PassQueen
a.k.a dumpsqueen.com

FRCEM Primary Examination

RCEM FRCEM

Version Demo

Total Demo Questions: 14

Total Premium Questions: 145

Buy Premium PDF

https://passqueen.com

support@passqueen.com

Topic Break Down

Topic	No. of Questions
Topic 1, Anatomy	45
Topic 2, Physiology	46
Topic 3, Pharmacology	19
Topic 4, Pathology	7
Topic 5, Microbiology	19
Topic 6, Statistics	7
Topic 7, Mix Questions	2
Total	145

QUESTION NO: 1

A 60 year old woman presents following blunt trauma to her abdomen A CT scan demonstrates herniation of small intestine into the chest

At what site is the diaphragmatic injury most likely to have occurred1?

A. 11-12th ribs

B. Central tendon

C. Costal cartilage of 7-10th ribs

D. Lumbar vertebrae

E. Xiphoid process

ANSWER: A

Explanation:

11-12th ribs is correct because blunt traumatic diaphragmatic rupture classically occurs in the posterolateral portion of the left hemidiaphragm. This is the relatively vulnerable peripheral muscular region of the diaphragm, close to its attachment to the lower ribs, particularly in the posterolateral thoracic wall. A sudden rise in intra-abdominal pressure during blunt abdominal trauma creates a large transdiaphragmatic pressure gradient. This can tear the diaphragm at this weak posterolateral area and allow mobile abdominal viscera, particularly small bowel, stomach, or colon, to herniate into the thorax.

The left side is affected more often because the liver offers some protective buffering to the right hemidiaphragm. CT evidence of small intestine above the diaphragm after trauma is therefore highly suggestive of a left-sided traumatic diaphragmatic rupture at this posterolateral lower-rib attachment. Recognition is important because herniated bowel may later become obstructed or strangulated if the injury is missed. The typical location and mechanism are described in the StatPearls review of diaphragmatic rupture and in the World Society of Emergency Surgery position paper on traumatic diaphragmatic injury.

QUESTION NO: 2 - (SIMULATION)

A patient is brought into the ED unconscious Calculation from the venous blood gas confirms a low anion gap acidosis What is the most likely cause of this abnormality?

Diabetic ketoacidosis

B.

Hypoalbummaemia

C.

Methanol

D.

Rhabdomyolysis

E.

Salicylates

ANSWER: See the explanation for the answer

Explanation:

Answer: B. Hypoalbuminaemia.

Albumin is a major unmeasured anion in plasma. A reduced albumin concentration therefore lowers the measured anion gap and is the commonest cause of a low anion gap.

The other options typically cause a **high anion gap metabolic acidosis**:

Diabetic ketoacidosis — ketones
Methanol — formate
Rhabdomyolysis — organic acids/renal impairment
Salicylates — salicylate and organic acid accumulation

QUESTION NO: 3

You are discussing physiology of the body compartments and distribution of body water while teaching nurse practitioners.

Which extracellular fluid compartment is most likely to contain the most water?

A. Bone

B. Dense connective tissue

C. Interstitial fluid

D. Plasma

E. Transcellular

ANSWER: C

Explanation:

Interstitial fluid is correct because it is the largest subdivision of extracellular fluid. In a typical adult, total body water is distributed principally between intracellular fluid and extracellular fluid, with extracellular fluid making up approximately one third of total body water. Most extracellular fluid is located in the interstitial space: the fluid surrounding cells within tissues. This compartment is commonly estimated to account for about three quarters of extracellular fluid volume, whereas the intravascular portion is substantially smaller. Interstitial fluid provides the immediate environment for cells and is the medium through which oxygen, nutrients, electrolytes, signalling molecules and metabolic waste products move between capillaries and cells. Its volume is maintained by the balance of capillary hydrostatic and oncotic forces, together with lymphatic drainage; these principles are central to understanding oedema and fluid resuscitation in emergency medicine. The precise proportion varies with body composition, illness and measurement method, but the relative distribution remains clinically useful: interstitial fluid contains the greatest quantity of water among the named extracellular fluid compartments. For further review, see the NCBI Bookshelf overview of body fluid compartments and NCBI Bookshelf discussion of interstitial fluid physiology.

QUESTION NO: 4

A young man arrives by ambulance having dislocated his patella playing football. Rehabilitation should focus on which muscle to reduce chances of recurrent dislocation?

A. Adductor magnus

B. Gracilis

C. Sartorius

D. Vastus lateralis

E. Vastus medialis

ANSWER: E

Explanation:

Vastus medialis, particularly its oblique distal fibres (vastus medialis obliquus, or VMO), is the key muscle to target in rehabilitation after a lateral patellar dislocation. The patella is most vulnerable to lateral displacement in early knee flexion,

when bony containment by the trochlear groove is limited. Dynamic medial stabilisation is therefore important alongside healing of passive medial restraints, especially the medial patellofemoral ligament. The vastus medialis contributes a medially directed stabilising force to patellar tracking and works as part of quadriceps control during functional activity. Rehabilitation usually incorporates progressive quadriceps strengthening with attention to neuromuscular control, pain-free range of movement, and appropriate hip and trunk mechanics before return to pivoting sport. In practice, isolated VMO activation is difficult to achieve reliably, so a broader, graded quadriceps programme is used; nevertheless, vastus medialis is the anatomical muscle classically identified when this question asks for the muscular stabiliser that helps resist recurrent lateral patellar instability. See StatPearls: Patella Dislocation and the RCEMLearning patellar dislocation reference.

QUESTION NO: 5

A 25 year old woman sustains damage to the hypothalamus as a result of head injury This would most likely result in excess secretion of which hormone?

A. Adrenocorticotropic

B. Follicle-stimulating

C. Luteinizing

D. Prolactin

E. Thyroid stimulating

ANSWER: D

Explanation:

Prolactin is the hormone most likely to be excessively secreted after hypothalamic damage because its anterior pituitary secretion is under predominantly tonic inhibition from the hypothalamus. Dopaminergic neurones in the hypothalamus release dopamine into the hypophyseal portal circulation; dopamine then acts on pituitary lactotrophs to restrain prolactin synthesis and release. Damage that interrupts hypothalamic dopamine production or delivery to the pituitary removes this inhibitory “brake,” allowing prolactin concentrations to rise. This is often termed disinhibition of prolactin secretion. The clinical consequences of hyperprolactinaemia can include galactorrhoea, menstrual disturbance and reduced fertility, as prolactin excess can disrupt normal reproductive endocrine signalling. This regulatory arrangement is distinctive because hypothalamic control of prolactin is chiefly inhibitory rather than dependent on continuous hypothalamic stimulation. The physiology of hypothalamic dopamine inhibition of lactotrophs is described in Endotext: Hyperprolactinemia and in the NCBI Bookshelf review of prolactinoma.

QUESTION NO: 6

A 35 year old man presents with extensive burns His circulating volume and renal perfusion pressure drop. Concentration of NaCl in the intraluminal fluid in the kidney decreases.

Which hormone is most likely to be released by the juxtaglomerular apparatus in response?

A. Adenosine

B. Aldosterone

C. Angiotensin

D. Anti-diuretic hormone

E. Renin

ANSWER: E

Explanation:

Renin is correct. Extensive burns can cause substantial intravascular fluid loss, reducing effective circulating volume and renal arterial perfusion pressure. The kidney responds through the renin–angiotensin–aldosterone system, beginning with release of renin from juxtaglomerular (granular) cells in the afferent arteriole. Renin secretion is stimulated directly by reduced pressure/stretch in the afferent arteriole, by increased renal sympathetic activity via β_1-adrenoceptors, and by reduced sodium chloride delivery to the macula densa in the distal nephron. The scenario provides two key signals: reduced renal perfusion pressure and low intraluminal sodium chloride concentration. Renin is an enzyme with hormonal activity that cleaves circulating angiotensinogen to form angiotensin I; angiotensin-converting enzyme then generates angiotensin II. This pathway supports restoration of arterial pressure and extracellular volume through vasoconstriction, stimulation of aldosterone release, increased renal sodium reabsorption, and promotion of thirst and water retention. Thus, renin is the substance released directly by the juxtaglomerular apparatus in this setting. Further physiology detail is available from NCBI Bookshelf: Renin-Angiotensin-Aldosterone System and NCBI Bookshelf: Physiology, Renin Angiotensin System.

QUESTION NO: 7

A patient presents with acute cardiac failure and is prescribed a loop diuretic

In which part of the nephron will the diuretic inhibit the sodium-potassium-chloride cotransporter?

A. Collecting duct

B. Distal convoluted tubule

C. Proximal tubule

D. Thick ascending limb

E. Thin ascending limb

ANSWER: D

Explanation:

Thick ascending limb is correct. Loop diuretics, such as furosemide, bumetanide and torasemide, act on the luminal membrane of epithelial cells in the thick ascending limb of the loop of Henle. Their key target is the sodium-potassium-2 chloride cotransporter, usually termed NKCC2. In normal physiology, NKCC2 reabsorbs sodium, potassium and chloride from tubular fluid into these cells; sodium is then returned to the circulation via basolateral transport mechanisms. Blocking NKCC2 therefore produces substantial natriuresis and diuresis, reducing intravascular volume and venous congestion. This is why loop diuretics are particularly useful for relieving fluid overload in acute heart failure. The thick ascending limb is also normally impermeable to water and contributes to formation of the medullary concentration gradient. Inhibition at this site consequently both increases sodium delivery distally and impairs the kidney's concentrating capacity. The National Institute for Health and Care Excellence includes intravenous loop diuretic therapy in the management of acute heart failure with fluid overload. Further pharmacological detail is available in StatPearls: Loop Diuretics and the NICE guideline on acute heart failure.

QUESTION NO: 8

A 23 year old presents with episodes of a painful left arm which becomes swollen and cyanosed after they have been kayaking Obstruction of which structure is most likely to cause these symptoms'?

A. Axillary vein

B. Brachiocephalic trunk

C. Brachiocephalic vein

D. Subclavian artery

E. Subclavian vein

ANSWER: E

Explanation:

Subclavian vein obstruction is the most likely cause. This presentation is characteristic of venous thoracic outlet syndrome, particularly effort thrombosis (Paget–Schroetter syndrome). Repetitive, strenuous upper-limb activity such as kayaking can cause compression and endothelial injury to the subclavian vein as it passes through the thoracic outlet, between the clavicle and first rib. This may lead to acute thrombosis or intermittent positional venous obstruction. Impaired venous drainage from the arm raises venous pressure distal to the obstruction, producing painful swelling, a dusky or cyanosed appearance, heaviness, and sometimes prominent superficial collateral veins over the shoulder or chest. The association with exercise in a young, otherwise healthy person is an important clinical clue. Assessment commonly includes duplex ultrasonography, although further imaging such as CT or MR venography may be needed if clinical suspicion remains high or to define thoracic outlet anatomy. Early specialist management is important because treatment may involve anticoagulation, catheter-directed thrombolysis in selected acute cases, and consideration of thoracic outlet decompression to reduce recurrence. This mechanism and clinical syndrome are described by the NCBI Bookshelf review of Paget–Schroetter syndrome and the Society for Vascular Surgery overview of thoracic outlet syndrome.

QUESTION NO: 9

A patient presents with unilateral tongue swelling with no additional signs of allergic reaction She is on multiple cardiac medications Which drug is most likely to have caused these symptoms?

A. Aspirin

B. Atenolol

C. Bendroflumethiazide

D. Lisinopril

E. Simvastatin

ANSWER: D

Explanation:

Lisinopril is the most likely cause because it is an angiotensin-converting enzyme inhibitor, a drug class associated with bradykinin-mediated angioedema. This typically presents as sudden, non-pitting swelling of the lips, tongue, face, oral cavity, or upper airway. It may be unilateral and, importantly, commonly occurs without urticaria, itching, wheeze, hypotension, or other features of a histamine-mediated allergic reaction. ACE inhibition reduces bradykinin breakdown, allowing bradykinin accumulation and increased vascular permeability. Although angioedema is more frequent shortly after starting therapy, it can occur unpredictably after months or years of otherwise well-tolerated treatment. Tongue involvement is clinically important because swelling can progress rapidly and threaten the airway; immediate airway assessment and early senior anaesthetic/ENT involvement are therefore essential where there is voice change, stridor, dysphagia, drooling, or progressive swelling. The suspected ACE inhibitor should be stopped permanently, and the event documented clearly as ACE-inhibitor-associated angioedema. Standard anaphylaxis treatment may be appropriate if the diagnosis remains uncertain or concurrent anaphylaxis is suspected, but isolated ACE-inhibitor angioedema is not primarily histamine driven. Further information is available from the BNF angioedema treatment summary and the MHRA drug safety update.

QUESTION NO: 10

A 50 year old man with HIV has not been taking his treatment and presents with severe headache and neck stiffness His current CD4+ count is 180/mmc (normal 500-1400/mmc)

What is the most likely causative agent of his meningitis?

A. Aspergillus

B. Candida

C. Cryptococcus

D. Malassezia

E. Sporothrix

ANSWER: C

Explanation:

Cryptococcus is the most likely causative agent. Cryptococcal meningitis is a major opportunistic infection in people with advanced or untreated HIV, caused predominantly by *Cryptococcus neoformans*. Impaired cell-mediated immunity, reflected by a low CD4+ lymphocyte count, substantially increases susceptibility. Although incidence is greatest at CD4 counts below 100 cells/mm³, clinically important cryptococcal disease can occur at a higher count, particularly where HIV treatment has been interrupted and immune function may be deteriorating. The typical presentation is a subacute, progressively severe headache, often with neck stiffness and other features of meningoencephalitis; fever or altered mental state may also occur. Raised intracranial pressure is common and requires active assessment and management alongside antifungal therapy. Diagnosis is made using serum and cerebrospinal-fluid cryptococcal antigen testing, with lumbar puncture also allowing measurement of opening pressure and fungal culture. Early recognition matters because HIV-associated cryptococcal meningitis has substantial mortality without prompt treatment. The CDC provides an overview of cryptococcosis and its association with immunocompromise at CDC: Cryptococcosis. Detailed HIV-specific diagnosis and management guidance is available from the NIH ClinicalInfo cryptococcosis guideline.

QUESTION NO: 11

A 34 year old man presents with bruising and swelling over the anterior arm after lifting weights at the gym. There is pain and weakness on attempted internal rotation and adduction of the shoulder.

Rupture of which muscle best explains these findings?

A. Latissimus dorsi

B. Pectoralis major

C. Pectoralis minor

D. Serratus anterior

E. Trapezius

ANSWER: B

Explanation:

Pectoralis major rupture best accounts for this presentation. This injury classically affects young, active men during weight training, particularly during the eccentric phase of a bench press, when the shoulder is extended and externally rotated under heavy load. The pectoralis major tendon inserts on the lateral lip of the intertubercular sulcus of the humerus. A tear at or near this insertion produces acute anterior chest or upper-arm pain, swelling and ecchymosis that may track into the anterior arm, and can cause loss of the normal anterior axillary fold or a palpable defect once swelling settles.

Functionally, pectoralis major is a powerful adductor and internal rotator of the humerus; therefore, painful weakness in shoulder adduction and internal rotation is a particularly useful localising feature. Its clavicular head also contributes to flexion of the arm, while the sternocostal component assists extension from a flexed position. Clinical suspicion should prompt imaging, commonly ultrasound or MRI, to define the tear and tendon retraction, especially where operative repair may be appropriate. The anatomy and actions of pectoralis major are described in StatPearls: Anatomy, Shoulder and Upper Limb, Pectoralis Major Muscle; clinical features and management of rupture are reviewed in StatPearls: Pectoralis Major Tear.

QUESTION NO: 12

A 42 year old man with persistent diarrhoea has hypokalaemia. In the collecting duct, increased sodium delivery promotes potassium secretion by principal cells.

Which process most directly allows potassium to be secreted into the tubular lumen?

A. Chloride movement through apical chloride channels

B. Potassium diffusion through apical potassium channels

C. Sodium-glucose cotransport across the apical membrane

D. Sodium-potassium ATPase activity across the apical membrane

E. Sodium-potassium-2 chloride cotransport across the apical membrane

ANSWER: B

Explanation:

Potassium diffusion through apical potassium channels is correct. Sodium enters principal cells from the tubular lumen through epithelial sodium channels. This creates a relatively negative luminal electrical potential and, together with the high intracellular potassium concentration maintained by the sodium-potassium ATPase, favours potassium movement into the lumen through apical potassium channels.

The basolateral sodium-potassium ATPase is essential for maintaining the intracellular potassium gradient, but it does not itself secrete potassium into the tubular fluid. Sodium-glucose cotransport occurs in the proximal tubule, while the sodium-potassium-2 chloride cotransporter is located in the thick ascending limb.

QUESTION NO: 13

A 63 year old patienl presents with symptoms of hemiplegia and sensory loss of the right side of face and extremities. Which artery is most likely to be involved?

A. Anterior cerebral

B. Anterior communicating

C. Middle cerebral

D. Posterior cerebral

E. Vertebral

ANSWER: C

Explanation:

Middle cerebral is correct. The middle cerebral artery supplies much of the lateral surface of the cerebral hemisphere, including the primary motor and primary sensory cortices responsible for the contralateral face and upper limb, as well as substantial areas involved in limb function. An acute lesion in the left middle cerebral artery territory therefore produces right-sided weakness or paralysis with right-sided sensory loss, often particularly prominent in the face and arm. The corticospinal and somatosensory pathways decussate, so a cerebral hemispheric stroke causes deficits on the opposite side of the body. This pattern is a high-yield localisation finding in acute stroke assessment: contralateral facial and limb motor and sensory deficits strongly support involvement of the middle cerebral artery distribution. Depending on the extent and hemisphere affected, associated cortical features may include dysphasia when the dominant hemisphere is involved, or visuospatial neglect when the non-dominant hemisphere is affected. Rapid recognition of this clinical syndrome supports urgent stroke-pathway assessment, neuroimaging, and consideration of time-critical reperfusion treatment. See the American Stroke Association arterial-territory overview and NCBI StatPearls review of middle cerebral artery stroke.

QUESTION NO: 14

A 22 year old woman sustained an incised wound to the sole of her foot from standing on glass. Examination of the wound under local anaesthetic identifies the wound depth is limited to the first plantar layer.

Which structure is most likely to be injured?

A. Flexor digitorum brevis

B. Lateral plantar artery

C. Medial plantar artery

D. Peroneus longus

E. Tibialis posterior

ANSWER: A

Explanation:

Flexor digitorum brevis is the correct answer because it lies within the first, most superficial muscular layer of the sole of the foot. This layer is encountered deep to the thick plantar skin, superficial fascia and plantar aponeurosis. Flexor digitorum brevis occupies the central part of the sole and arises from the medial process of the calcaneal tuberosity and the plantar aponeurosis. It passes forwards to divide into four tendons for the lateral four toes, contributing to flexion at the proximal interphalangeal joints and supporting the longitudinal arch during weight-bearing.

In an incised plantar wound whose depth reaches only the first plantar layer, a centrally placed structure in this superficial muscular plane is therefore vulnerable. The anatomical arrangement of the plantar muscles into layers is clinically useful when estimating the likely depth and structures at risk in penetrating sole injuries. A concise description of the intrinsic foot muscles and their layered organisation is available from TeachMeAnatomy. Further anatomical detail on flexor digitorum brevis is provided by StatPearls (NCBI Bookshelf).