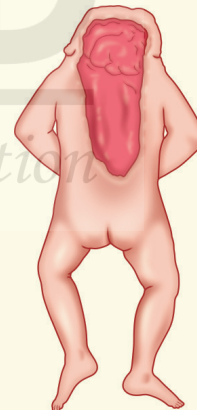
(Most Recent Question July 2023)



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

6. Which congenital deformity is shown in the image?

(Most Recent Question July 2023)



- a. Anencephaly
- b. Craniorachischisis
- c. Meningomyelocele
- d. Spina bifida occulta

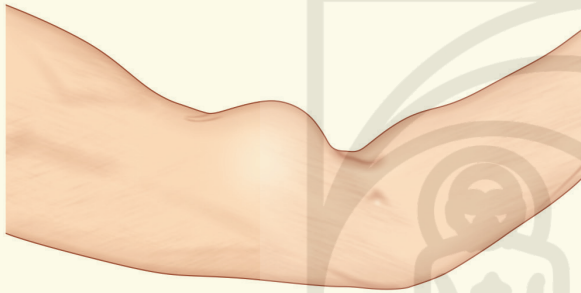


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7. Post-delivery a female is complaining of pain in the anterolateral aspect of the thigh. Which nerve is most likely to be damaged? (Most Recent Question July 2023)

- a. Femoral nerve
- b. Lateral femoral cutaneous nerve
- c. Obturator nerve
- d. Tibial nerve

8. Which of the following conditions is shown in the image? (Most Recent Question July 2023)

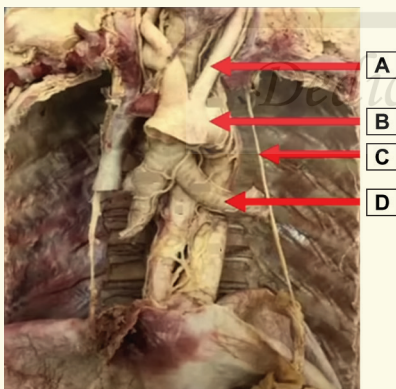


- a. Biceps muscle rupture
- b. Humerus shaft fracture
- c. Radial nerve injury
- d. Triceps muscle injury

9. A patient complains of pain and swelling below the ear. He cannot close his left eye completely and is having difficulty in eating food. Which nerve is most likely to be damaged? (Most Recent Question July 2023)

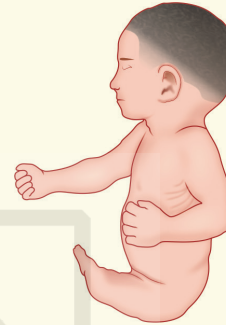
- a. Greater auricular nerve
- b. Auriculotemporal nerve
- c. Facial nerve
- d. Inferior alveolar nerve

10. A patient is suffering from aortic dissection. Injury to which marked structure in the image will cause hiccups? (Most Recent Question July 2023)



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

11. Which underlying cause is responsible for the congenital deformity shown in the image? (Most Recent Question July 2023)



- a. Morulation
- b. Neurulation
- c. Lateral rotation
- d. Gastrulation

12. At which time does the talus bone gets ossified in the intrauterine life? (Most Recent Question July 2023)

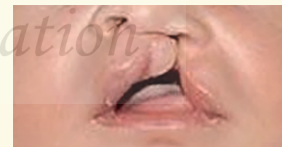
- a. 3 months
- b. 6 months
- c. 7 months
- d. 9 months

13. Identify the arrow-marked structure in the given image. (Most Recent Question Jan 2023)



- a. External capsule
- b. Internal capsule
- c. Claustrum
- d. Globus pallidus

14. Which embryological basis is correct about the malformation shown in the image? (Most Recent Question Jan 2023)



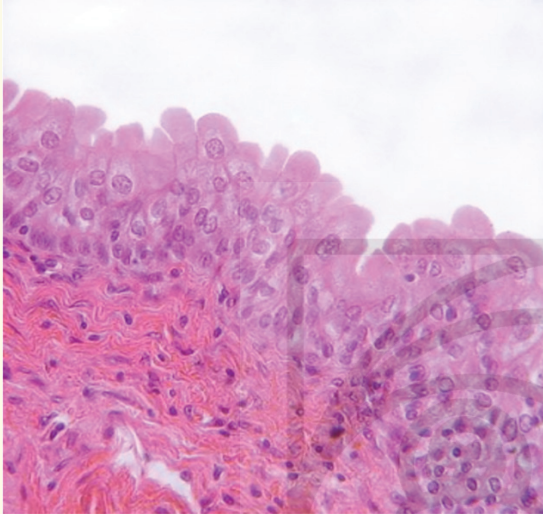
- a. Abnormal fusion of the maxillary and medial nasal processes
- b. Abnormal fusion of the maxillary and lateral nasal processes
- c. Abnormal fusion of the medial nasal and lateral nasal processes
- d. Abnormal fusion of the mandibular and medial nasal processes



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22. Identify the type of epithelium shown in the image.

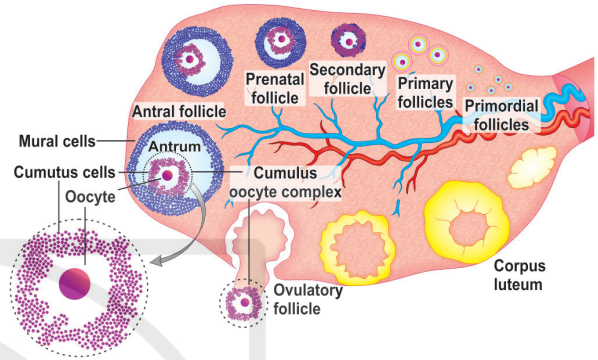
(Most Recent Question Jan 2023)



- a. Transitional epithelium
- b. Keratinized stratified squamous epithelium
- c. Nonkeratinized stratified squamous epithelium
- d. Ciliated pseudostratified columnar epithelium

24. Identify the arrow marked follicle:

(Most Recent Question Dec 2021)



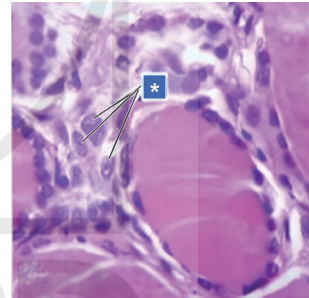
- a. Primordial
- b. Primary
- c. Preantral
- d. Antral

25. Fallopian tube epithelium is:

(Most Recent Question Dec 2021)

- a. Simple squamous
- b. Ciliated cuboidal
- c. Ciliated columnar
- d. Pseudostratified columnar

26. The marked cell in the HPE image of thyroid follicles secrete which hormone? (Most Recent Question Dec 2021)

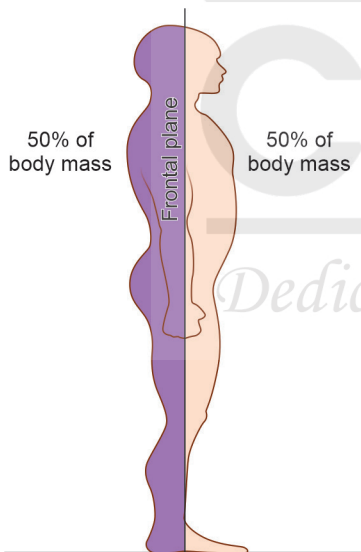


- a. Thyroxine
- b. Calcitonin
- c. Adrenaline
- d. Prolactin

27. What is the embryological basis of the following congenital anomaly? (Most Recent Question June/Dec 2021)

EMBRYOLOGY, HISTOLOGY AND OSTEOLOGY

23. The section along the frontal plane (as shown in diagram) is called: (Most Recent Question Dec 2021)



- a. Sagittal
- b. Coronal
- c. Transverse
- d. Median

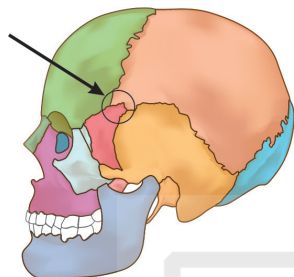


- a. Nonclosure of anterior neuropore
- b. Nonclosure of posterior neuropore
- c. Nonclosure of entire neural tube
- d. Nonclosure of skull bones



28. Identify the encircled structure:

(Most Recent Question Dec 2020)



- a. Pterion
b. Glabella
c. Asterion
d. Nasion

29. Ductus arteriosus develops from which pharyngeal arch artery?
(Most Recent Question Aug 2020)

- a. 3
b. 4
c. 5
d. 6

30. Structure developing in dorsal mesogastrum:

(Most Recent Question Aug 2020)

- a. Lesser omentum
b. Falciform ligament
c. Spleen
d. Liver

31. Skin receptor responsible for detecting rapid vibration sense.
(Most Recent Question Aug 2020)

- a. Meissner corpuscle
b. Pacinian corpuscle
c. Merkel cell
d. Ruffini's corpuscle

32. Failure of closure of rostral neuropore at 25th day leads to:
(Most Recent Question 2019)

- a. Craniorachischisis
b. Spina bifida
c. Anencephaly
d. Hydranencephaly

33. Fetal midgut rotates in intrauterine life by:

(Recent Pattern Question 2018-19)

- a. 270 degree clockwise
b. 360 degree clockwise
c. 270 degree anticlockwise
d. 360 degree anticlockwise

34. Rotation of mid gut loop occurs around:

(Recent Pattern Question 2018-19)

- a. Superior mesenteric artery
b. Inferior mesenteric artery
c. Middle-colic artery
d. Superior rectal artery

35. Neural crest cell migration is due to:

(Recent Pattern Question 2018)

- a. Heparin
b. Heparan sulfate
c. Hyaluronic acid
d. Dermal sulfate

36. Which of the following is the derivative of ultimo-branchial body?
(Recent Pattern Question 2018)

- a. Thyroid
b. Parafollicular 'C' cells
c. Capsule of thyroid
d. 2nd branchial pouch

37. Which of the following is the derivative of tumor from Rathke's pouch?
(Recent Pattern Question 2018)

- a. Meningioma
b. Craniopharyngioma
c. Ependymoma
d. Low grade glioma

38. Hardest bone of the body is:

(Recent Pattern Question 2017)

- a. Head of humerus
b. Calcaneum
c. Tibial condyle
d. Osseus labyrinth

39. Which of the following structure is derived from umbilical artery?
(Recent Pattern Question 2017)

- a. Ligamentum arteriosum
b. Medial umbilical ligament
c. Ligamentum venosum
d. Ligamentum teres

40. Labia majora is homologous to _____ in a male.

(Recent Pattern Question 2017)

- a. Glans penis
b. Scrotum
c. Corpus cavernosa
d. Shaft of penis

41. Morula cell stage has how many cells?

(Recent Pattern Question 2017)

- a. 8
b. 16
c. 32
d. >64

42. Umbilical cord has:
(Recent Pattern Question 2017)

- a. One artery, two veins and umbilical artery going to fetus
b. One artery, two veins and umbilical artery going to placenta
c. Two arteries and one vein, umbilical artery supplying towards fetus
d. Two arteries and one vein, umbilical vein supplying towards fetus

43. In the Umbilical cord which of the following structure does not get obliterated during fetal life?

(Recent Pattern Question 2017)

- a. Vitelline duct
b. Vitelline vessels
c. Allantois
d. Umbilical vessels

44. What is correct about embryogenesis?

(Recent Pattern Question 2017)

- a. Branchial cleft: Mesoderm
b. Branchial arch: Ectoderm
c. Branchial pouch: Endoderm
d. All are correct

45. Superior vena cava is derived from:

(Recent Pattern Question 2017)

- a. Aortic arch
b. Pharyngeal arch
c. Cardinal vein
d. Vitelline vein

46. Arch of aorta is derived from:

(Recent Pattern Question 2017)

- a. 2nd aortic arch
b. 3rd aortic arch
c. 3rd pharyngeal arch
d. 4th pharyngeal arch

47. Common carotid artery is derived from:

(Recent Pattern Question 2017)

- a. 2nd aortic arch
b. 3rd pharyngeal arch
c. 4th pharyngeal arch
d. 6th pharyngeal arch

Dedicated to Education



ANSWERS WITH EXPLANATIONS

MOST RECENT QUESTIONS 2023

1. Ans. (b) **Lingual nerve**

- The lingual nerve is a branch of the trigeminal nerve that supplies sensation to the anterior 2/3rd of the tongue and the floor of the mouth.
- Damage to the lingual nerve during tooth extraction can lead to sensory loss.
- This nerve runs alongside the lingual side of the mandible.
- Its injury can result in numbness in the tongue and floor of the mouth.

Extra Mile

- Hypoglossal nerve: Supplies the tongue with motor innervation.
- Accessory nerve: Supplies the sternocleidomastoid muscle and the trapezius muscle.
- Inferior alveolar nerve: Supplies sensation to the lower teeth and the lower lip.

2. Ans. (c) **Anterior abdominal wall**

Urethral Injury

Type	Deep extravasation	Superficial extravasation
Cause	Instrumentation - least dilatable part of the urethra Pelvic Fractures – RTA	Straddle-type injuries from falls or kicks
Area of spread	Upwards into the extraperitoneal space of the pelvis around bladder and prostate into the anterior abdominal wall	Between perineal membrane and the membranous layer of the superficial fascia (Colles Fascia) <ul style="list-style-type: none"> • Superficial perineal space • Scrotum • Penis • Lower part of the ant abdominal wall
Not spread to	Peritoneum	Ischioanal fossa or the thigh by the firm attachment of the membranous layer of superficial fascia
	<p>FIGURE: Extravasation of urine due to rupture of membranous urethra</p>	<p>FIGURE: Extravasation of urine due to rupture of penile urethra</p>



3. Ans. (b) Upper border of the lower rib

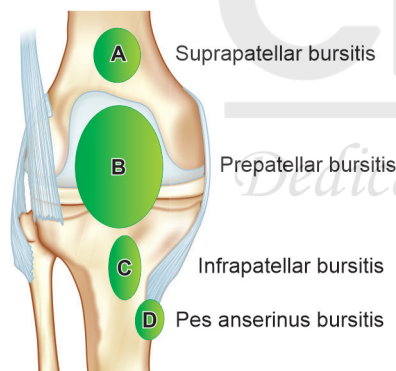
- Thoracentesis is done to remove pleural effusion fluid for diagnostic or therapeutic purposes. It is ultrasound guided procedure.
- The upper border of the lower rib is the safest site for needle insertion because it is the farthest away from the neurovascular bundle that travels below each rib.

4. Ans. (c) L4–L5

- The red-colored line in the image represents the location of the iliac crest, a prominent bony structure in the pelvic region. In most individuals, the iliac crest corresponds to the vertebral level of L4–L5.
- The lumbar vertebrae are numbered L1–L5. The line is located between the L4 and L5 vertebrae.
- Clinically, the iliac crest serves as an important anatomical landmark for various procedures, including lumbar punctures and the identification of lumbar vertebral levels.
- The L2–L3, L3–L4 vertebrae are located in the thoracic region of the spine.
- The L5–S1 vertebrae are located in the sacral region of the spine.

5. Ans. (b) B

- **Housemaid's knee, also known as prepatellar bursitis,** is an inflammation of the prepatellar bursa, which is a fluid-filled sac that lies in front of the kneecap.
- It is caused by repetitive kneeling, such as when scrubbing floors or doing housework.
- Option C infrapatellar bursa is located between the patella and the kneecap. It is a fluid-filled sac that helps to cushion the knee joint, and its inflammation is called clergyman knee.



6. Ans. (b) Craniorachischisis

- The image shows both brain and spinal cord of body being malformed. This disease is a combination of anencephaly and myelomeningocele, and is called craniorachischisis.

- Meningomyelocele is a congenital defect in which the meninges and spinal cord protrude through a defect in the spine.
- Spina bifida occulta is can only be detected on X-ray of lumbosacral spine.

7. Ans. (b) Lateral femoral cutaneous nerve

- The lateral femoral cutaneous nerve is a sensory nerve supplying the skin of the anterolateral thigh.
- Post pregnancy, the nerve can be compressed due to stretching or pressure from the gravid uterus, leading to meralgia paresthetica, causing pain and sensory disturbances in this area.
- The femoral nerve primarily innervates the anterior thigh and lower leg, the obturator nerve supplies the medial thigh, and the tibial nerve covers the posterior thigh and leg.

Extra Mile

- **Femoral nerve:** Primarily supplies the anterior thigh and hip region.
- **Obturator nerve:** Innervates the medial thigh.
- **Tibial nerve:** Responsible for sensory and motor functions in the posterior thigh and leg.

8. Ans. (a) Biceps muscle rupture

- A biceps muscle rupture occurs when the tendon connecting the biceps muscle to the bone tears, leading to a bulging appearance in the upper arm known as the “**Popeye deformity.**”
- This condition can result from excessive force, sudden contraction, or repeated strain on the biceps muscle and tendon.
- It is different from humerus shaft fractures, which involve break in the bone, radial nerve injuries, which can cause wrist drop, and tennis elbow, characterized by lateral epicondylitis.

9. Ans. (c) Facial nerve

- This constellation of symptoms is suggestive of facial nerve (cranial nerve VII) dysfunction.
- Facial nerve palsy can cause difficulty in closing the eye (eye closure muscles affected) and difficulty in eating (mouth muscles affected).
- Swelling below the ear could indicate involvement of the parotid gland, which innervates the facial nerve

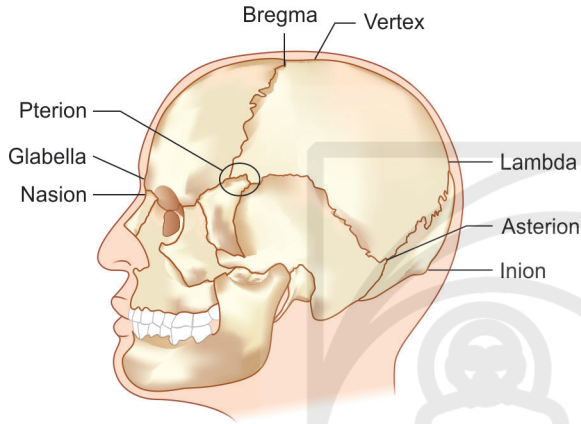
10. Ans. (c) C

- Structure C corresponds to the phrenic nerve, which innervates the diaphragm.
- Irritation or compression of the phrenic nerve can lead to hiccups.



28. Ans. (a) **Pterion**

- The marked structure in the image is pterion. (*Most repeated question in FMGE*).
- Pterion is the area where frontal, parietal, temporal and greater wing of sphenoid bone join together.



29. Ans. (d) **6**

Ref: *BD Chaurasia, 7th ed. Vol. I, pg. 87*

Blood vessels derived from different arches

Arch	Derived blood vessel
First arch (Mandibular arch)	Maxillary artery
Second arch (Hyoid arch)	Stapedial artery
Third arch	Internal and common carotid artery
Fourth arch	Aortic arch on left side Part of subclavian artery on right side

Contd...

Arch	Derived blood vessel
Sixth arch	<ul style="list-style-type: none"> • Pulmonary arteries (on each side) • Ductus arteriosus on left side

30. Ans. (c) **Spleen**

Ref: *BD Chaurasia, 7th ed. Vol. II, pg. 326*

- Spleen develops in the mesoderm in the cephalic part of left layer of dorsal mesogastrium.
- The development occurs in sixth week of intrauterine life.
- Number of nodules develop which soon fuse to form a lobulated spleen.

31. Ans. (b) **Pacinian corpuscle**

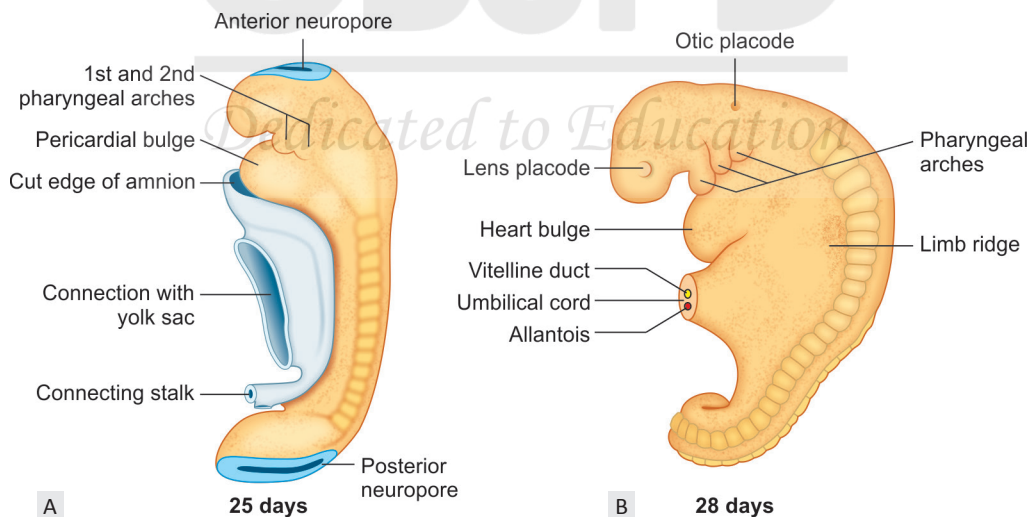
Ref: *Gray's Anatomy, 41st ed. pg. 61*

There are 4 types of mechanoreceptors in skin:

• Meissner corpuscles	Fine touch Slow vibration
• Merkel cell	Sensitive to edges and corners
• Pacinian corpuscles	Rapid vibration
• Ruffini's endings	Pressure sensation

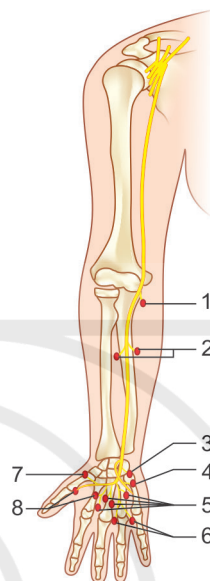
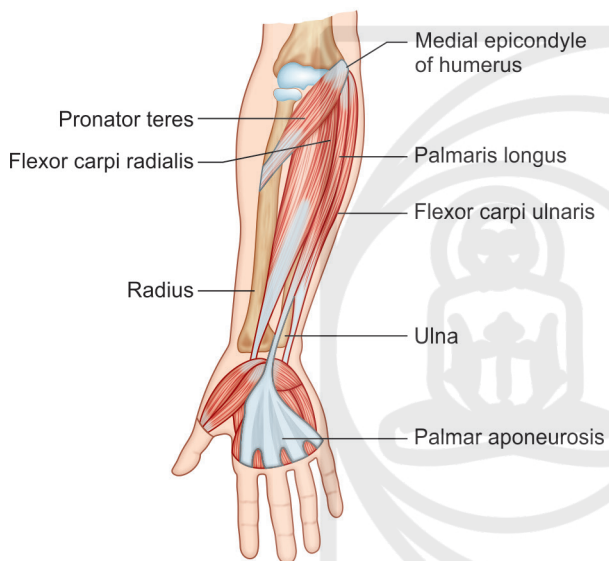
32. Ans. (c) **Anencephaly**

- Cranial (rostral) neuropore closes by day 25
- Caudal neuropore closes by day 28
- Failure of cranial neuropore to close at day 25 results in anencephaly
- Failure of caudal neuropore to close results in spina bifida.





- **Origin:** Medial epicondyle of humerus, coronoid process of ulna
- **Insertion:** Lateral surface of radius
- **Muscles originating from medial epicondyle of humerus:**
 - Pronator teres
 - Flexor carpi radialis
 - Palmaris longus
 - Flexor carpi ulnaris



Ulnar nerve

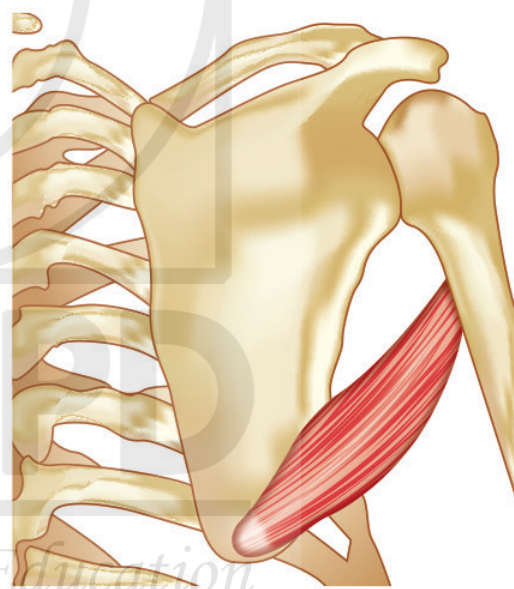
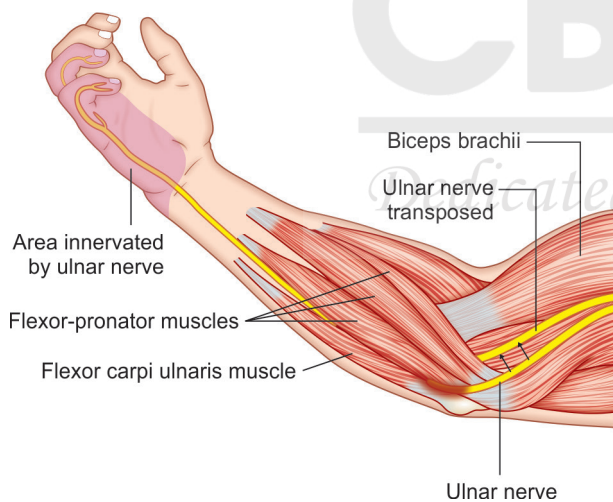
Distribution of the motor branches

1. Flexor carpi ulnaris
2. Flexor digitorum profundus ulnar portion
3. Hypothenar muscles: abductor, short flexor, opponens of little finger
4. Palmaris brevis
5. All dorsal and palmar interossei
6. Ulnar lumbricals
7. Deep head of flexor pollicis brevis
8. Adductor pollicis

120. Ans. (a) **Teres major**

119. Ans. (a) **Ulnar nerve**

- The shown course of nerve is of ulnar nerve
- Please refer the image as follows:



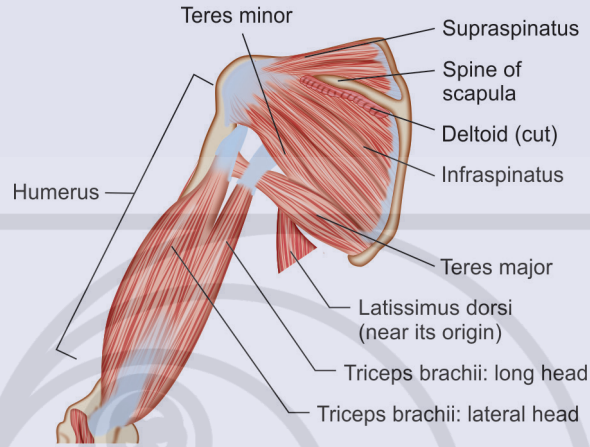
- The shown muscle in the image is teres major.
- Origin-Inferior angle of scapula
- Insertion-Intertubercular sulcus of humerus
- Action
 - Extends arm at shoulder joint
 - Assist in adduction and medial rotation of arm at shoulder joint
- Nerve supply
 - Lower subscapular nerve



FMGE SOLUTIONS

Extra Mile

Identify the deep muscles of shoulder in image



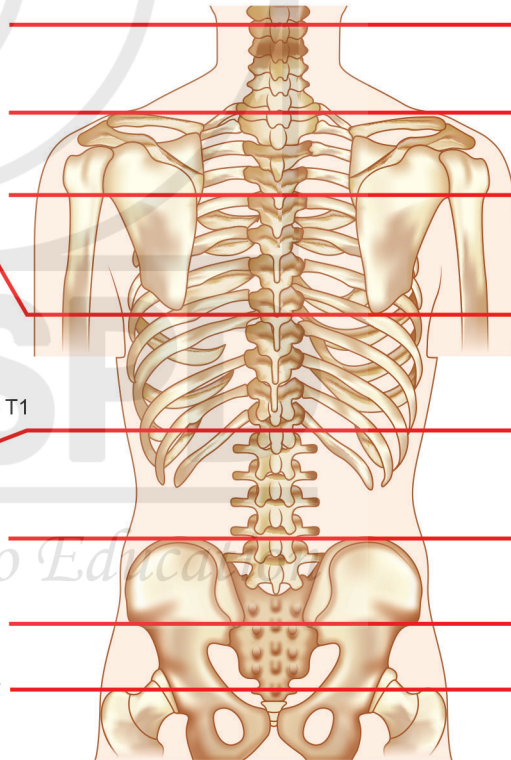
121. Ans. (c) **T8**

- Inferior scapular angle lies at the anatomical level of T8
 - C2-First palpable SP below the occipital bone
 - C7 or T1—most prominent SP at base of neck (C7 will usually slide anterior from a palpating finger with cervical extension)
 - T4—Level with the root of the spine of scapula or apex of axillary fold
 - T7–T8—Level with the inferior angle of scapula

Thoracic TP palpation rule of 3s

- T1–T3 TPS: At level of corresponding SP
 - T4–T6 TPS: ~1/2 Segment above SP
 - T7–T9 TPS: At ~level of SP of vertebrae above
- T10–T12 have SPs that project from a position similar to T9 and rapidly regress until T12 is like T1

- T12—Level with the head of the 12th rib
- L4—Level with the superior border of the iliac crest
- PSIS and S2—Level with the most inferior portion of the PSIS
- Sacral Apex—Level with upper greater trochanter (have patient rotate hip to locate trochanter)



SP: Spinous process, TP: Thoracic process

122. Ans. (b) **Pectoralis major**

Anatomy of pectoralis major muscle:

- **Origin:** Clavicle, sternum and costal cartilage 2nd–6th ribs
- **Insertion:** Lateral lip of intertubercular groove of humerus
- **Function:** Flexion, adduction and medial rotation of arm

MOST RECENT QUESTIONS 2023

1. Two medical students are planning a trip to Leh. They want to study the effects of acclimatization in high altitude. Which of the following changes will not be seen in high altitude during the process of acclimatization?

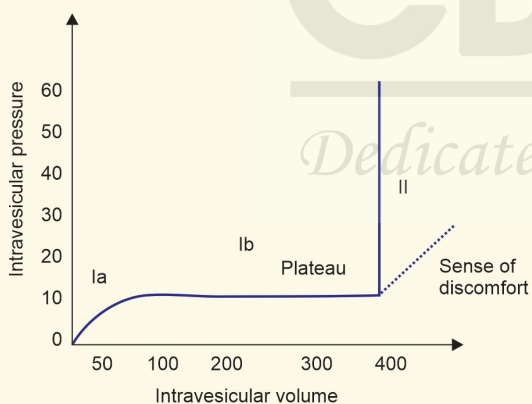
(Most Recent Question July 2023)

- a. Increase in RBC count b. Increase in capillary density
c. Increase in myoglobin d. Hypoventilation
2. The transporter GLUT2 transports glucose at which of the following sites? (Most Recent Question July 2023)
- a. Large intestine b. Kidney
c. Liver d. Brain

3. Which of the following glucose transporter is present on the basolateral membrane of the intestinal epithelial cell?

(Most Recent Question July 2023)

- a. GLUT1 b. GLUT2
c. GLUT3 d. GLUT4
4. In the given graph of intravesical muscle contraction, Phase Ib represents which one of the following properties? (Most Recent Question July 2023)



- a. Elasticity
b. Plasticity
c. Contractility
d. Relaxation

5. Serosa is not present in which of the following?

(Most Recent Question July 2023)

- a. Stomach b. Esophagus
c. Small intestine d. Large intestine
6. Upon IV injection of an irritant substance, bradycardia, hypotension and apnea developed in the subject. This represents which of the following reflex?

(Most Recent Question July 2023)

- a. Bezold-Jarisch reflex b. Brainbridge reflex
c. Cushing's reflex d. Physiological reflex
7. A 5-year-old boy is brought by his mother as he is having significant difficulty walking. At the age of 11 months, he began to walk. Four months ago, his mother realized he was having trouble rising from the floor. His calves are bilaterally hypertrophied upon inspection. He carefully gets up from the floor, supporting himself with his hands on his thighs. Which of the following defect is the cause of the patient's condition?

(Most Recent Question Jan 2023)

- a. Titin b. Dystrophin
c. Desmin d. Actinin
8. The first heart sound (S1) coincides with which phase of the cardiac cycle? (Most Recent Question Jan 2023)

- a. Isovolumetric contraction
b. Rapid filling
c. Early filling
d. Isovolumic relaxation
9. Large "v" wave on JVP is seen in which of the following conditions? (Most Recent Question Jan 2023)

- a. Tricuspid regurgitation
b. DCM
c. PDA
d. Constrictive pericarditis

10. Which of the following is an extrinsic clotting factor?

(Most Recent Question Jan 2023)

- a. VI
b. VII
c. VIII
d. IX

11. Which of the following is true regarding creatinine clearance? (Most Recent Question Jan 2023)

- Creatinine clearance is lesser than inulin clearance
- Creatinine clearance is greater than inulin clearance
- Creatinine clearance is equal to inulin clearance
- None of the above

12. What is the cause of death in diabetic ketoacidosis?

(Most Recent Question Jan 2023)

- Sepsis
- Dehydration
- Hypokalemia
- Cerebral edema

CELL AND NERVE-MUSCLE PHYSIOLOGY

13. Insulin stimulates glucose uptake by cells via GLUT 4.

This is an example of: (Most Recent Question June 2022)

- Primary active transport
- Secondary active transport
- Simple diffusion
- Facilitated diffusion

14. ABG of patient shows pH = 7.23, pCO₂ = 60 mm Hg, pO₂ = 82 mm Hg and HCO₃⁻ = 26 mEq. Diagnosis is:

(Most Recent Question June 2022)

- Respiratory acidosis
- Respiratory alkalosis
- Metabolic acidosis
- Metabolic alkalosis

15. The gut flora is symbiotic with human body. These bacteria produce ammonia that can cross the cell membrane. The transport is an example of:

(Most Recent Question June 2022)

- Osmosis
- Facilitated diffusion
- Carrier mediated transport
- Non-ionic diffusion

16. Which of the following is not an attachment protein?

(Most Recent Question June 2022)

- Titin
- Desmin
- Nebulin
- Tropomyosin

17. Which of the following is correct about ROMK channel?

(Most Recent Question June 2022)

- Uniport
- Symport
- Antiport
- All of these

18. Gower sign has been demonstrated in a child in your OPD. Work up shows decreased/altered dystrophin protein. Diagnosis is:

(Most Recent Question Dec 2021)

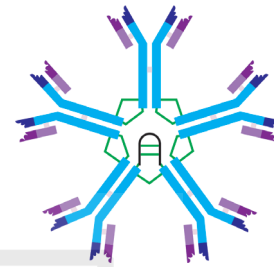
- Duchenne muscular dystrophy
- Becker's muscular dystrophy
- Congenital myopathy
- All of the above

19. When ORS is given to the patient, Glucose is absorbed by:

(Most Recent Question Dec 2021)

- Simple diffusion
- Osmosis
- Facilitative diffusion
- Secondary active transport

20. Identify the antibody based on the structure given below. (Most Recent Question June 2021)



- IgA
- IgG
- IgM
- IgE

21. A child was defecating in open air in village when was attacked by pack of dogs. One of the attacking dogs was found dead the next day. Considering the high risk of rabies in the child he has admitted to District hospital and was given antirabies serum (ARS) and Rabipur vaccine. Which of the following is responsible for transport of rabies virus to brain? (Most Recent Question Aug 2020)

- Dynein
- Kinesin
- Actin
- Vimentin

22. In which of the following imbalances increased nerve excitability is seen? (Most Recent Question Aug 2020)

- Hyponatremia
- Hypokalemia
- Hypocalcemia
- Hypochloremia

23. A patient with HbA1c of 11.4% has come to your clinic with severe pain in feet at night. Which nerve fibers are involved in this patient? (Most Recent Question Aug 2020)

- A α
- A β
- A γ
- C

24. Serotonin is found in highest concentration in:

(Most Recent Question Dec 2019)

- Limbic system
- Chromaffin cells
- Sympathetic ganglia
- Platelets

25. Which of the following is not seen in Intracellular Fluid? (Recent Pattern Question 2018-19)

- Calcium
- Magnesium
- Potassium
- Protein

26. Which of the following is not a calcium binding protein? (Recent Pattern Question 2018-19)

- Calbindin
- Calmodulin
- Troponin
- Clathrin

27. Inverse stretch reflex is mediated via:

(Recent Pattern Question 2018-19)

- Golgi tendon
- Muscle spindle
- Unmyelinated C fibers
- Dorsal Column

28. Organelle having DNA is _____.

(Recent Pattern Question 2018-19)

- Mitochondria
- Golgi complex
- SER
- RER



ANSWERS WITH EXPLANATIONS

MOST RECENT QUESTIONS 2023

1. Ans. (d) **Hypoventilation**

Ref: Guyton and Hall Textbook of Medical Physiology, 13th ed. pg. 554, 555

- In an environment with decreased oxygen levels, the body attempts to compensate by increasing respiratory rate and depth to maximize oxygen intake. This response is known as hyperventilation.
- Hypoventilation, on the other hand, refers to reduced ventilation, resulting in inadequate oxygen uptake. This would undermine the acclimatization process, as it would limit the body's ability to cope with the reduced oxygen tension at high altitudes. Adequate oxygen uptake is crucial for sustaining bodily functions and preventing hypoxia-related issues.
- **Note:** At high altitude, there will be increase in RBC count and myoglobin. Increased RBC count will increase the oxygen-carrying capacity and myoglobin which is a muscle protein, facilitating oxygen storage and release in muscle cells. Increased capillary density allows more effective diffusion of oxygen from capillaries to muscle cells.

2. Ans. (c) **Liver**

Ref: Ganong's Review of Medical Physiology, 26th ed. pg. 48, 52, 53, 426

- GLUT2 is primarily found in the liver, intestinal epithelial cells and pancreatic β -cells.
- In the liver, GLUT2 is involved in glucose uptake, storage as glycogen, and release as needed to maintain blood glucose levels within a normal range.
- In pancreatic β -cells, GLUT2 plays a role in glucose sensing and insulin release, contributing to the regulation of blood glucose levels.

3. Ans. (b) **GLUT2**

Ref: Ganong's Review of Medical Physiology, 26th ed. pg. 48, 52, 53, 426

- Glucose transporters, known as GLUTs, play a crucial role in facilitating the movement of glucose across cell membranes. Different GLUT isoforms are found in various tissues, each specialized for specific functions.
- GLUT2 isoform of the glucose transporter is primarily present on the basolateral membrane of intestinal epithelial cells.

- After absorption in the small intestine, glucose needs to enter the bloodstream to be transported to different tissues for energy utilization.
- GLUT2 assists in transporting glucose from the intestinal cells into the bloodstream, ensuring its distribution to various parts of the body.
- **Note:** GLUT5 is present in the mucosal surface of small intestine, sperm and also on kidneys.

4. Ans. (b) **Plasticity**

Ref: Ganong's Review of Medical Physiology, 25th ed. pg. 118, 207, 238

- The terms "elasticity" and "plasticity" are used to describe the mechanical properties of tissues. The graph shows pressure changes in urinary bladder as it progressively fills up with urine.
- Phase Ib on the graph represents plasticity. Ia represent elasticity.
- Plasticity refers to the ability of certain tissues to undergo deformation that is not fully reversible upon removal of the deforming force.

5. Ans. (b) **Esophagus**

Ref: Guyton and Hall Textbook of Medical Physiology, 14th ed. pg. 789, 790

- The serosa is a thin, protective layer of connective tissue that covers the external surfaces of some organs within body cavities.
- Serosa is not present in the esophagus.
- The esophagus is part of the gastrointestinal tract and lacks the serosa layer, which is typically found in abdominal organs.

6. Ans. (a) **Bezold-Jarisch reflex**

Ref: Guyton and Hall Textbook of Medical Physiology, 14th ed. pg. 224, 225

- The **Bezold-Jarisch reflex** is a cardiovascular reflex characterized by bradycardia, hypotension, and apnea in response to certain stimuli, particularly the infusion of irritant substances into the coronary arteries.
- This reflex is a protective response that can occur when the heart senses irritation or ischemia, leading to a decrease in heart rate and blood pressure.
- **Brainbridge reflex** is caused by stimulation of the brainstem and results in a decrease in heart rate and blood pressure. It is thought to be involved in the regulation of blood flow to the brain.



- **Cushing's reflex** is thought to be involved in the body's response to stress. There is an increase in heart rate, blood pressure, and respiratory rate.

7. Ans. (b) **Dystrophin**

Ref: Nelson Textbook of Pediatrics, 21st ed. pg. 3281

- This patient is suffering from Duchenne muscular dystrophy. Dystrophin protein (sarcolemma protein) is absent in patients with DMD due to a mutation in the dystrophin gene.

8. Ans. (a) **Isovolumetric contraction**

Ref: Ganong's Review of Medical Physiology, 26th ed. pg. 529

- First heart sound corresponds to the isovolumetric contraction phase in the cardiac cycle where ventricles contract against closed mitral valves.

Heart sound	Phase in cardiac cycle
S1	Isovolumetric contraction
S2	Isovolumetric relaxation
S3	Early diastole
S4	Atrial contraction
Systolic clicks	Mid systole
Opening snap	Early diastole

9. Ans. (a) **Tricuspid regurgitation**

Ref: Harrison's Principles of Internal Medicine, 20th ed. pg. 1768

- Large "v" wave on JVP examination is seen in **tricuspid regurgitation**.
- In **tricuspid regurgitation**, an S3 gallop, and a palpable RV heave along the left sternal border can be noted.
- Other features of tricuspid regurgitation include hepatomegaly, pulsatile liver, tenderness in the right upper quadrant, and pitting pedal edema.

Important conditions and JVP findings:

• Constrictive pericarditis	Elevated and prominent JVP with steep "y" descent
• Cardiac tamponade	Elevated JVP with absent or jugular venous pulsation
• Superior vena cava obstruction	Elevated JVP with distended neck veins
• Pulmonary hypertension	Elevated JVP with prominent "a" wave
• Tricuspid regurgitation	Elevated JVP with prominent "v" wave and regurgitant waves

10. Ans. (b) **VII**

- Extrinsic clotting factors are proteins involved in the coagulation cascade that are activated outside of the blood vessels.
- Factor VII is an extrinsic clotting factor.
- Factor VII, also known as proconvertin, is activated by tissue factor (also called factor III), which is released from damaged tissues in response to tissue injury.
- Once activated, factor VII initiates the extrinsic pathway of coagulation, leading to the formation of a fibrin clot.
- Intrinsic factor starts from factor XII → XI → IX which activate factor X.

11. Ans. (b) **Creatinine clearance is greater than inulin clearance**

Ref: Ganong's Review of Medical Physiology, 26th ed. pg. 667

- Creatinine clearance is a measure of kidney function and is used to estimate the glomerular filtration rate.
- Creatinine is a waste product produced by the breakdown of creatine in muscle tissue. It is filtered by the glomerulus and excreted in the urine.
- Inulin is a substance that is freely filtered by the glomerulus and is used as a marker to measure the GFR accurately.
- Creatinine clearance is a commonly used approximation of GFR because creatinine is easily measured in the blood and urine.
- In general, creatinine clearance overestimates GFR because a small amount of creatinine is secreted by the renal tubules, leading to an overestimation of the amount of creatinine cleared by the kidneys.
- However, inulin clearance provides a more accurate measurement of GFR as it is not subject to tubular secretion.
- Therefore, creatinine clearance is greater than inulin clearance.

12. Ans. (d) **Cerebral edema**

Ref: Harrison's Principles of Internal Medicine, 21st ed. pg. 3117

- Cerebral edema is a severe complication that can occur in DKA, especially in children.
- Acidosis induced damage to blood barrier explains cerebral edema. Next important cause of death will be dehydration.

CELL AND NERVE-MUSCLE PHYSIOLOGY

13. Ans. (d) **Facilitated diffusion**

Ref: Ganong 26th ed. pg. 426

MOST RECENT QUESTIONS 2023

1. Identify this classification.

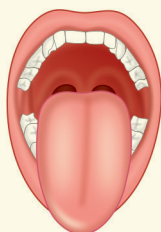
(Most Recent Question July 2023)



Class I



Class II



Class III



Class IV

- a. Mallampati classification
- b. Brodsky classification
- c. Friedman classification
- d. Cormack–Lehane classification

2. What is the fluid of choice for surgery?

(Most Recent Question July 2023)

- a. Blood
- b. Colloid
- c. Crystalloid
- d. FFP

3. Which of the following is not used in ACLS?

(Most Recent Question July 2023)

- a. Adrenaline
- b. Amiodarone
- c. NaHCO_3
- d. High voltage defibrillator

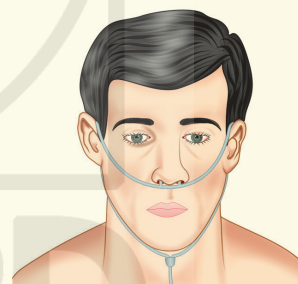
4. What is this device used for?

- a. In spinal anesthesia (Most Recent Question July 2023)
- b. In epidural anesthesia
- c. To create pneumoperitoneum
- d. In lumbar puncture



5. What is true about nasal cannula shown in the image?

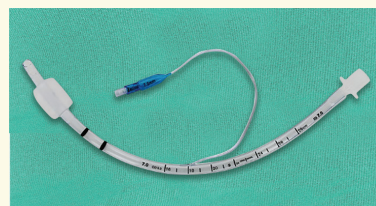
(Most Recent Question Jan 2023)



- a. FiO_2 is 0.24 to 0.45
- b. FiO_2 is 1.25 to 1.55
- c. FiO_2 is 0.844 to 0.490
- d. FiO_2 is 1.26 to 1.55

6. A 30-year-old male met with a roadside accident. He presented to hospital and underwent the procedure known as tracheostomy subsequently an endotracheal tube was inserted. Which of the following factor mainly affects the air resistance in the endotracheal tube?

(Most Recent Question Jan 2023)



- a. Balloon size
- b. Width
- c. Length
- d. Radius



12. Ans. (c) **Proseal laryngeal mask airway**

- The shown image is proseal laryngeal mask airway (LMA). It has multiple advantages over classical LMA.

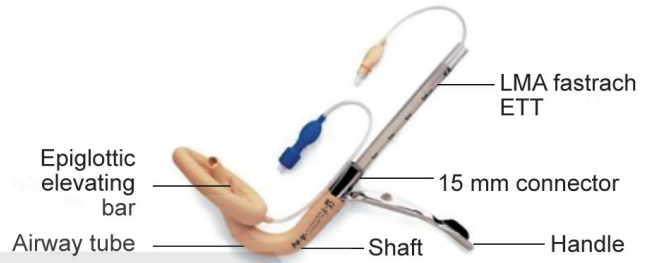
Classic LMA



Proseal LMA



LMA Fastrach



LMA Unique



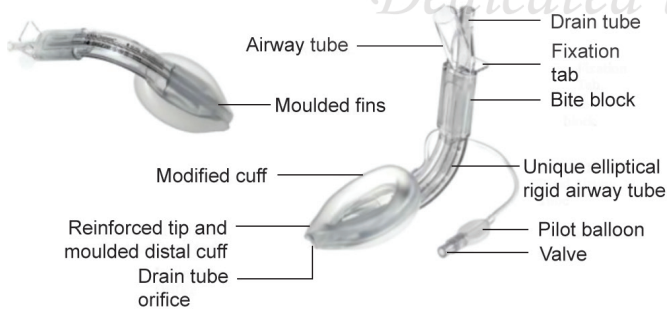
LMA Flexible

Modifications over classic LMA

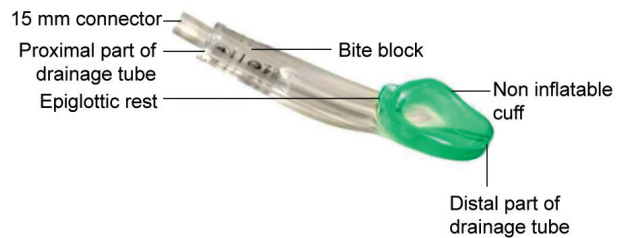
- Larger and deeper bowl with no grille
- Gastric drainage tube running parallel to airway
- Larger deeper bowl and dorsal extension of cuff
- Bite block

Identify these images:

LMA Supreme



i-GEL



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103. Ans. (d) **Mobility of fracture**

Ref: *Textbook of Neurosurgery, 3rd ed. pg. 2713*

Factors Favoring Fat Embolism

Traumatic	Non-traumatic
<ul style="list-style-type: none"> Fracture of long bones e.g. Femur Reaming Mobility of fracture 	<ul style="list-style-type: none"> Diabetes Fatty liver Pancreatitis Sickle cell anemia Decompression sickness Extensive burns Inflammation of bone & soft tissue Oil or fat introduced to body

105. Ans. (c) **100-120 per minute**

Ref: *American Red Cross CPR Guidelines 2018-19*

- CPR is cardiopulmonary resuscitation. According to latest 2018-19 CPR guidelines, the number of chest compression per minute in adult or infant is same i.e. 100 per minute.

TABLE: American Red Cross- New CPR Guidelines 2019

	Adult	Infant
Depth of compression	At least 2"	1 ½"
Breathing	Look for chest rise Deliver breaths over 1 second	Look for chest rise Deliver breaths over 1 second
Compression to breath ratio	30 : 2	30 : 2
Compression rate	100-120/minute (until help/paramedics arrive)	100/min
Site of chest compression	One hand should be placed on the breast bone in the center of the chest, second hand should be placed on first while keeping fingers off the chest (Image)	Use 2-3 fingers in the center of the chest on the lower half of the breast bone to compress the chest about 1 ½" (Image)

106. Ans. (c) **Trachea**

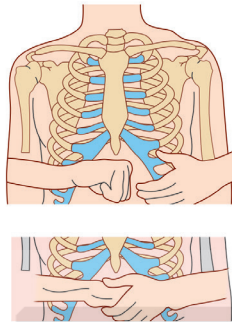
Ref: *Emergency Procedure and Techniques, pg. 48*

HEIMLICH MANEUVER

The primary indication for use of the Heimlich maneuver is *upper airway obstruction due to a bolus of food* or any aspirated foreign material unrelieved by coughing and traditional means that now is causing complete airway obstruction and threatening asphyxiation.



FMGE SOLUTIONS



107. Ans. (c) **Ketamine**

Ref: *Anesthesia for Medical Students by Sullivan 1999 ed.*
pg. 83

108. Ans. (a) **Severe hyperkalemia**

Ref: *Miller 4th ed. Ch: 9*

109. Ans. (b) **Gastric aspiration**

Ref: *Fundamentals of Anesthesia by Tim Smith*
3rd edn. pg. 5

110. Ans. (a) **N2O**

Ref: *Miller's 7th ed. ch: 24*

111. Ans. (b) **2 inch**

Ref: *2015 AHA Guidelines*

112. Ans. (d) **Maintains airway**

Ref: *Ajay Yadav, 2nd ed. p-36*

113. Ans. (c) **2% jelly, 4% injection**

Ref: *Morgan's 4th ed. p-270, KDT 6th ed. p-357*

114. Ans. (c) **3-5**

Ref: *Morgan 4th ed. p-2*

115. Ans. (c) **Vecuronium**

Ref: *Fundamentals of anesthesia by Tim Smith p-618*

Vecuronium is primarily eliminated by hepatic mechanisms. Since 30% of dose is excreted unchanged in urine, the elimination half-life of drug is increased.

116. Ans. (b) **Rocuronium**

Ref: *Lee 13th ed. p-188, Miller's 6th ed. p-492-535*

117. Ans. (a) **Cisatracurium**

118. Ans. (d) **Bronchospasm**

119. Ans. (c) **Class III**

120. Ans. (a) **Mapleson A**

121. Ans. (a) **Lidocaine**

122. Ans. (a) **Bradycardia and hypotension**

123. Ans. (a) **Inhalational Anesthetics**

124. Ans. (a) **Abdominal malignant growth**

125. Ans. (a) **Chest wall rigidity**

126. Ans. (a) **Mu (μ)**

127. Ans. (c) **Sevoflurane**

128. Ans. (d) **Sevoflurane**

129. Ans. (a) **Atracurium**

130. Ans. (c) **Thiopentone**

131. Ans. (b) **Acute intermittent porphyria**

132. Ans. (d) **Cardiac compression**

133. Ans. (b) **Pain**

Ref: *Oral and Maxillofacial Surgery, 3rd ed.*
Elsevier pg. 77

The classical order of sensation loss during local anesthesia is:

1. Pain
2. Temperature
3. Touch
4. Deep pressure
5. Motor (Recovery is in reverse order)

The order of sensation loss in spinal anesthesia is cold/warm followed by pin-prick, pain.

134. Ans. (d) **Bupivacaine**

Ref: *Morgan's Anaesthesiology 4/e, p 269*

135. Ans. (c) **Atracurium**

Ref: *Lee Synopsis of Anesthesia 12/e, p 215*

136. Ans. (b) **16th October**

Ref: *Miller's 7/e, ch-1*

137. Ans. (a) **Succinylcholine**

Ref: *Goodman and Gillman p 152, 11/e, 352-54*

138. Ans. (a) **Hypertensive patients**

Ref: *Miller's 7/e, Ch 26*



PERSONALITY DISORDER/OCD

64. The son of a construction worker died at his work place. After that he is neither going out, nor eating food properly. His wife consulted a physician and stated that he has been doing this for over 2 months. What is the most likely diagnosis:

- Adjustment disorder
- PTSD
- Severe depression
- Bipolar

65. Suicide is least commonly seen in:

- Early depression
- After recovery from depression
- Living alone
- Severe depression

66. Most common cause of impotency in male:

- Generalized disorder
- Local disorder
- Psychogenic
- Somatic disorder

67. Outside environment seems strange in?

- Déjà vu phenomenon
- Derealisation
- Jamais vu phenomenon
- Mania

68. Most common symptom of psychiatric illness?

- Anxiety
- Depression
- Schizophrenia
- Somatoform illness

69. Son of a construction worker died at his work place. After that he is not going out, not eating food properly. His wife consulted physician and states that he has been doing this over 2 months. What is the most likely diagnosis?

- Adjustment disorder
- PTSD
- Severe depression
- Bipolar

70. Bright light therapy is used for?

- Seasonal affective disorder
- Schizophrenia
- Adjustment disorder
- Anxiety

71. Treatment of depression with suicidal tendencies is?

- Clozapine
- Mitrazapine
- ECT
- Olenzapine

72. Minimum time period to diagnose depression with daily manifestation is?

- 1 weeks
- 2 weeks
- 4 weeks
- 8 weeks

73. A person repeatedly washes hands as shown in the image, diagnosis is: (Most Recent Question June 2022)



- OCD
- Panic Attack
- Body dysmorphic disorder
- Acute psychosis

74. A patient in ward is asked what is your name? Patient repeat the same sentence 'What is your name?' This phenomenon is: (Most Recent Question June 2022)

- Echolalia
- Echoprexia
- Perseveration
- Circumstantiality

75. Hair inside stomach found during surgery as shown in the image. Which doctor is required to diagnose this condition? (Most Recent Question June 2022)



- Cardiologist
- Psychiatrist
- Neurologist
- Intensivist

76. Uncontrolled and excessive sexual desire in men is called as? (Most Recent Question June/Dec 2021)

- Voyeurism
- Sadism
- Nymphomania
- Satyriasis

77. Excessive fear of getting contaminated, repeated washing, repetitive checking behaviour and excessive doubts are features of: (Most Recent Question Aug 2020)

- Panic attacks
- Agoraphobia
- Obsessive compulsive disorder
- Generalized anxiety disorder



- Combination of behavior therapy & drug therapy gives best results for treatment of OCD.

83. Ans. (b) **OCD**

- O.C.D does not arise from any cognition bias but a goal directed dysfunction that interacts with anxiety and irrational belief. They cannot exert necessary control over their actions to realize this goal.

84. Ans. (b) **Dissociation**

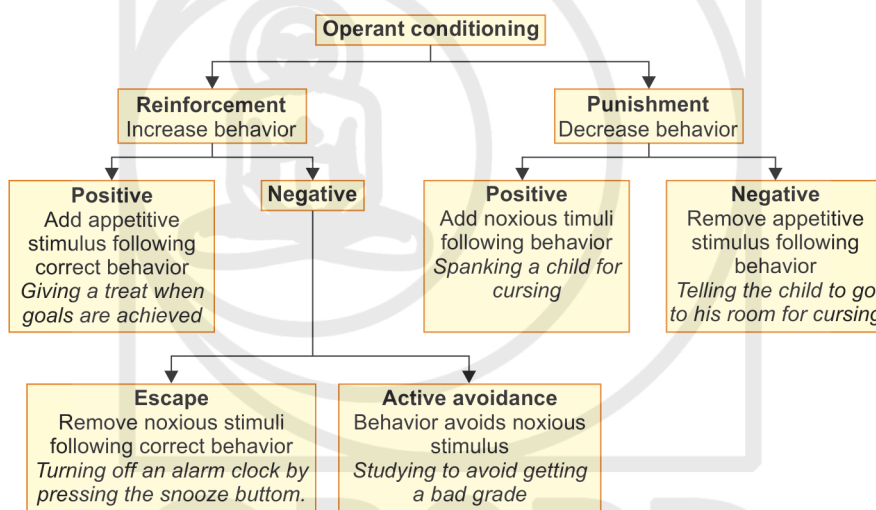
Ref: Ahuja 5th ed. pg. 213

- Dissociation is a neurotic/immature defence mechanism characterized by involuntary splitting or suppression of a mental function or a group of mental function from rest of the personality in a manner that allows expression of forbidden unconscious impulses without having any sense of responsibility for actions.

85. Ans. (c) **Operant conditioning**

Ref: PubMed

- B.F. Skinner (1904–1990) is often referred to as the **father of operant conditioning**. This conditioning is based on behavioural change with reinforcement or punishment.



Note: Classical conditioning differs from operant or instrumental conditioning: in classical conditioning, behavioral responses are elicited by antecedent stimuli (e.g: chocolate wrapper stimulate salivation), whereas in operant conditioning behaviors are strengthened or weakened by their consequences (i.e., reward or punishment).

86. Ans. (b) **Mania**

Ref: Kaplan & Sadock, 10th ed. pg. 2717

DSM- IV Diagnostic Criteria of Mania

- Abnormally & persistently elevated, expansive, or irritable mood lasting for at least 1 week or any duration, if requires hospitalization.
- **> 3 are needed**
 - Inflated self esteem or grandiosity
 - Decreased need for sleep (≤ 3 hours)
 - More talkative or pressure to keep talking
 - Flight of ideas or subjective experience that thoughts are racing

- Distractibility (i.e. attention to easily drawn to unimportant or irrelevant external stimuli)
- Increase in goal-directed activity (social spiritual religious, sexual) or psychomotor agitation
- Excessive involvement in pleasurable activities (eg. unrestrained buying sprees, foolish business investments, donations or sexual indiscretions) that have a high potential for painful consequences.

Why Mania: This patients satisfies the criteria and his conditions fits into it.

- The patient is irritable for 10 days (i.e. criteria A-abnormally & persistently elevated mood for atleast 1 week). There are ≥ 3 criteria B features: increased sexual indulgence & alcohol consumption (excessive involvement



FMGE SOLUTIONS

effects. It is a club drug commonly referred to as a “date-rape drug” or “roofies.”

- Earlier, it was used in some countries to treat severe insomnia and in fewer, early in anesthesia.
- **Mechanism of action:** The drug enhances GABAA receptor activity.
- **Toxicity/overdose:** Treated with **flumazenil**, a benzodiazepine receptor antagonist.

- Commonly abused club drugs include flunitrazepam, GHB (Gamma Hydroxybutyrate), and ketamine
- GHB and ketamine can be identified in blood.
- Flunitrazepam can be identified in urine and hair samples.

125. Ans. (b) **Cannabis**

Ref: Pub Med

TABLE: Common abused substances and their slang names

Abused substance	Slang names
Cannabis/Marijuana	Aunt mary/Dope/Ganja/Grass/Green/Joint/Pot/weed
Cocaine	Coke/snow/toot/coca
Heroin	Brown sugar/china white/Dope/Junk/Hell dust/Smack
LSD	Acid/Blotters/Blue heaven/micro dots/yellow sunshine
Hashish	Boom/Gangster/Hash/hemp
Phencyclidine (PCP)	Angel dust/Boat/Peace pill/Sherm

126. Ans. (a) **Occasional use with long abstinence**

Ref: Neeraj Ahuja, 7th ed. pg. 49

- The textbook quotes: “Although tolerance as well as psychological dependence can occur with LSD use, no physical dependence or withdrawal syndrome is reported. A common pattern of LSD use is a trip (occasional use followed by a long term period of abstinence)”.

127. Ans. (c) **Bradycardia**

Ref: Harrison, 19th ed. pg. 2727

- The symptoms which arises when an alcoholic reduces or stops alcohol consumption after prolonged periods of excessive alcohol intake.
- In case of alcohol withdrawal there is hallucinations, tremors, sweating and tachycardia, NOT bradycardia.
- **Clinical presentation**
 - Hangover next morning: Most common withdrawal syndrome
 - Mild tremors (Most Common symptom)
 - Nausea, vomiting

- Weakness, insomnia, anxiety
- Delirium tremens: Most severe withdrawal syndrome
- Alcoholic seizures (Rum fits)
- Alcoholic hallucinosis

TABLE: Appearance of Alcohol withdrawal symptoms

Time	Symptoms
6–12 hours	Minor withdrawal symptoms: Insomnia, tremulousness, anxiety, GIT upset, headache, diaphoresis, palpitations, anorexia
12–24 hours	Alcoholic hallucinosis; visual, auditory, or tactile hallucination
24–48 hours	Withdrawal seizures: Generalized tonic-clonic seizures
48–72 hours	Delirium tremens; visual hallucinations, disorientation, tachycardia, hypertension, low-grade fever, agitation, diaphoresis

128. Ans. (d) **24–48 hours after cessation of alcohol**

Ref: Harrison, 19th ed. pg. 2727

129. Ans. (a) **Severity of respiratory and CNS depression**

Ref: Harrison, 19th ed. pg. 2727

- CNS depression predisposes to chances of aspiration due to suppression of airway defence mechanisms. Hence it is the most important parameter determining hospitalization in acute intoxication of any etiology.

Acute Alcohol intoxication:

- After a brief period excitation, there is a generalized central nervous system depression with alcohol use.
- With increasing intoxication, there is increased reaction time, slowed thinking, distractibility and poor motor control.
- Later, dysarthria, ataxia and incoordination can occur. There is progressive loss of self control with frank disinhibited behavior.
- The duration of intoxication depends on the amount and the rapidity of ingestion of alcohol. Usually the signs of intoxication are obvious with blood levels of 150–200 mg %. With blood alcohol levels of 300–450 mg % increasing drowsiness followed by coma and respiratory depression develop.

130. Ans. (c) **Cocaine**

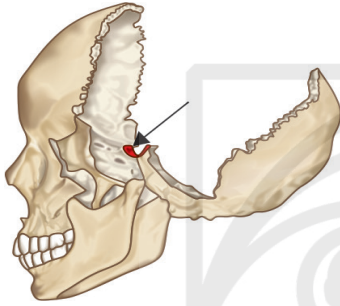
Ref: Harrison, 19th ed. pg. 469e-1

- Cannabis and its products contain (-) D-9 TetraHydro Coannabinol (Δ 9-THC).
- It is obtained from Indian hemp plant known as cannabis Sativa.
- Different parts of plants have different product:
 - Dried leaves: Bhang

IMAGE-BASED QUESTIONS

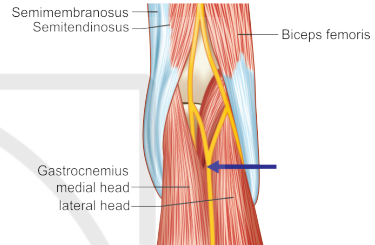
ANATOMY

1. Which part of brain is present in Turkish saddle-shaped space in cranium?



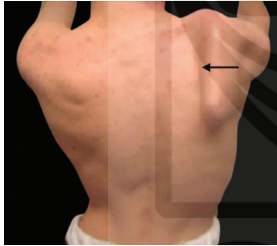
- a. Pituitary gland
- b. Frontal lobe
- c. Hypothalamus
- d. Basal ganglia

4. Which nerve is marked by an arrow in the vicinity of popliteal fossa?



- a. Common peroneal nerve
- b. Deep peroneal nerve
- c. Sural nerve
- d. Sciatic nerve

2. Which nerve is involved in this presentation?



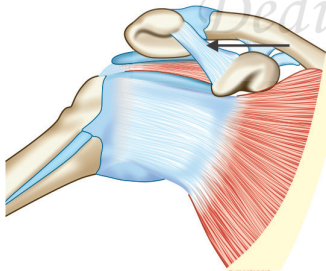
- a. Long thoracic nerve
- b. Musculocutaneous nerve
- c. Lateral anterior thoracic nerve
- d. Thoracodorsal nerve

5. A patient complains of pain in the distribution shown below. All are true about the condition except:



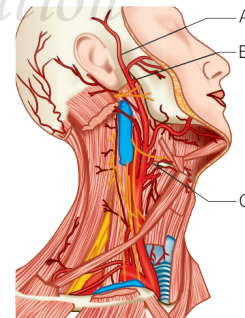
- a. Sciatic nerve is involved
- b. Pain worse on standing
- c. Straight leg raising leads to pain in opposite leg indicating disc herniation
- d. Nerve originates from nerve roots L5-S2

3. Name the ligament:



- a. Coracoacromial ligament
- b. Acromio-clavicular ligament
- c. Coraco-humeral ligament
- d. Sterno-clavicular ligament

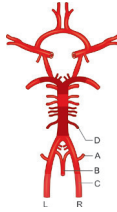
6. Which of the following is branch of external carotid Artery?



- a. A
- b. B
- c. C
- d. All of these



7. The blockage of which of the following blood vessels will lead to medial medullary syndrome?



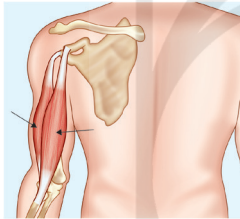
- a. A
- b. B
- c. C
- d. D

11. What is the nerve supply of the structure marked in the image below?



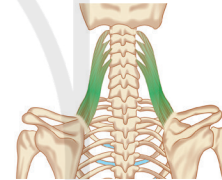
- a. Median nerve
- b. Radial nerve
- c. Posterior interosseus nerve
- d. Ulnar nerve

8. What is the insertion of shown muscle? (2018)



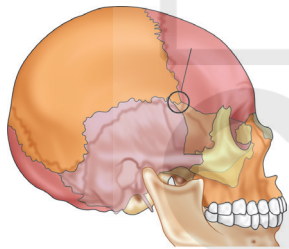
- a. Supraglenoid tubercle of scapula
- b. Tip of coracoid process of scapula
- c. Radial tuberosity
- d. Ulnar tuberosity

12. The shown muscle in the image is innervated by:



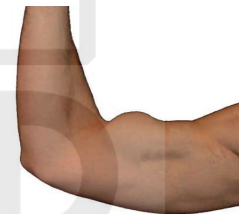
- a. Dorsal scapular nerve
- b. Suprascapular nerve
- c. From the dorsal rami of C1
- d. Subscapular nerve

9. The marked area in skull represents: (2018)



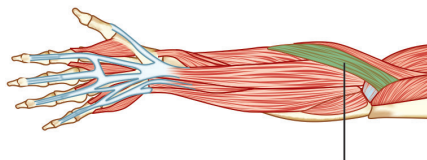
- a. Asterion
- b. Pterion
- c. Bregma
- d. Lambda

13. Identify the sign shown in the image below:



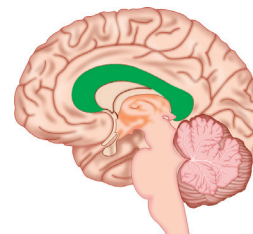
- a. Popeye sign
- b. Hill-Sachs sign
- c. Griesinger sign
- d. Rising sun sign

10. The arrow in the image denotes which of the following muscles?



- a. Brachioradialis
- b. Supinator
- c. Extensor carpi radialis longus
- d. Flexor carpi radialis brevis

14. Identify the green marked structure in the image:



- a. Corpus callosum
- b. Orbital cortex
- c. Striate cortex
- d. Optic chiasma

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FMGE SOLUTIONS

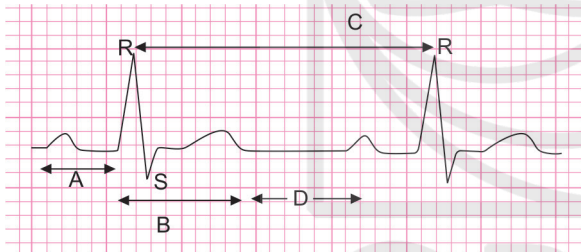
15. Test shown is:



- a. Card test
- b. Froment's sign
- c. Pointing index
- d. Pen test

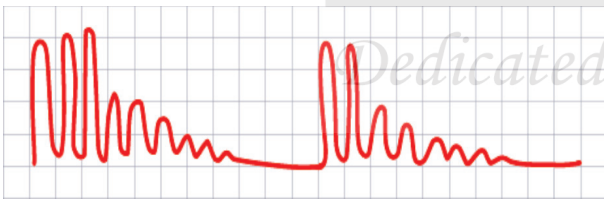
PHYSIOLOGY

16. Which of the following is QT interval?



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

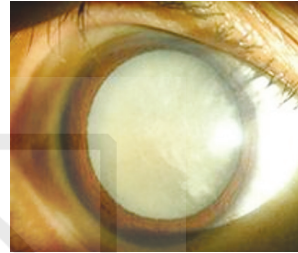
17. Which type of breathing is shown in below image?



- a. Cheyne stokes breathing
- b. Biot breathing
- c. Normal breathing
- d. Kussmaul breathing

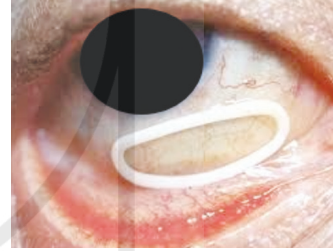
PHARMACOLOGY

18. Which of the following drugs is likely to be associated with these findings?



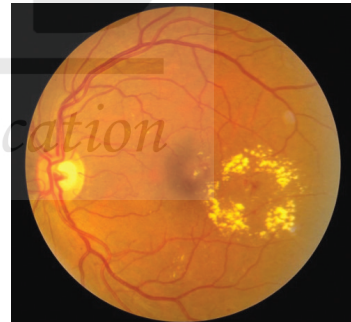
- a. Timolol
- b. Apraclonidine
- c. Dexamethasone
- d. Brimonidine

19. The shown drug delivery device is used for the delivery of:



- a. Clinidipine
- b. Atropine
- c. Pilocarpine
- d. Latanoprost

20. Which anti-diabetic agent can cause the adverse effect a show in the image?



- a. Glipizide
- b. Metformin
- c. Acarbose
- d. Pioglitazone



ANSWERS WITH EXPLANATIONS

ANATOMY

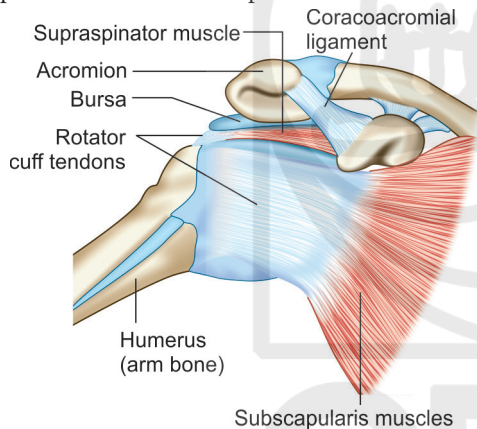
1. Ans. (a) **Pituitary**

2. Ans. (a) **Long thoracic nerve**

Nerve involved	Muscle
Long thoracic nerve	Serratus anterior
Musculocutaneous nerve	Coracobrachialis muscle
Lateral anterior thoracic nerve	Pectoralis major muscle
Thoracodorsal Nerve	Latissimus dorsi

3. Ans. (a) **Coracoacromial ligament**

- The image shows a ligament extending from the coracoid process to the acromion process.



4. Ans. (c) **Sural nerve**

The image shows sural nerve.

5. Ans. (d) **Nerve originates from nerve roots L5-S2**

- The image shows pain in the distribution of sciatic nerve, which can occur due to disc prolapse. Such pain is worsened on standing.
- Arterial claudication pain is worsened on walking.
- The sciatic nerve originates from lumbosacral plexus L4-S3
 - Tibial division
 - Originates from anterior preaxial branches of L4, L5, S1, S2, S3
 - Peroneal division
 - Originates from postaxial branches of L4, L5, S1, S2

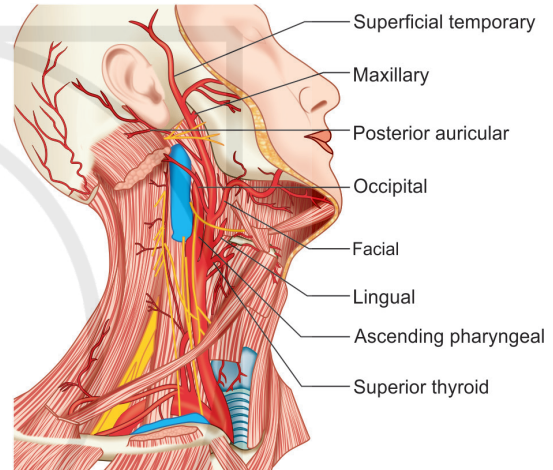
6. Ans. (d) **All of these**

Mnemonic for Branches for External Carotid Artery

Some anatomists like freaking out poor medical students

S : superior thyroid artery

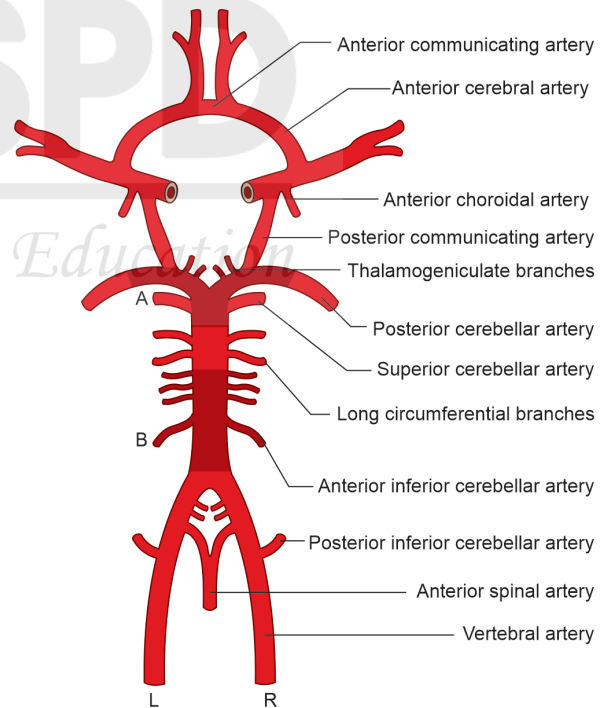
- A : ascending pharyngeal artery
- L : lingual artery
- F : facial artery
- O : occipital artery



- P : posterior auricular artery
- M : maxillary artery
- S : superficial temporal artery

7. Ans. (b) **B**

The following diagram and its branches should be remembered.





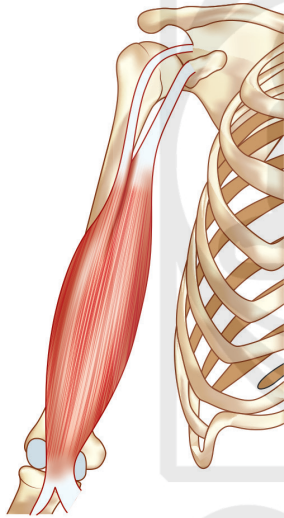
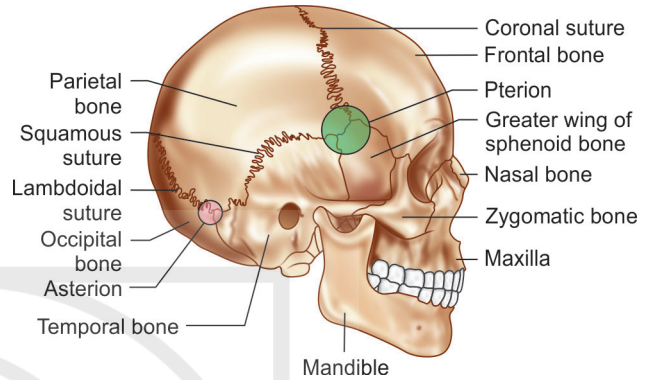
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8. Ans. (c) **Radial tuberosity**

- The shown muscle in the image is biceps brachii muscle, which is inserted at radial tuberosity and at fascia of forearm.

Biceps Brachii

- Origin**
- Short head:** Tip or coracoid process of scapula
- Long head:** Supraglenoid tubercle of scapula
- Insertion:** Tuberosity of radius and fascia of radius and fascia of forearm via bicipital aponeurosis
- Action:** Supinates forearm and, when it is supine, flexes forearm
- Innervation:** Musculocutaneous nerve (C5 and C6)

9. Ans. (b) **Pterion**10. Ans. (c) **Extensor carpi radialis longus**

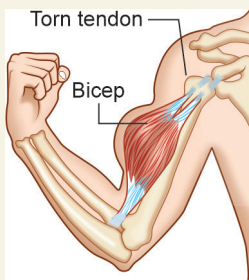
The arrow shows extensor carpi radialis longus muscle.

11. Ans. (a) **Median nerve**

- The area marked in the image are the lumbricals.
- They are supplied by median nerve.

12. Ans. (a) **Dorsal scapular nerve**

The muscle marked in the above image is levator scapulae, which is innervated by the dorsal scapular nerve.

13. Ans. (a) **Popeye sign**

- The sign shown in the image is Popeye sign, which occurs due to the rupture of the tendon of the long head of biceps brachii.
- On flexing the elbow, the characteristic deformity appears due to the bulging of the muscle belly caused by the contraction of the unrestrained muscles.

14. Ans. (a) **Corpus callosum**

The body of the corpus callosum arches posteriorly and ends as the thickened posterior portion called the splenium.

15. Ans. (c) **Pointing index**

The image shows presence of point index with lesion of median nerve. The remaining three choices A, C, D are seen in ulnar nerve damage.



PHYSIOLOGY

16. Ans. (b) **B**

PR interval (A)	120–200 msec and represents spread of impulse from SAN to AV node
RR interval (C)	Inversely related to heart rate
QT interval (B)	360–440 msec and represents ventricular depolarization and repolarization

17. Ans. (a) **Cheyne stokes breathing**

Repeated sequence of gradual onset of apnea followed by restoration of respiration; this pattern is defined as Cheyne stokes respiration.

Physiological Causes

- Sleep
- Voluntary hyperventilation
- High altitude

Pathological Causes

- Left ventricular failure
- Uremia
- Brain damage

PHARMACOLOGY

18. Ans. (c) **Dexamethasone**

- Steroids are associated with cataract formation:
 - Topical steroid causes: Glaucoma
 - Systemic steroid causes: Cataract

19. Ans. (c) **Pilocarpine**

- The shown delivery system is ocusert.
- It is used for continuous delivery of pilocarpine in glaucoma patients.

20. Ans. (d) **Pioglitazone**

- The shown image is macular edema. It is caused by PPAR-gamma agonist like Pioglitazone, Rosiglitazone, Troglitazone.

21. Ans. (b) **Labetalol**

- The shown image is of gum hypertrophy.
- It can be caused by anti-epileptic agent like phenytoin and anti-hypertensive agent like nifedipine and other calcium channel blockers.
- Other agents associated with gum hypertrophy: Tacrolimus, cyclosporine, valproate, barbiturate.

22. Ans. (b) **Bleomycin**

- The shown image is of flagellate dermatitis. It is associated with anti-cancer agent bleomycin.

PATHOLOGY

23. Ans. (a) **Howell-Jolly bodies**

- The image shows presence of Howell-Jolly bodies which are dense blue circular inclusions representing nuclear remnants. The presence of Howell-Jolly bodies implies defective splenic function.

24. Ans. (b) **Reed Sternberg cell**

The image shows presence of Reed Sternberg cell with bilobed nucleus and prominent nucleoli which lead to prominent owl eye appearance.

25. Ans. (b) **Myeloblast**

- The image shows presence of Myeloblasts and you can see the Auer rods in the cytoplasm of these cells. (Arrow marked)

26. Ans. (a) **Gaucher cell**

- The image shows presence of an enlarged macrophage showing crumpled tissue paper appearance of cytoplasm. The cell contains undigested glucocerebroside.
- Reed-Sternberg cell is found in Hodgkin's lymphoma
- Anitschkow cell is seen in rheumatic fever
 - Popcorn cell is seen in nodular lymphocyte predominant variety of Hodgkin lymphoma.

CLINICAL PATTERN QUESTIONS

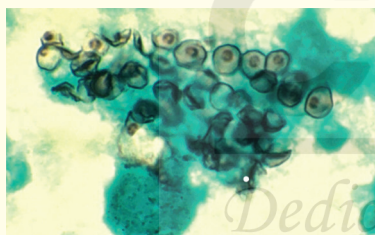


Important Points

- These are integrated questions covering more than one subject and hence are not segregated subject wise
- These questions comprise 30%–40% of paper. Do not get distracted by their length but focus to identify pick up points in each of these questions. The explanations of these questions will help you pick up those subtle hints given by the examiner.
- Ideally attempt these questions when you are done with first read of all 19 subjects to increase the strike rate.

CASE 1

A 30-year-old AIDS positive truck driver is suffering from fever and breathlessness for last 5 days. On auscultation occasional crepitations are heard in bilateral lung fields and $spO_2 = 80\%$. CXR was done along with Bronchoalveolar lavage. What drug treatment will be started for this patient?



- a. Azithromycin b. Cotrimoxazole
c. Anti-Tubercular drugs d. Fluconazole

Ans. (b) **Cotrimoxazole**

Ref: Harrison 20th ed. pg. pg. 1547

- AIDS Positive status points to opportunistic infections being present. CXR shows bilateral infiltrates.
- Bronchoalveolar lavage shows a green background with black cysts of *Pneumocystis jirovecii*. The stain used is Gomori methenamine stain
- Cotrimoxazole is used for treatment of *P. jirovecii*. The question integrates microbiology with pharmacology.

CASE 2

A 35-year-old woman presents with weakness in both legs for past 2 days leading to inability to stand. On examination bilateral knee jerk and ankle jerk are absent with power of 1/5 in both legs for all muscle groups. There is no sensory deficit and bladder bowel control is present. Skirrow media was used in the patient for identification of aetiology of presentation. Which of the following organism is incriminated?

- a. Brucella Abortus b. Bordetella
c. Listeria Monocytogenes d. Campylobacter jejuni

Ans. (d) **Campylobacter jejuni**

Ref: Jawetz Microbiology 25th ed. pg. 240 and Harrison 20th ed. pg. 3227

- Patient has developed paraplegia with areflexia indicating lower motor neuron lesion involving the spinal cord. This is a presentation of Guillain Barre syndrome. The mention of Skirrows media in the question itself points to the incriminated agent which is *Campylobacter jejuni*.
- GBS is an example of type 4 hypersensitivity which presents with ascending symmetrical flaccid paralysis with Lumbar puncture findings of Albumino cytological dissociation. The incriminated agents are *Campylobacter jejuni* and more recently COVID -19 and zika virus.

CASE 3

An 80-year-old man is having severe low backache leading to difficulty in daily activity. He takes pain killers daily but no relief is noted. Recently he has also started developing swelling around eyes in the morning which resolves as the day progresses and comes back next morning. MRI spine shows lytic lesions in L4 and L5 vertebra. On blood work: Hb = 8 gm%, Normocytic normochromic anemia, TLC = 15,000, ESR = 100 mm fall in 1st hour, Serum creatinine = 3 mg%, Blood urea nitrogen = 80 mg, urine routine examination by dipstick is normal. Which is next best step for management of this patient?

- a. Start hemo-dialysis
b. Check urine for paraproteins
c. Schedule a kidney biopsy
d. Start prednisolone for next 8 weeks

Ans. (b) **Check urine for paraproteins**

Ref: Harrison 20th ed. pg. 797

Lower backache in an old man with lytic lesion in lumbar vertebra points to two possible aetiologies-

- Metastasis from solid organ tumor like carcinoma prostate
- Lesions of multiple myeloma

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Points in favour of multiple myeloma, using **CRAB** mnemonic (Hypercalcemia, Renal failure, Anemia and Bony lytic lesions)

- Old age
- ESR of 100 mm fall in 1st hour
- Elevated creatinine indicative of renal failure
- Anemia due to Hb of 8 mg%
- Bony lytic lesions confirmed by MRI spine

Hence the urine of patient should be checked for Bence Jones proteins which are also called paraproteins.

CASE 4

A 65-year-old man experiences difficulty in changing channels in a television remote and buttoning up his shirt. He takes longer than usual for his morning walk and feels that he may fall. On examination, rigidity and bradykinesia are noted in all the limbs with normal plantar reflexes and deep tendon reflexes. Cranial nerve examination is within normal limits. Which of the following drugs shall not be used in management of this patient?

- Entacapone
- Cabergoline
- Apomorphine
- Tetrabenazine

Ans. (d) **Tetrabenazine**

Ref: Harrison 20th ed. pg. 3126-27

- Bradykinesia (slowness in doing activity) with rigidity points to clinical diagnosis of Parkinsonism. The question integrates medicine with pharmacology.
- Option A is a COMT inhibitor that is used to reduce off time with Levodopa carbidopa.
- Option B is a Dopamine agonist that reduces symptoms in PD while option C is an injectable drug used for severe off time seen in PD patients.
- Option D is a Dopamine depletor and will worsen a patient of PD who already has dopamine depletion in substantia nigra.

 **Extra Mile**

- Tetrabenazine is used in management of Huntington's chorea
- Bradykinesia with any of following: resting tremors, rigidity and postural instability is used for diagnosis of PD
- Off and on phenomenon is seen with effects of levodopa in patients of PD

CASE 5

A 25-year-old burn victim is admitted in the hospital for last one week for management of extensive burns on legs due to blast in the cooking stove. On day eight of admission, she is having high grade fever with chills and rigors, Pulse rate = 120/min with BP = 100/60 mm Hg on dobutamine. Blood culture of the patient is likely to reveal characteristics of which organism?



- Gram positive cocci in grape like clusters
- Gram positive cocci in chains
- Gram negative rod, motile with multiple flagella
- Gram negative rod, motile with single polar flagellum

Ans. (d) **Gram negative rod, motile with single polar flagellum**

Ref: Jawetz Microbiology, 25th ed. pg. 30

- Post burns sepsis is a common complication and occurs due to pseudomonas colonization of burnt surface and subsequent bacteremia.
- The low BP and use of dobutamine points to development of septic shock in the patient.
- Pseudomonas aeruginosa is a gram-negative rod which is motile with single polar flagellum.

CASE 6

A 50-year-old man has been diagnosed with liver cancer. He used to do needle sharing in college days to take IV drugs and had tested positive for hepatitis C. Which is correct about the primary malignant liver tumor that he has developed?

- Depletion of CD95 receptors and inhibition of apoptosis
- Activation of CD95 receptors and inhibition of apoptosis
- Overexpression of beta catenin protein and inhibition of apoptosis
- Under expression of beta catenin protein and inhibition of apoptosis

Ans. (a) **Depletion of CD95 receptors and inhibition of apoptosis**

Ref: Harsh Mohan Textbook of Pathology, 7th ed. pg. 207-208

- Hepatocellular carcinoma develops in patients who had hepatitis B or C infection in the past. The reason for development of cancer is inhibition of apoptosis via depletion of CD95 receptor.
- Beta catenin protein is related to APC gene and development of Familial adenomatous polyposis. APC gene is inhibitory to mitosis and acts via cytoplasmic protein Beta catenin. Hence Option C and D are ruled out.

CASE 7

A 20-year-old man visited a red-light area and had unprotected sexual exposure. He developed a lesion on his penis and visited the STD clinic of your hospital. You prescribed benzathine penicillin single dose. After 10 days he comes back with development of urticaria and morbilliform rash on his extremities as shown. Vitals are stable. Which of the following hypersensitivity reaction is responsible for this presentation?



- a. Type 1
- b. Type 2
- c. Type 3
- d. Type 4

Ans. (c) Type 3

Ref: Katzung Pharmacology: 11th ed. pg. 459

- The presence of rash and urticaria 10 days after administration of antibiotic points to immune complex mediated type 3 hypersensitivity.
- Type 1 hypersensitivity occurs immediately after administration of drug or vaccine and leads to hemodynamic compromise. In this case patient has come after 10 days and vitals are stable.
- Type 2 Hypersensitivity is seen with mismatched BT and Rh incompatibility
- Type 4 is delayed hypersensitivity as is seen with Mantoux test, Lepromin test and disorders like contact dermatitis.

CASE 8

A 50-year-old obese smoker who is a lawyer by profession started having chest pain during a court hearing. He was rushed to the nearest hospital where ECG showed ST segment depression with T wave inversion. His cardiac biomarkers were grossly elevated. Which of the following is a late complication of the medical condition he has acutely developed?

- a. Heart failure
- b. Arrhythmia
- c. Dressler syndrome
- d. Cardiac rupture

Ans. (c) Dressler syndrome

Ref: Robbins 10th ed. pg. 557

- Cardiac biomarker elevation with ECG finding of ST depression and T wave inversion in setting of chest pain at rest point to diagnosis as NSTEMI.
- Option A and B are early complications that occur due to myocardial ischemia and occur on first day of MI.
- Option D is present in transmural infarction seen with main left coronary artery thrombosis. The necrosis of entire thickness of cardiac chamber can lead to a blow out and cardiac rupture. This complication is rare but occurs within few days.
- Dressler syndrome is a late complication of MI that occurs after 5–7 days.

CASE 9

A 15-year-old boy has a valvular heart disease leading to poor performance in sports in school. He has a past medical history of developing fever with recurrent sore throat. On cardiac auscultation Loud S1 and diastolic rumble could be heard. Work up shows CRP was positive, ESR = 80 mm fall in first hour and ASO titer was 200 IU. Which of the following is correct about this case?

- a. Erythema Nodosum on lower extremities
- b. Development of intentional tremors in upper extremities
- c. Chronic adhesive pericarditis
- d. Type III hypersensitivity reaction

Ans. (c) Chronic adhesive pericarditis

Ref: Robbins 10th ed. pg. 566

- Loud S1 and diastolic rumble (implies murmur) is a feature of Mitral stenosis. Elevated ASO titer indicates Rheumatic fever being the aetiology responsible for mitral stenosis.
- Option A is ruled out as it is seen in Sarcoidosis. In RF, erythema marginatum is seen.
- Option B is ruled out as it is seen in Cerebellar disease. In RF, chorea is seen
- Option D is ruled out as RF is an example of type II hypersensitivity reaction.

CASE 10

A 35-year-old smoker has an ulcer in the buccal cavity that is not healing for the last 3 months and he has visited various doctors. At your district hospital you have advised a biopsy from the lesion. Which of the following features will confirm that the lesion is malignant?

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KEY POINTS

ANATOMY

IMPORTANT RECENT POINTS (INCLUDES LATEST QS)

- Upper lateral cutaneous nerve is a branch of: **Axillary nerve**
- An injury to anatomical snuff box causes fracture of this bone: **Scaphoid**
- Muscle of arm causing flexion, adduction and medial rotation: **Pectoralis Major**
- Testicular artery is a branch of: **Abdominal aorta**
- Inferior scapular angle lies at which level: **T8**
- Muscle causing adduction at hip joint: **Gluteus medius**
- Deep inguinal ring is formed in: **Transversalis fascia**
- Nerve damage that can cause hypothenar muscle wasting and loss of sensation of medial one and half digits: **Ulnar nerve**
- Failure of closure of rostral neuropore at 25th day leads to: **Anencephaly**
- Parotid gland is supplied by this nerve: **Glossopharyngeal nerve**
- Killian's Dehiscence is formed due to: **Inferior constrictor muscle**
- Muscle biceps brachii inserts into: **Radial tuberosity**
- Nerve supplying area between great toe and 2nd toe: **Deep Peroneal nerve**
- Dermatome supplying area of nipples: **T4**
- Dermatome Supplying area of umbilicus: **T10**
- Retraction of scapula is done by: **Middle fibers of trapezius muscle**
- Nerve supplying cornea: **Trigeminal nerve**
- Longest extraocular muscle: **Superior Oblique (7.7 cm)**
- Shortest extraocular muscle: **Medial rectus (5.5 cm)**

TABLE: Important bone and their nutrient arteries

Bone	Nutrient artery
Femur	Branch of Femoral artery → Profunda femoris artery
Tibia	Posterior tibial artery

Contd...

Bone	Nutrient artery
Fibula	Branch of posterior tibial artery → Peroneal artery
Clavicle	Subscapular artery
Radius and Ulna	Anterior interosseous artery
Humerus	Profunda brachii artery

TABLE: Branches of subcalvian artery

1st part	VIT-CD <ul style="list-style-type: none"> • Vertebral artery • Internal mammary artery • Thyrocervical trunk
2nd part	Costocervical trunk
3rd part	Dorsal scapular artery

TABLE: Weight of some important organs

Organ	Weight
• Pituitary	0.5–0.6 gram (500–600 mg)
• Brain	Males: 1.4 kg Females: 1.27 kg
• Thyroid gland	20–40 gram
• Kidney	130–160 gram
• Adrenal gland	5–6 gram
• Prostate gland	15–20 gram

TABLE: Length of important anatomical structure

Organ	Length
• Fallopian tube	10–12 cm
• Bile duct	8 cm
• Appendix	Mn: BAG
• Gallbladder	
• Spinal cord	45 cm
• Thoracic duct	Mn: STTUFed
• Transverse colon	
• Umbilical cord	
• Femur	
• Deferens (Vas Deferens)	

Contd...



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Organ	Length
<ul style="list-style-type: none"> Sigmoid colon Esophagus Duodenum Descending colon Ureter Urethra (male) 	25 cm <i>Mn: SEDDUU</i>
<ul style="list-style-type: none"> Inguinal canal Optic nerve Urethra (Female) 	4 cm <i>Mn: 1 IOve U</i>

TABLE: Glands of face and their duct

Gland	Duct	Nerve	Development	Acini histology
Parotid gland	Stensen duct (opens opposite to upper 2 nd molar)	CN V (auriculotemporal branch)	Ectodermal	Serous acini
Submandibular gland	Wharton's duct (open on sides of frenulum at the floor of mouth)	CN VII (chorda tympani branch)	Endodermal	Mixed (serous > Mucinous)
Sublingual gland	Bartholin's and Rivinus duct (open at floor of mouth)	CN VII (chorda tympani branch)	Endodermal	Mixed (Mucinous > serous)

OFTEN ASKED ONES

• Most frequently fractured bone of body	Clavicle
• First bone to ossify	Clavicle
• Only long bone which has no medullary cavity	Clavicle
• All long bone ossify in cartilage EXCEPT clavicle. <i>It ossifies in membrane</i>	Clavicle
• Most frequently dislocated carpal bone	Lunate
• Most frequently fractured carpal bone	Scaphoid
• Nerve supply of deltoid	Axillary nerve
• MC fractured carpal bone	Scaphoid (boat shaped)- 2nd MC site of avascular necrosis
• Ape thumb deformity	Median nerve (opponens pollicis muscle paralyzed)
• Musician's nerve	Ulnar nerve (root value C8, T1)

• Labourer's nerve/eye of the hand	Median nerve
• Root value of radial nerve	C5 to T1 (C5, C6, C7, C8, T1)
• Winging of scapula	Long thoracic nerve (serratus anterior muscle paralyzed)
• Police man tip hand/porter's tip hand	Erb's paralysis
• Klumpke's paralysis	Damage to C8 and T1
• Strongest ligament of body	Iliofemoral ligament
• Longest muscle of body	Sartorius (aka tailor's muscle)
• Nerve supply of gluteus maximus	INFERIOR gluteal N. (L5, S1, S2) Mn: 512
• Nerve supply of gluteus medius and minimus	SUPERIOR gluteal N. (L4, L5, S1) Mn: 451
• Vessel used in coronary artery bypass graft (CABG)	Internal Mammary Artery
• Muscle which is known as peripheral heart	Soleus
• Locking of the knee by	Quadriceps femoris muscle (occurs at last stage of extension)
• Unlocking of the knee by	Popliteus muscle (occurs at first stage of flexion)
• Sternal angle and bifurcation of trachea at	T4 level
• Arch of aorta begins and terminates at	T4 level
• Police man of abdominal cavity	Greater omentum
• Muscle of horror	Platysma
• Nerve supply of upper eyelid and TIP of nose	V1 (ophthalmic branch of trigeminal)
• Most commonly nerve paralyzed	Facial N (longest intrasosseous course)
• Emergency tracheostomy at	Tracheal ring 2-3
• Ova released in form of	Secondary oocyte
• Blastocyst formation	5th day after fertilization
• Implantation occurs	6th day after fertilization, completes on 10th day.
• Liver has 8 segments.	Caudate lobe-segment 1; Quadrate lobe-segment 4

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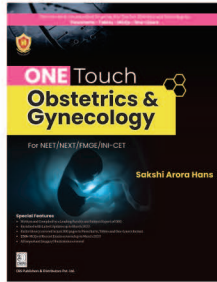
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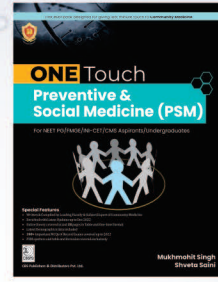


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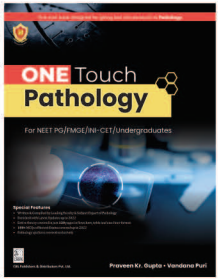
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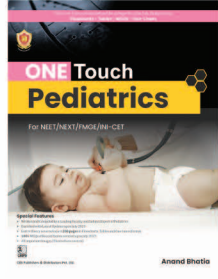
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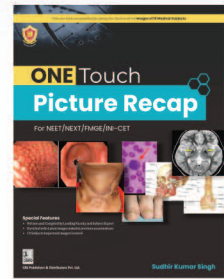
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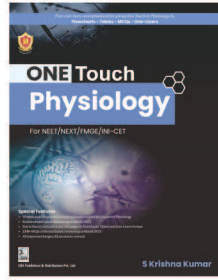
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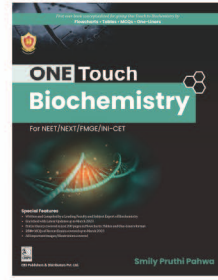
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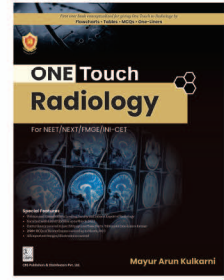
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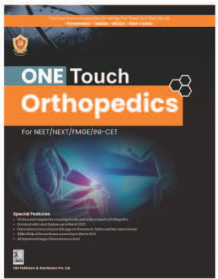
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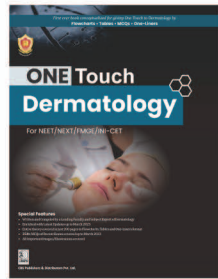
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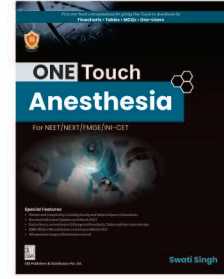
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The 8th Edition of FMGE Solutions is an exceptional and comprehensive resource designed to guide readers toward success in the FMG Exam. This unique package encompasses all essential components necessary for exam preparation. It stands out as the most up-to-date compendium, incorporating the latest developments and covering a vast question bank spanning the last decade (up to July 2023). With its wealth of updated content and explanatory features, FMGE 8th edition is an indispensable tool for FMG Exam preparation.

Most Recent Papers (FMGE July & Jan 2023) added

MOST RECENT QUESTIONS 2023

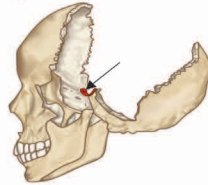
1. A patient underwent extraction of 3rd molar tooth and after this the patient was observed to have a loss of sensation from the anterior 2/3rd of the tongue and floor of the mouth. Which nerve is most likely to be damaged?

(Most Recent Question July 2023)

- a. Hypoglossal nerve
- b. Lingual nerve
- c. Accessory nerve
- d. Inferior alveolar nerve

200+ Image-Based Qs

1. Which part of brain is present in Turkish saddle-shaped space in cranium?



- a. Pituitary gland
- b. Frontal lobe
- c. Hypothalamus
- d. Basal ganglia

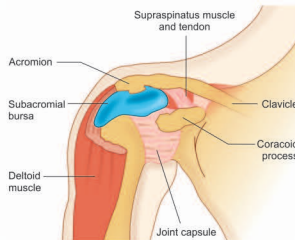
250+ Clinical Pattern Qs

CASE 1

A patient tested positive for MTB on sputum CBNAAT. He did not come again to the hospital despite multiple reminders. Today he presents with massive hemoptysis and is alarmed. What is the next best step for this patient?

- a. Urgent coagulation studies
- b. Perform multi slice CT scan chest
- c. Schedule a flexible fibre optic biopsy
- d. Urgent rigid bronchoscopy and prophylactic balloon tamponade

3000+ Figure, Flowcharts and Illustrations



Extra Mile Boxes for Controversial Questions doubt clarification

Extra Mile

- Proximal row of carpals (Lateral to Medial): Scaphid, Lunate, Triquetral and Pisiform
- Distal row of carpals: Trapezium, Trapezoid, Capitate and Hamate
- Pisiform bone is a *sesamoid* bone lying in the tendon of *flexor carpi ulnaris*.
- Mnemonic to remember carpal bones "She Looks Too Petite, Try To Catch Her"

AddOn Booklet covering important key points for last-minute revision

ANATOMY

- Upper lateral cutaneous nerve is a branch of: **Axillary nerve**
- An injury to anatomical snuff box causes fracture of this bone: **Scaphoid**
- Muscle of arm causing flexion, adduction and medial rotation: **Pectoralis Major**
- Testicular artery is a branch of: **Abdominal aorta**
- Inferior scapular angle lies at which level: **T8**
- Muscle causing adduction at hip joint: **Gluteus medius**

What Students Say About FMGE Solutions?



Dr Naik

★★★★★ Solutions to clear your FMGE

I am Dr Naik and I graduated in the batch of July 2022 and appeared in the FMGE exam in January 2023. I would like to thank the authors for the dedication and effort they have put in making FMGE solutions. I used that book as a Bible till the D-day and found around 70 questions from that book. I scored 165 in the exam, thanks to the FMGE solutions and the clinical vignettes added in the end of the book.



Dr Stuti Singh

★★★★★ Solutions to clear your FMGE

Thank you FMGE Solutions helped me in my journey of becoming doctor. I passed my FMGE with 171 marks. FMGE Solutions helped me a-lot to know imp. Topics + pyq with very good explanations.



Kamlesh Singh

★★★★★ Solutions to clear your FMGE

I would like to thank you for the valuable publication of FMGE Solutions as FMGE is also given in Mauritius to clear license exams here. I am Mauritian who studied in China and back here your book was truly helpful in refreshing back my knowledge and clearing national exams. Keep up the good work!



Om

★★★★★ Solutions to clear your FMGE

Hello sir, I'm Om from the state of Kerala. I just want to thank you for helping me clear FMGE exam. I got 171 marks in my first attempt. You are such an inspiration for me. I completely solved FMGE Solutions before going for exam, and that amazing book helped a lot sir... This year I struggled a lot with life and I badly craved for this success. And I'm so thankful to you. Watching your videos made me feel happy and hopefully I will be a doctor like you.



Dr Arisha

★★★★★ Solutions to clear your FMGE

I loved all the mocks which are given at the end of FMGE Solutions. They are so high yielding. Also the solution book is with me for my NEET PG preparations as well. Some tables and explanations are so good which are just imprinted in my mind.



Hemant

★★★★★ Solutions to clear your FMGE

Tqqq so much Deepak Marwah Sir and Siraj Ahmad sir this time so many images and qns came from this book exactly same. I cleared my FMGE in first attempt with 159 marks, with the help of FMGE Solutions



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