Royal Australasian College of Surgeons

Vascular Practice Exam 2025

Sat 23 Aug 2025

EXAM MAIN SESSION

Sat 23 Aug 2025

Duration of the Session: 180 minutes

Session Description

Exam Main Session Description

EXAM SECTION

Type X

x

Question No:1 | **Maximum Marks** | **4**

Question Title
AAA & duplex

Question Description
AAA & duplex evaluation

In relation to abdominal aortic aneurysms and duplex ultrasonography:

Choose the correct answer

A	○ **True**	✓ **False**	An aorta of 3cm should have 6 monthly duplex surveillance
B	○ **True**	✓ **False**	A linear transducer probe is routinely utilised to assess the abdominal aorta
C	○ **True**	✓ **False**	A higher frequency transducer probe is helpful in evaluating aortic diameters due to increased penetration
D	✓ **True**	○ **False**	Localised liquefaction of aortic aneurysm thrombus can be confused with aortic aneurysm wall dissection

Question No:2

Maximum Marks	4

Question Title
Platelets play an important role in initiating wound healing by

Question Description
Platelets

Platelets play an important role in initiating wound healing by

Choose the correct answer

A ✓ **True** ○ **False** the release of cytokines from dense granules within platelets

B ✓ **True** ○ **False** releasing serotonin

C ○ **True** ✓ **False** inhibiting the binding of fibrinogen to the GP IIb/IIIa receptor

D ✓ **True** ○ **False** platelet adherence to exposed matrix via integrins that bind to collagen and laminin in damaged tissue

Question No:3

Maximum Marks	4

Question Title
MMPs & ECM

Question Description
Matrix metalloproteinases and ECM

In relation to matrix metalloproteinases (MMPs) & remodelling of connective tissue

Choose the correct answer

A ○ **True** ✓ **False** MMPs do not need be activated by proteases at site of injury
B ○ **True** ✓ **False** MMPs are not produced by fibroblasts
C ✓ **True** ○ **False** Zinc contributes to MMP activity and subsequently to wound healing
D ✓ **True** ○ **False** MMPs synthesis and secretion is regulated by growth factors and cytokines

Question No:4

Maximum Marks	4

Question Title
At the time of removal of sutures one week following incision and suturing during a 'clean' surgical operation, the wound would be expected to

Question Description
Healing

At the time of removal of sutures one week following incision and suturing during a 'clean' surgical operation, the wound would be expected to

Choose the correct answer

A ✓ **True** ○ **False** show persisting granulation tissue
B ○ **True** ✓ **False** have regained 70-80% of normal skin strength
C ○ **True** ✓ **False** show predominant synthesis of type IV collagen
D ✓ **True** ○ **False** show a predominance of macrophages rather than neutrophils

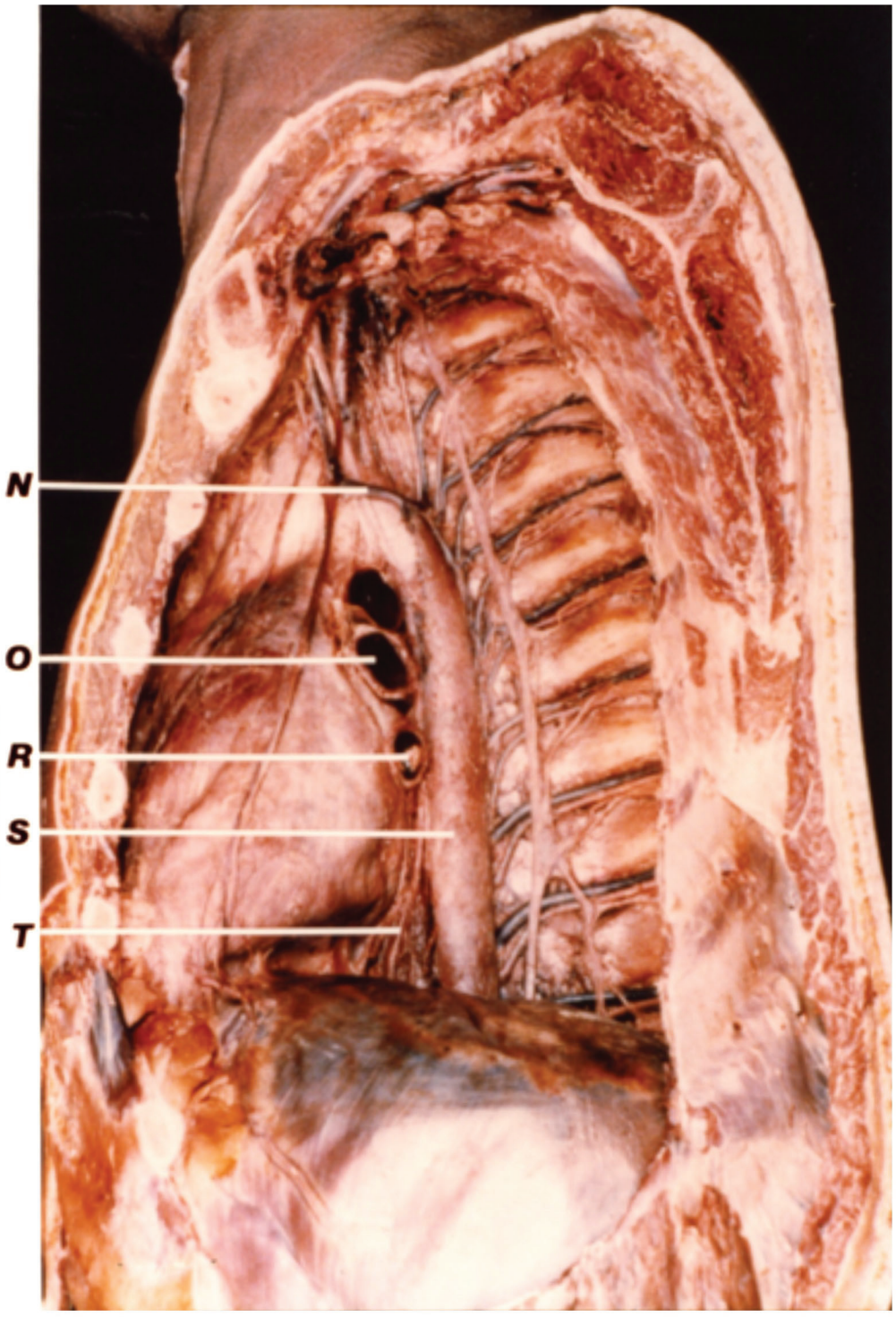
Question No:5

Maximum Marks	4

Question Title
The structure labelled S

Question Description
Aorta

The structure labelled S



Choose the correct answer

A ✓ **True** ○ **False** descends anterolateral to the vertebral column

B ○ **True** ✓ **False** has the azygos vein lying between it and the thoracic duct

C ○ **True** ✓ **False** supplies posterior intercostal branches to all the intercostal spaces

D ✓ **True** ○ **False** gives origin to the bronchial arteries

Question No:6

Maximum Marks	4

Question Title
The radial artery

Question Description
Radial artery

The radial artery

Choose the correct answer

A ○ **True** ✓ **False** passes deep to the tendon of pronator teres in the mid forearm

B ✓ **True** ○ **False** contributes anterior and posterior carpal branches to form carpal arches

C ○ **True** ✓ **False** gives rise to the common interosseous artery

D ✓ **True** ○ **False** lies medial to the superficial radial nerve in the mid forearm

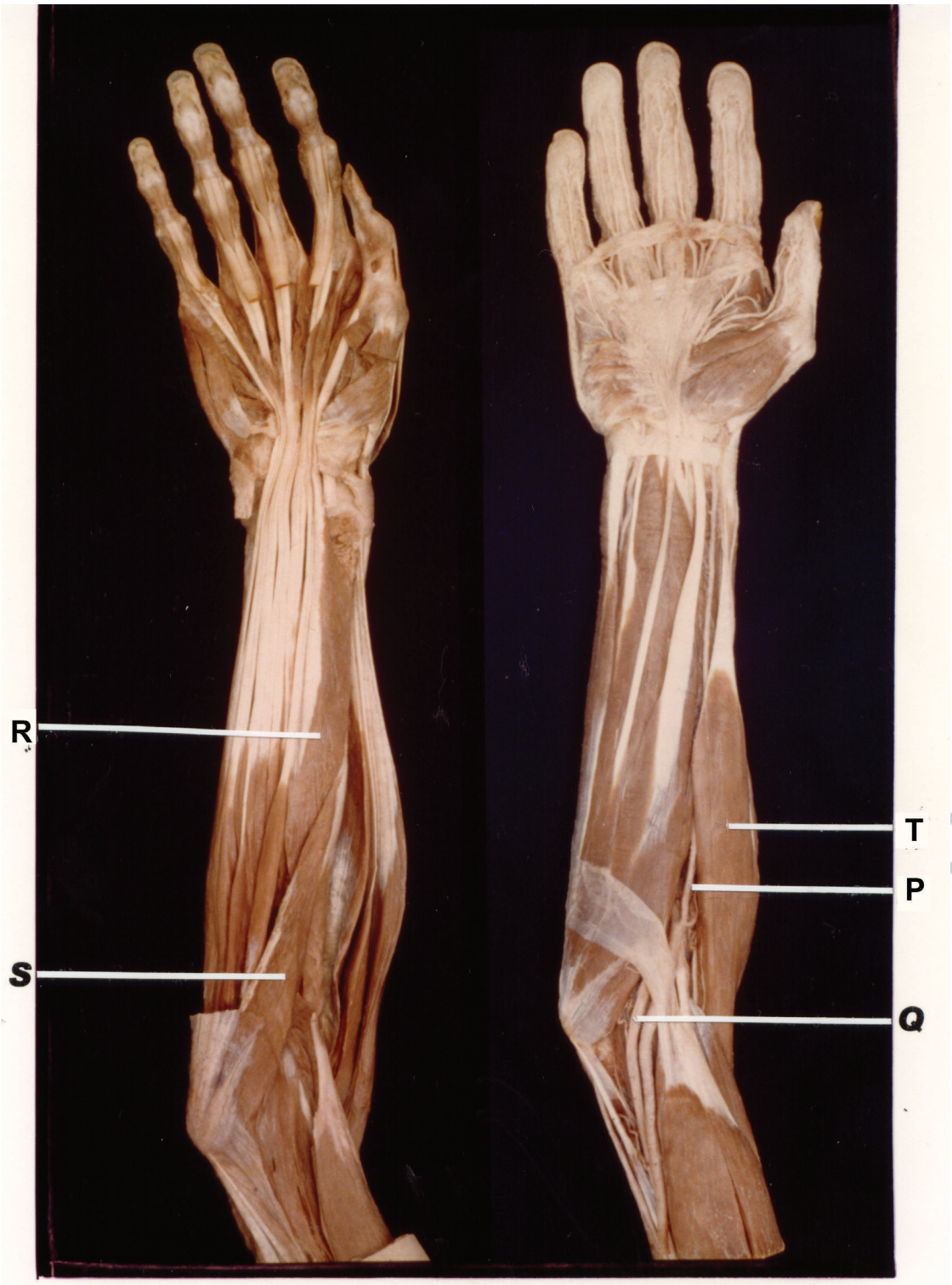
Question No:7

Maximum Marks	4

Question Title
The vessel marked 'P'

Question Description
Radial artery

The vessel marked 'P'



Choose the correct answer

A ○ **True** ✓ **False** passes deep to the deep head of pronator teres muscle

B ✓ **True** ○ **False** contributes recurrent vessels which usually anastomose with branches of the profunda brachii

C ○ **True** ✓ **False** gives rise to the common interosseous artery

D ✓ **True** ○ **False** lies beneath the medial border of brachioradialis in the mid forearm

Question No:8

Maximum Marks	4

Question Title
The cephalic vein

Question Description
Cephalic vein

The cephalic vein

Choose the correct answer

A ○ **True** ✓ **False** in the distal arm, lies medial to the muscle belly of biceps

B ✓ **True** ○ **False** in the forearm, runs in the superficial fascia along the pre-axial border of the limb

C ✓ **True** ○ **False** in the proximal arm, lies lateral to the biceps in the delto-pectoral groove

D ○ **True** ✓ **False** ends by joining the subclavian vein

Question No:9

Maximum Marks	4

Question Title
In laminar flow

Question Description
Laminar flow

In laminar flow

Choose the correct answer

A	○ **True**	✓ **False**	flow is above the critical velocity of Reynold's number
B	✓ **True**	○ **False**	fluid elements in one lamina remain in that streamline as fluid progresses along the tube
C	○ **True**	✓ **False**	Flowing blood creates shear stress on the endothelium wall which is inversely proportional to viscosity
D	✓ **True**	○ **False**	the velocity profile is parabolic

Question No:10

Maximum Marks	4

Question Title
Thromboangiitis obliterans (Buerger's disease)

Question Description
Thromboangiitis obliterans (Buerger's disease)

Thromboangiitis obliterans (Buerger's disease)

Choose the correct answer

A ✓ **True** ○ **False** Results in inflammation in arteries and veins and the vasa nervorum
B ○ **True** ✓ **False** commonly involves visceral vessels
C ✓ **True** ○ **False** is characterised by neutrophilic inflammation
D ○ **True** ✓ **False** occurs predominantly in old age

Question No:11

Maximum Marks	4

Question Title
Polyarteritis Nodosa

Question Description
Poly arteritis Nodosum

PAN (Polyarteritis Nodosum)

Choose the correct answer

A ○ **True** ✓ **False** is an ANCA negative vasculitis affecting large arteries
B ✓ **True** ○ **False** is associated with the development of multiple visceral aneurysms
C ○ **True** ✓ **False** Is more common in women
D ○ **True** ✓ **False** is associated with Hepatitis B infection in the majority of cases

Question No:12

Maximum Marks	4

Question Title
Recognized risk factors for abdominal aortic aneurysm include

Question Description
Aortic aneurysm risk factors

Recognized risk factors for abdominal aortic aneurysm include

Choose the correct answer

A ✓ **True** ○ **False** Cigarette Smoking
B ✓ **True** ○ **False** Increasing age
C ✓ **True** ○ **False** Obesity
D ○ **True** ✓ **False** Diabetes Mellitus

Question No:13

Maximum Marks	4

Question Title
The vertebral artery

Question Description
Vertebral artery

The vertebral artery

Choose the correct answer

A	○ True	✓ False	enters a foramen in the transverse process of the seventh cervical vertebra
B	○ True	✓ False	terminates at the level of the foramen magnum by joining the artery of the opposite side
C	○ True	✓ False	terminates as the posterior cerebral artery
D	✓ True	○ False	at the level of the lateral mass of the atlas, turns posteriorly, then medially, behind the atlanto-occipital joint

Question No:14

Maximum Marks	4

Question Title
The stochastic effects of radiation exposure

Question Description
Radiation Physics and Safety

The stochastic effects of radiation exposure

Choose the correct answer

A	✓ **True**	○ **False**	Are less predictable
B	✓ **True**	○ **False**	Has no threshold dose
C	○ **True**	✓ **False**	Does not overwhelm an individual's ability to repair DNA damage
D	✓ **True**	○ **False**	Are more susceptible to tissues that have rapid turnover such as bone marrow and breast tissue, than more quiescent tissues

Question No:15

Maximum Marks	4

Question Title
The following factors usually increase radiation dose to the patient

Question Description
Radiation exposure

The following factors usually increase radiation dose to the patient

Choose the correct answer

A ○ **True** ✓ **False** increasing tube voltage (kV)
B ✓ **True** ○ **False** increasing size of the patient
C ✓ **True** ○ **False** image magnification
D ○ **True** ✓ **False** increasing distance of patient from X-ray source

Question No:16

Maximum Marks	4

Question Title
The following ultrasound criteria can be used to quantify degree of carotid stenosis

Question Description
Carotid stenosis

The following ultrasound criteria can be used to quantify degree of carotid stenosis

Choose the correct answer

A ○ **True** ✓ **False** colour filling of the lumen
B ○ **True** ✓ **False** flow acceleration
C ✓ **True** ○ **False** peak-systolic velocity
D ✓ **True** ○ **False** End-diastolic velocity

Question No:17

Maximum Marks	4

Question Title
Computed tomography (CT) Hounsfield units

Question Description
Hounsfield units

Computed tomography (CT) Hounsfield units

Choose the correct answer

A ✓ **True** ○ **False** represent X-ray attenuation
B ○ **True** ✓ **False** Dense bone has a Hounsfield unit value lower than water
C ○ **True** ✓ **False** are expressed relative to air
D ✓ **True** ○ **False** vary depending on the tissue

Question No:18

Maximum Marks	4

Question Title
The internal iliac artery

Question Description
Internal iliac artery

The internal iliac artery

Choose the correct answer

A	○ **True**	✓ **False**	divides into a small anterior and large posterior division
B	✓ **True**	○ **False**	has a posterior division that divides into parietal branches only
C	○ **True**	✓ **False**	has the internal pudendal and superior gluteal arteries as terminal branches of its anterior division
D	✓ **True**	○ **False**	has a superior vesical branch continuing as the obliterated umbilical artery

Question No:19

Maximum Marks	4

Question Title
The external iliac artery

Question Description
External iliac artery

The external iliac artery

Choose the correct answer

A	○ True	✓ False	passes beneath the midpoint of the inguinal ligament to become the common femoral artery
B	✓ True	○ False	gives off the inferior epigastric artery that supplies the rectus abdominis muscle
C	✓ True	○ False	passes along the pelvic brim on the psoas major muscle to reach the inguinal ligament
D	○ True	✓ False	gives off the superficial circumflex iliac artery, which anastomoses with branches of the iliolumbar and superior gluteal arteries

Question No:20

Maximum Marks	4

Question Title
Lymphoedema

Question Description
Lymphoedema general questions

In relation to lymphoedema

Choose the correct answer

A	✓ True	○ False	Kaposi-Stemmer sign is pathognomic for lymphoedema
B	○ True	✓ False	Chronic lymphoedema is not a risk factor for skin malignancy
C	✓ True	○ False	Lymphoedema praecox onset is usually around puberty
D	✓ True	○ False	Lympho-scintography is current gold standard investigation for detecting if chronic oedema may be due to lymphatic failure

Question No:21

Maximum Marks	4

Question Title
The following vessels contribute to the cruciate anastomosis

Question Description
Cruciate anastomosis

The following vessels contribute to the cruciate anastomosis

Choose the correct answer

A ✓ **True** ○ **False** decending branch of inferior gluteal artery
B ✓ **True** ○ **False** ascending branch of first perforating artery
C ✓ **True** ○ **False** transverse branch of the medial femoral circumflex artery
D ○ **True** ✓ **False** ascending branch of the lateral femoral circumflex artery

Question No:22

Maximum Marks	4

Question Title
The great saphenous vein

Question Description
Great saphenous vein

The great saphenous vein

Choose the correct answer

A ✓ **True** ○ **False** begins as an upward continuation of the medial marginal vein of the foot

B ○ **True** ✓ **False** receives up to 3 tributaries before joining the common femoral vein at the saphenofemoral junction

C ✓ **True** ○ **False** has more valves below the knee

D ○ **True** ✓ **False** In the calf, it gives no perforating branches to the deep venous system

Question No:23

Maximum Marks	4

Question Title
Physiological features of septic shock include

Question Description
Septic shock

Physiological features of septic shock include

Choose the correct answer

A ✓ **True** ○ **False** widespread vasodilation
B ○ **True** ✓ **False** reduced cardiac output
C ✓ **True** ○ **False** increased capillary permeability
D ✓ **True** ○ **False** increased cellular metabolism

Question No:24

Maximum Marks	4

Question Title
The ascending pharyngeal artery

Question Description
Ascending pharyngeal artery

The ascending pharyngeal artery

Choose the correct answer

A ✓ **True** ○ **False** supplies the meninges
B ✓ **True** ○ **False** lies deep to the internal carotid artery
C ✓ **True** ○ **False** is a branch of the external carotid artery
D ○ **True** ✓ **False** lies deep to the prevertebral fascia

Question No:25

Maximum Marks	4

Question Title
Immune induced reactions to Heparin include

Question Description
Heparin immune reaction

Immune-induced reactions to heparin include

Choose the correct answer

A ○ **True** ✓ **False** aplastic/hypoplastic anaemia
B ○ **True** ✓ **False** the generation of antibodies to unbound unfractionated heparin
C ○ **True** ✓ **False** neutropaenia
D ○ **True** ✓ **False** leukocytoclastic vasculitis

Question No:26

Maximum Marks	4

Question Title
Following vessel injury platelets release

Question Description
Platelet Activation

Regarding platelet activation

Choose the correct answer

A	✓ True	○ False	Thrombin is considered the most potent physiological platelet activator, signaling through protease-activated receptors (PARs).
B	✓ True	○ False	Thromboxane A2 (TxA2) is synthesised by activated platelets via the COX-1 pathway and acts as a powerful vasoconstrictor and platelet activator.
C	○ True	✓ False	The glycoprotein receptor GPIIb/IIIa is constitutively active on resting platelets, ready to bind fibrinogen at any time.
D	○ True	✓ False	The platelet P2Y12 receptor is the target of clopidogrel and is activated by thrombin.

Question No:27

Maximum Marks	4

Question Title
With respect to platelets

Question Description
Platelets

With respect to platelets

Choose the correct answer

A	○ True	✓ False	COX-2 inhibitors prevent platelet thromboxane production and thus are powerful anti-platelets.
B	○ True	✓ False	Von Willebrand Factor (vWF) primarily functions by linking activated platelets together via GPIIb/IIIa, but it does not play a role in initial platelet adhesion to collagen.
C	✓ True	○ False	cilostazol exerts its anti-platelet effect by inhibition of phosphodiesterase.
D	○ True	✓ False	Dipyridamole causes reduced levels of prostacyclin release by the vessel wall.

Question No:28

Maximum Marks	4

Question Title
Platelet aggregation is inhibited by

Question Description
Platelet aggregation

Platelet aggregation is inhibited by

Choose the correct answer

A ✓ **True** ○ **False** aspirin
B ✓ **True** ○ **False** dipyridamole
C ✓ **True** ○ **False** prostacyclin
D ○ **True** ✓ **False** thromboxane A2

Question No:29

Maximum Marks	4

Question Title
Heparin

Question Description
Heparin

Heparin

Choose the correct answer

A	○ **True**	✓ **False**	Thrombin inhibition by Antithrombin is potentiated 10-fold by heparin,
B	✓ **True**	○ **False**	inhibits conversion of prothrombin to thrombin
C	✓ **True**	○ **False**	occurs naturally in blood
D	✓ **True**	○ **False**	Antithrombin III deficiency is rare and can cause unresponsiveness to heparin therapy

Question No:30

Maximum Marks	4

Question Title
Factors predisposing to atherosclerosis include

Question Description
Atherosclerosis risk factors

Factors predisposing to atherosclerosis include

Choose the correct answer

A ✓ **True** ○ **False** Diabetes mellitus

B ○ **True** ✓ **False** Familial Hypercholesterolaemia (FH) is typically an autosomal recessive condition

C ✓ **True** ○ **False** A family history of premature cardiovascular disease is a well-established predictor of risk, specifically when it involves a first-degree relative.

D ✓ **True** ○ **False** Age is a non-modifiable risk factor for atherosclerosis

Question No:31

Maximum Marks	4

Question Title
Activated endothelium

Question Description
Activated endothelium

Activated endothelium

Choose the correct answer

A	○ True	✓ False	Endothelial activation is primarily an anti-inflammatory and anti-thrombotic process
B	○ True	✓ False	During endothelial activation, the expression of adhesion molecules like VCAM-1 and ICAM-1 is downregulated
C	✓ True	○ False	Reduced bioavailability of nitric oxide (NO) is a hallmark of endothelial activation and dysfunction.
D	○ True	✓ False	The selectin family of adhesion molecules (E-selectin and P-selectin) is primarily responsible for the firm arrest and adhesion of leukocytes to the endothelium.

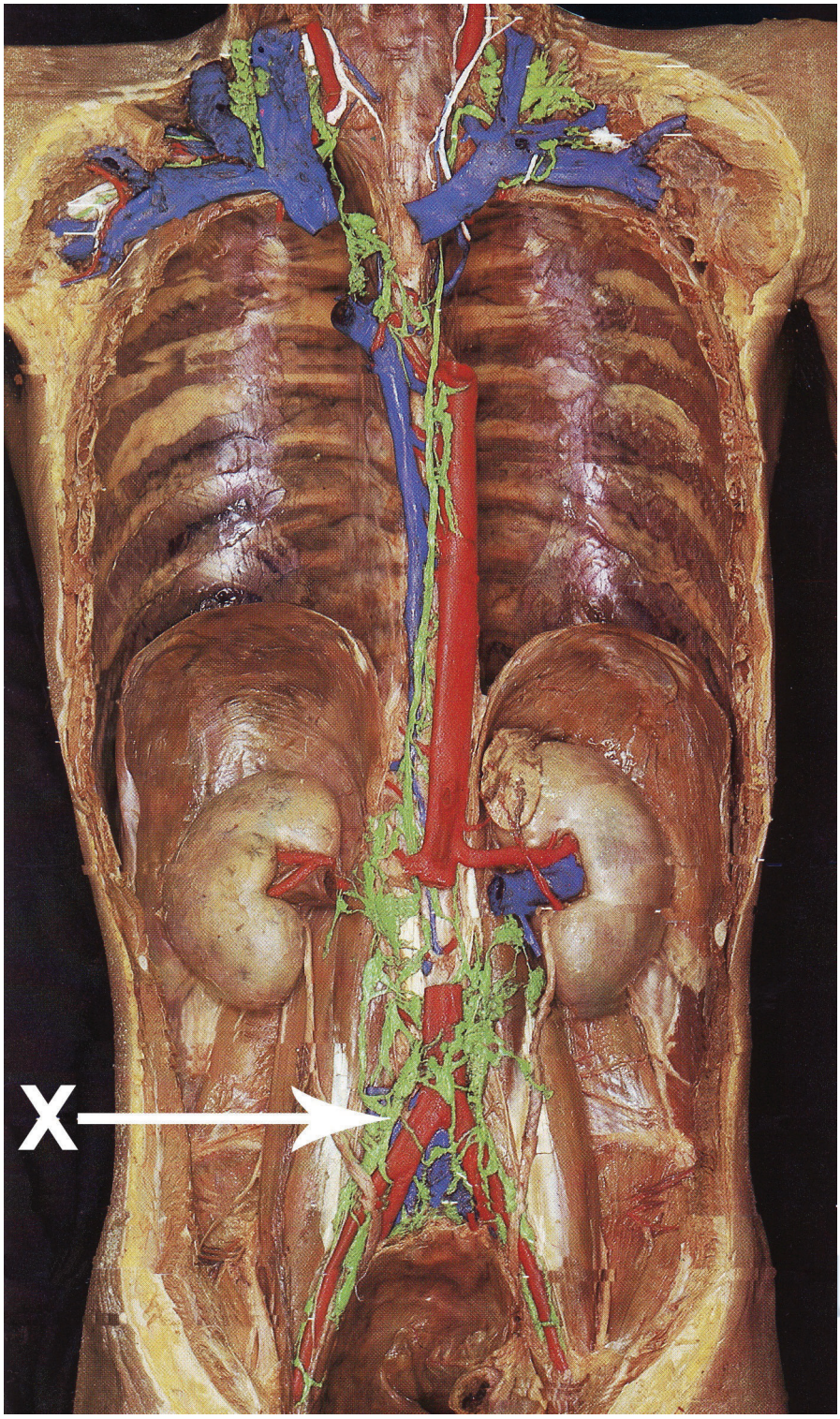
Question No:32

Maximum Marks	4

Question Title
The structure labelled X drains lymph from

Question Description
Lymphatics

The structure labelled 'X' drains lymph from



Choose the correct answer

A ✓ **True** ○ **False** ureter

B ✓ **True** ○ **False** lower limb

C ○ **True** ✓ **False** small intestine

D ✓ **True** ○ **False** bladder

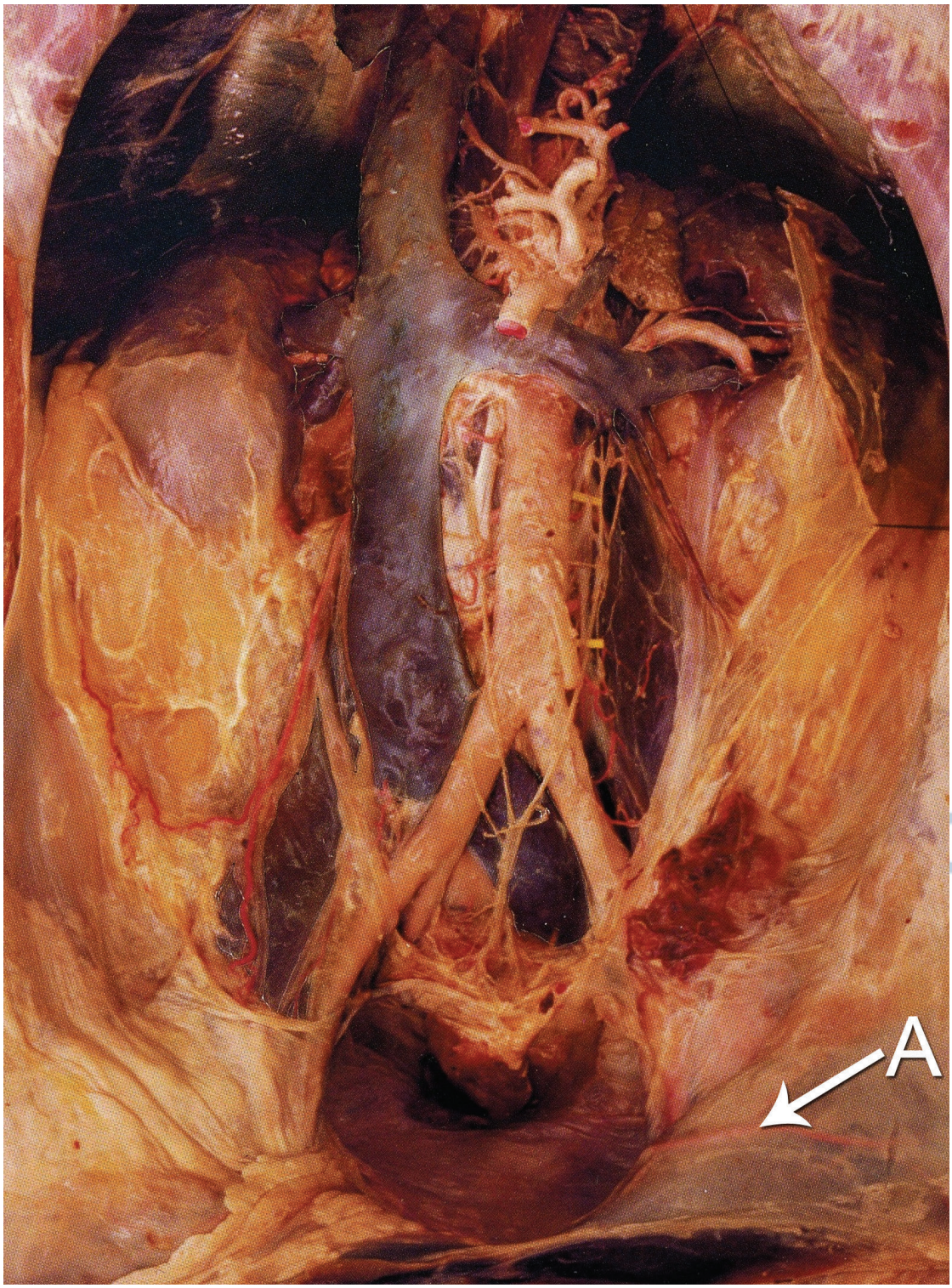
Question No:33

Maximum Marks	4

Question Title
Structure A shown on the image

Question Description
Inferior epigastric artery

Structure A shown on the image



Choose the correct answer

A ○ **True** ✓ **False** is a branch of the common femoral artery

B ✓ **True** ○ **False** anastomoses indirectly with a branch of the subclavian artery

C ✓ **True** ○ **False** is a medial relation of the deep inguinal ring

D ✓ **True** ○ **False** Provides blood supply to the lower third of the rectus abdominis muscle

Question No:34

Maximum Marks	4

Question Title
Vertebral level L5

Question Description
Retroperitoneum

Vertebral level L5

Choose the correct answer

A ✓ **True** ○ **False** is the origin of the inferior vena cava

B ○ **True** ✓ **False** The fifth lumbar artery is a paired vessel that arises directly from the abdominal aorta opposite the L5 vertebra

C ✓ **True** ○ **False** The superior hypogastric plexus, also known as the presacral nerve, is formed by lumbar splanchnic nerves uniting in front of the L5 vertebra.

D ✓ **True** ○ **False** The left common iliac vein is often compressed by the overlying right common iliac artery as it crosses the L5 vertebral body.

Question No:35

Maximum Marks	4

Question Title
What are key broad concepts of ALARA

Question Description
Radiation Physics and Safety

What are key broad concepts of ALARA (As Low As Reasonably Achievable)?

Choose the correct answer

A ✓ **True** ○ **False** Limit fluoroscopy time
B ○ **True** ✓ **False** Increased use of magnification
C ✓ **True** ○ **False** Distance from the radiation source
D ✓ **True** ○ **False** All available methods of shielding

Question No:36 | **Maximum Marks** | **4**

Question Title
Inflammatory Cell Types commonly found in the wall of an abdominal aortic aneurysm include

Question Description
Aortic aneurysm histology

Inflammatory cell types commonly found in the wall of a degenerative abdominal aortic aneurysm include

Choose the correct answer

A ✓ **True** ○ **False** T lymphocytes
B ✓ **True** ○ **False** B lymphocytes
C ✓ **True** ○ **False** macrophages
D ○ **True** ✓ **False** eosinophils

Question No:37

Maximum Marks	4

Question Title
In exercise the increased venous return is facilitated by

Question Description
Exercise

Increased venous return is facilitated by

Choose the correct answer

A ○ **True** ✓ **False** increased venous resistance
B ○ **True** ✓ **False** a fall in intrathoracic pressure during expiration
C ✓ **True** ○ **False** Creation of an arterio-venous fistula.
D ○ **True** ✓ **False** venous dilation

Question No:38 | **Maximum Marks** | **4**

Question Title
Factors that impact on the strength of reflected echoes from a specular reflector perpendicular to the probe include

Question Description
Specular reflector

Factors that impact on the strength of reflected echoes from a specular reflector perpendicular to the probe include

Choose the correct answer

A	○ **True**	✓ **False**	density difference
B	✓ **True**	○ **False**	impedance difference
C	○ **True**	✓ **False**	density sum
D	○ **True**	✓ **False**	The sum of the acoustic impedances of the two media is the most important factor in determining reflection strength

Question No:39

Maximum Marks	4

Question Title
Principles of other Imaging and investigation modalities

Question Description
Principles of other Imaging and investigation modalities

In regard to contrast-enhanced MR Angiography (MRA):

Choose the correct answer

A	✓ True ○ False	MRA is considered more accurate than CTA for evaluating vessel patency in patients with heavily calcified tibial arteries.
B	✓ True ○ False	Patients with poor renal function are at risk of nephrogenic systemic fibrosis
C	○ True ✓ False	Time-resolved MRA provides superior spatial resolution compared to standard static contrast-enhanced MRA, at the cost of lower temporal resolution.
D	○ True ✓ False	All modern intravascular stents and filters are classified as 'MRI safe', meaning they pose no risk to the patient and do not cause image artifacts on MRA.

Question No:40

Maximum Marks	4

Question Title
Principles of other Imaging and investigation modalities

Question Description
Principles of other imaging and investigation modalities

In regards to MRI

Choose the correct answer

A	✓ True	○ False	IVC filters and vascular embolisation coils are not subject to significant force when exposed to MRI
B	✓ True	○ False	Many stent manufacturers recommend waiting up to 8 weeks after placement before performing MRI
C	✓ True	○ False	Stainless steel and platinum devices cause large areas of signal void on gradient-echo imaging sequences
D	○ True	✓ False	Nitinol produces greater degrees of artifact compared to stainless steel

Question No:41

Maximum Marks	4

Question Title
Regarding the lymphatic system, is the following statement true or false?

Question Description
Lymphatic / Lymph node anatomy and function

Regarding the lymphatic system, is the following statement true or false?

Choose the correct answer

A	✓ True	○ False	Lymphatic capillaries exhibit both open and closed junctions, allowing for the absorption of a wide range of molecules and even particulate matter.
B	○ True	✓ False	For direct lymphangiography, an oily contrast agent is injected intradermally to visualize the lymphatic vessels and nodes.
C	✓ True	○ False	Lymphatic truncal contractions are influenced by factors such as temperature, sympathetic stimulation, and prostaglandins.
D	○ True	✓ False	External compression, such as massage, is highly effective in propelling lymph under normal physiological conditions.

Question No:42

Maximum Marks	4

Question Title
When exposing the carotid arteries for a carotid endarterectomy through an incision along the anterior border of the sternomastoid it is usually necessary to divide

Question Description
Internal carotid artery exposure

When exposing the carotid arteries for a carotid endarterectomy through an incision along the anterior border of the sternomastoid it is usually necessary to divide

Choose the correct answer

A ○ **True** ✓ **False** supraclavicular nerves
B ○ **True** ✓ **False** the great auricular nerve
C ✓ **True** ○ **False** transverse cervical nerve
D ✓ **True** ○ **False** common facial vein

Question No:43

Maximum Marks	4

Question Title
The Reynolds number

Question Description
Reynolds number

The Reynolds number

Choose the correct answer

A ○ **True** ✓ **False** predicts a change from laminar to turbulent flow above 5000

B ○ **True** ✓ **False** is inversely proportional to the diameter of the vessel

C ○ **True** ✓ **False** predicts the development of an audible bruit above 2000

D ✓ **True** ○ **False** is inversely proportional to the viscosity of blood

Question No:44

Maximum Marks	4

Question Title
The thoracic part of the left common carotid artery

Question Description
Common carotid artery

The thoracic part of the left common carotid artery

Choose the correct answer

A ✓ **True** ○ **False** lies medial to the left pleura and lung
B ○ **True** ✓ **False** lies posterior to the thoracic duct
C ○ **True** ✓ **False** has the left recurrent laryngeal nerve on its lateral side
D ✓ **True** ○ **False** has no branches

Question No:45

Maximum Marks	4

Question Title
Which of the following structures lies in the adductor canal?

Question Description
Adductor canal

Which of the following structures lies in the adductor canal?

Choose the correct answer

A ○ **True** ✓ **False** The nerve to vastus intermedius
B ✓ **True** ○ **False** The saphenous nerve
C ○ **True** ✓ **False** The great saphenous vein
D ✓ **True** ○ **False** The descending genicular artery

Question No:46

Maximum Marks	4

Question Title
Regarding hereditary aortopathies

Question Description
Aortic Aneurysm pathogenesis

Regarding hereditary aortopathies

Choose the correct answer

A	○ True ✓ False	All Loeys-Dietz syndrome (LDS) subtypes are caused by gain-of-function mutations in genes involved in the TGF-β pathway.
B	○ True ✓ False	ACTA2 mutations are a common cause of familial Thoracic Aortic Aneurysm/Dissection (TAAD) and are associated with high penetrance.
C	○ True ✓ False	Medial degeneration of aortic wall is characterised by an increase in VSMC contractility and a decrease in MMPs
D	✓ True ○ False	FBN1 mutations in Marfan Syndrome (MS) lead to increased TGF-β signaling

Question No:47

Maximum Marks	4

Question Title
Techniques to improve the detection of flow with colour Doppler include

Question Description
Colour Doppler artifact

Techniques to improve the detection of low flow with colour Doppler include:

Choose the correct answer

A ✓ **True** ○ **False** increase colour gain
B ○ **True** ✓ **False** increase probe frequency
C ○ **True** ✓ **False** increase cut off frequency for the wall filter
D ○ **True** ✓ **False** increase colour velocity scale

Question No:48

Maximum Marks	4

Question Title
Hypoxic injury to a cell causes, either directly or indirectly

Question Description
Hypoxia

Hypoxic injury to a cell causes, either directly or indirectly

Choose the correct answer

A ✓ **True** ○ **False** K+ loss from cell to intercellular space
B ○ **True** ✓ **False** increase in intracellular pH
C ○ **True** ✓ **False** Ca++ loss from cell to intercellular space
D ✓ **True** ○ **False** intracellular glycogen depletion

Question No:49

Maximum Marks	4

Question Title
With respect to atherosclerotic plaque

Question Description
Atherosclerosis

With respect to atherosclerotic plaque

Choose the correct answer

A	✓ True	○ False	lipids, oxidised by oxygen free radicals, are ingested by macrophages through a scavenger receptor
B	○ True	✓ False	smooth muscle cells, migrating from the media, transform into lipid-containing monocytes
C	✓ True	○ False	HDL helps clear cholesterol from plaques, reducing its amount
D	✓ True	○ False	foam cells are derived from macrophages via the LDL receptor

Question No:50

Maximum Marks	4

Question Title
Duplex & Velocity measurement

Question Description
In estimating velocity measurements in duplex ultrasound:

In estimating velocity measurements in duplex ultrasonography:

Choose the correct answer

A	✓ **True**	○ **False**	The speed of sound in tissue is assumed to be constant at 1540 m/s
B	○ **True**	✓ **False**	Velocity of blood does not vary with cardiac cycle
C	✓ **True**	○ **False**	Differences in velocity measurements can be caused by altering the estimated angle of insonation
D	○ **True**	✓ **False**	Stenoses can be categorised by velocity of maximum end diastolic velocity (EDV) within the stenosis divided by maximum EDV in the proximal vessel

Question No:51

Maximum Marks	4

Question Title
Vein conduit mapping & duplex

Question Description
Vein conduit assessment

When scanning the long saphenous vein for suitability as an autologous conduit for bypass:

Choose the correct answer

A	○ **True**	✓ **False**	Ideally patient should be positioned with feet tilted up to gauge calibre adequately
B	○ **True**	✓ **False**	A low frequency transducer probe is typically utilised
C	○ **True**	✓ **False**	Assessment of the deep veins are unnecessary
D	✓ **True**	○ **False**	Veins < 2 mm are deemed not suitable conduits for bypass

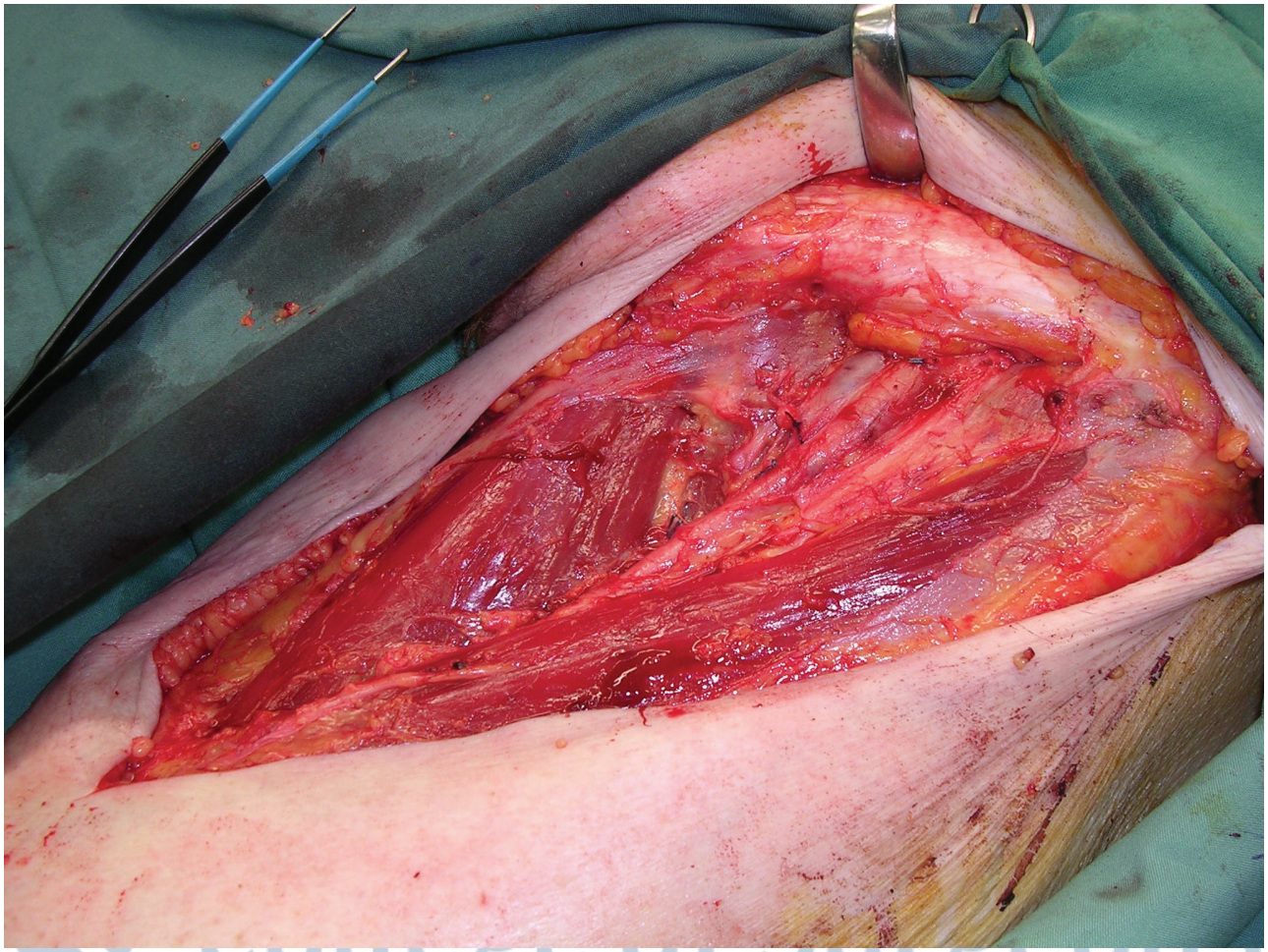
Question No:52

Maximum Marks	4

Question Title
The area demonstrated in this image of the thigh

Question Description
Femoral triangle

The area demonstrated in this image of the thigh



Choose the correct answer

A	○ **True**	✓ **False**	is bounded laterally by the lateral border of sartorius
B	✓ **True**	○ **False**	contains the common femoral vein within the femoral sheath
C	○ **True**	✓ **False**	contains the femoral nerve, separated into superficial and deep branches by the medial circumflex femoral artery
D	✓ **True**	○ **False**	contains the common femoral artery terminating into the superficial femoral and profunda femoris arteries

Question No:53

Maximum Marks	4

Question Title
The following are changes seen in patients with peripheral arterial disease, EXCEPT

Question Description
Peripheral arterial disease

The following are changes seen in patients with peripheral arterial disease

Choose the correct answer

A ✓ **True** ○ **False** monophasic flow distal to significant disease
B ✓ **True** ○ **False** elevated peak systolic velocity at sites of stenosis
C ○ **True** ✓ **False** loss of flow reversal proximal to stenoses
D ✓ **True** ○ **False** spectral broadening related to turbulent flow

Question No:54

Maximum Marks	4

Question Title
Ultrasound dept artefacts

Question Description
USS depth artefacts

Which of the below named artefacts lead to incorrect display of the depth of tissues?

Choose the correct answer

A ✓ **True** ○ **False** Reverberation
B ○ **True** ✓ **False** Shadowing
C ✓ **True** ○ **False** Comet tail artefact
D ○ **True** ✓ **False** Speckle

Question No:55

Maximum Marks	4

Question Title
Vascular Ultrasound & attenuation

Question Description
Attenuation

In reference to ultrasound imaging:

Choose the correct answer

A	✓ **True**	○ **False**	The resolution of an ultrasound image is directly related to the wavelength
B	○ **True**	✓ **False**	The lower the frequency, the better the resolution
C	✓ **True**	○ **False**	The depth of penetration of the image beam is inversely related to the frequency
D	✓ **True**	○ **False**	Scattering refers to the interaction of ultrasound with small structure (red blood cells, capillaries etc) within the tissues imaged

Question No:56

Maximum Marks	4

Question Title
The following vessels contribute segmental blood supply to the spinal cord

Question Description
Spinal cord

The following vessels contribute segmental blood supply to the spinal cord

Choose the correct answer

A ✓ **True** ○ **False** vertebral arteries
B ○ **True** ✓ **False** external iliac arteries
C ✓ **True** ○ **False** intercostal arteries
D ✓ **True** ○ **False** costocervical arteries

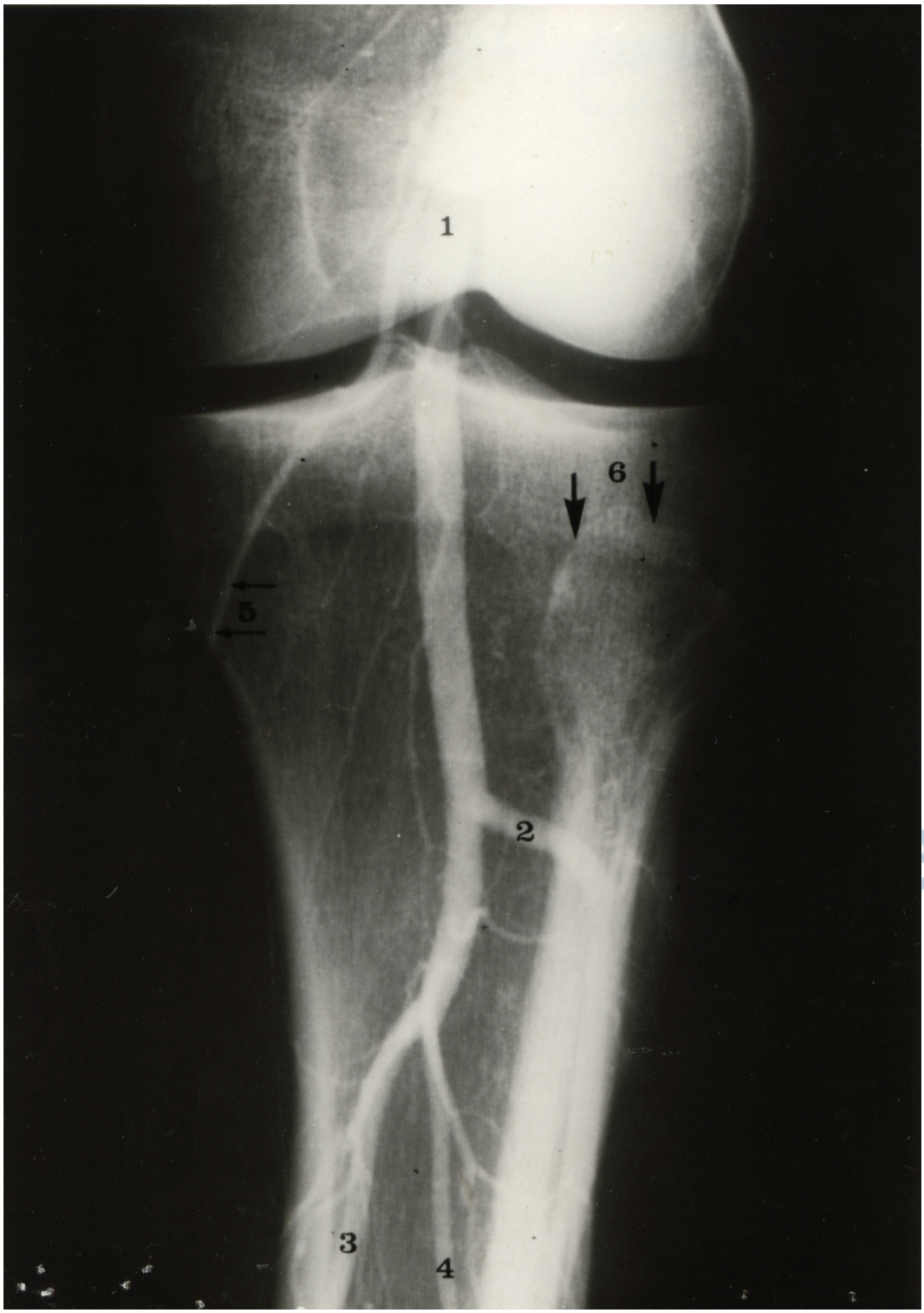
Question No:57

Maximum Marks	4

Question Title
In this angiogram

Question Description
Angiogram

In this angiogram



Choose the correct answer

A ○ **True** ✓ **False** "1" lies posterior to the tibial nerve

B ○ **True** ✓ **False** "2" is accompanied in the anterior compartment by the superficial peroneal nerve

C ○ **True** ✓ **False** "3" passes superficial to the soleal arch as it runs inferiorly in the posterior compartment

D ✓ **True** ○ **False** "4" terminates in the calf into lateral calcaneal and perforating branches

Question No:58

Maximum Marks	4

Question Title
Normal venous flow

Question Description
Venous flow

Normal venous flow

Choose the correct answer

A ✓ **True** ○ **False** is only from superficial to deep through perforating veins
B ○ **True** ✓ **False** is continuous and demonstrates no variation with respiration
C ○ **True** ✓ **False** is retrograde with the release of distal compression
D ○ **True** ✓ **False** is low velocity and therefore not seen on colour flow imaging

Question No:59

Maximum Marks	4

Question Title
Regarding ultrasound

Question Description
Ultrasound

Regarding ultrasound

Choose the correct answer

A	✓ **True**	○ **False**	the speed of sound in soft tissue is approximately 1540 metres/second
B	○ **True**	✓ **False**	the speed of sound in bone is lower than that in air
C	○ **True**	✓ **False**	attenuation of ultrasound involves absorption, reflection, amalgamation and scattering
D	✓ **True**	○ **False**	B-mode imaging shows different amplitude echoes at different brightness levels in the display

Question No:60

Maximum Marks	4

Question Title
Methods to reduce aliaising in doppler ultrasound include

Question Description
Aliaising

Methods to reduce aliaising in doppler ultrasound include

Choose the correct answer

A ○ **True** ✓ **False** reduce the velocity scale
B ○ **True** ✓ **False** increase the probe frequency
C ✓ **True** ○ **False** manipulate the acoustic window so the target vessel is closer to the probe
D ✓ **True** ○ **False** use "High PRF" mode