

INI CET Surgery

Sample Paper – 4

Duration: 14 Minutes

Maximum Marks: 15

Instructions

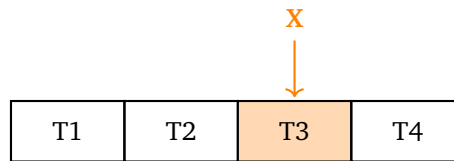
- This paper contains **15** Multiple Choice Questions (Single Best Response), modelled on the Surgery content of **INI CET** (Institutes of National Importance Combined Entrance Test) conducted by AIIMS New Delhi.
- The **15-question** length matches the number of Surgery items you actually meet in the real 200-question paper.
- Each correct answer carries **+1 mark**. There is **negative marking of one-third (0.33) mark** for every incorrect answer; unattempted questions carry no penalty.
- Every question has **exactly one best answer**. Choose the single most appropriate option.
- Attempt this practice paper in one timed sitting of about **14 minutes**, the pace the real computer-based test demands.

Gastrointestinal Surgery

- Q1.** The recommended average-risk screening test for colorectal carcinoma, capable of detecting and removing precancerous adenomatous polyps in the same sitting, is:
- (A) Digital rectal examination
(B) Barium enema
(C) Colonoscopy
(D) Serum carcinoembryonic antigen (CEA)
- Q2.** In the TNM staging bar shown, the segment marked **X** represents a colorectal carcinoma that has invaded through the muscularis propria into



the subserosa but has not reached regional nodes. This corresponds to which T category?



- (A) T3
- (B) T1
- (C) T2
- (D) T4

Q3. For a carcinoma confined to the caecum and ascending colon, the standard oncological resection performed is:

- (A) Right hemicolectomy
- (B) Left hemicolectomy
- (C) Sigmoid colectomy
- (D) Abdominoperineal resection

Hepatobiliary and Pancreatic Surgery

Q4. The classic presentation of a carcinoma of the head of the pancreas is painless obstructive jaundice with a distended, palpable but non-tender gallbladder. This finding is known as:

- (A) Murphy's sign
- (B) Boas' sign
- (C) Courvoisier's law (sign)
- (D) Charcot's triad

Q5. The Whipple procedure (pancreaticoduodenectomy) performed for a resectable carcinoma of the head of the pancreas removes the head of the pancreas, the duodenum, the gallbladder and which additional structure?



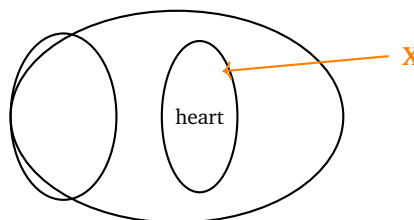
- (A) The entire stomach
- (B) The spleen
- (C) The left kidney
- (D) The distal common bile duct

Breast and Endocrine Surgery

- Q6.** A young woman with diffuse toxic goitre, exophthalmos and pretibial myxoedema is diagnosed with the commonest cause of hyperthyroidism. This autoimmune disorder is:
- (A) Toxic multinodular goitre (Plummer's disease)
 - (B) Toxic adenoma
 - (C) Graves' disease
 - (D) Subacute (de Quervain's) thyroiditis
- Q7.** Before subtotal or total thyroidectomy for Graves' disease, the patient is rendered euthyroid and Lugol's iodine is given for about 10 days. The principal surgical purpose of pre-operative Lugol's iodine is to:
- (A) Shrink the exophthalmos
 - (B) Reduce the vascularity of the gland
 - (C) Prevent hypoparathyroidism
 - (D) Protect the recurrent laryngeal nerve

Trauma and Critical Care

- Q8.** The chest schematic shows a trauma patient with the trachea and mediastinum pushed away from the affected side (marked X), absent breath sounds and distended neck veins. The immediate life-saving intervention is:



- (A) Immediate needle decompression followed by chest drain
- (B) Pericardiocentesis
- (C) Urgent CT scan of the chest
- (D) Endotracheal intubation alone

Q9. A patient struck in the chest has a segment of the ribs fractured in two places each, producing a free-floating segment that moves inward on inspiration (paradoxical movement). This injury is called:

- (A) Tension pneumothorax
- (B) Open pneumothorax
- (C) Massive haemothorax
- (D) Flail chest

Q10. A stab wound to the precordium presents with hypotension, muffled heart sounds and distended neck veins. This combination (Beck's triad) indicates:

- (A) Tension pneumothorax
- (B) Cardiac tamponade
- (C) Massive haemothorax
- (D) Pulmonary contusion

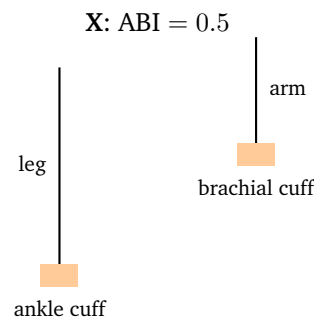
Urology and Vascular Surgery

Q11. A 60-year-old smoker reports cramping pain in the calf that appears after walking a fixed distance and is relieved within minutes of rest. This classic symptom of peripheral arterial disease is:

- (A) Rest pain
- (B) Deep vein thrombosis
- (C) Nocturnal cramps
- (D) Intermittent claudication



- Q12.** The leg schematic shows measurement of the ankle-brachial index (ABI). A value of 0.5 (marked X), obtained by dividing ankle systolic pressure by brachial systolic pressure, indicates:



- (A) A normal circulation
- (B) Non-compressible calcified vessels
- (C) Significant arterial insufficiency (moderate to severe disease)
- (D) Chronic venous insufficiency

Surgical Oncology and Miscellaneous

- Q13.** Within minutes to hours of connecting the graft vessels, a transplanted kidney turns blue, mottled and flaccid because of pre-formed recipient antibodies against donor antigens. This form of graft rejection is:
- (A) Acute cellular rejection
 - (B) Hyperacute rejection
 - (C) Chronic rejection
 - (D) Graft-versus-host reaction
- Q14.** The immunosuppressant which acts by inhibiting calcineurin and thereby blocking interleukin-2 driven T-cell activation, forming the backbone of many transplant regimens, is:
- (A) Azathioprine
 - (B) Cyclosporin (cyclosporine)
 - (C) Prednisolone
 - (D) Mycophenolate mofetil



- Q15.** An organ transplant taken from one individual and grafted into a genetically different individual of the same species (for example a deceased-donor kidney into an unrelated recipient) is termed a(n):
- (A) Allograft
 - (B) Autograft
 - (C) Isograft
 - (D) Xenograft



Detailed Solutions**Q1.****Solution**

Concept – colorectal cancer screening: An ideal screening test both detects and treats early disease.

Step 1 – name the test: **Colonoscopy** visualises the whole colon and rectum and allows polypectomy in the same sitting.

Step 2 – rationale: Removing adenomatous polyps interrupts the adenoma-carcinoma sequence, so it is both screening and prevention.

Why the other options are wrong:

- A, digital rectal examination: reaches only the low rectum.
- B, barium enema: images but cannot biopsy or remove polyps.
- D, CEA: a follow-up marker, not a screening tool.

Final Answer: Colonoscopy ⇒

Answer: (C) [Go Back to Q1](#)

Q2.**Solution**

Concept – T staging of colorectal cancer: The T category reflects depth of tumour invasion.

Step 1 – read the figure: Invasion through the muscularis propria into the subserosa (or pericolic fat), without breaching the serosa, marked **X**, is **T3**.

Step 2 – contrast the categories: T1 invades submucosa, T2 invades muscularis propria, T4 penetrates the visceral peritoneum or adjacent organs.

Why the other options are wrong:

- B, T1: only submucosal invasion.
- C, T2: confined to muscularis propria.
- D, T4: breaches serosa or invades neighbouring structures.

Final Answer: T3 ⇒

Answer: (A) [Go Back to Q2](#)



Q3.

Solution

Concept – resection matched to blood supply: The extent of colectomy follows the arterial territory.

Step 1 – name the operation: A caecal or ascending-colon cancer is treated by **right hemicolectomy**, removing the ileocolic and right colic territory.

Step 2 – reconstruction: An ileotransverse anastomosis restores continuity.

Why the other options are wrong:

- B, left hemicolectomy: for descending-colon tumours.
- C, sigmoid colectomy: for sigmoid tumours.
- D, abdominoperineal resection: for low rectal or anal cancers.

Final Answer: Right hemicolectomy ⇒ A

Answer: (A) [Go Back to Q3](#)

Q4.

Solution

Concept – painless obstructive jaundice: The nature of the gallbladder points to the cause.

Step 1 – name the sign: A palpable, non-tender gallbladder with painless jaundice is **Courvoisier's law (sign)**, suggesting malignant distal bile-duct obstruction rather than stones.

Step 2 – reasoning: In chronic gallstone disease the gallbladder is fibrosed and cannot distend; a smoothly enlarged gallbladder implies a non-calculous, usually malignant, obstruction.

Why the other options are wrong:

- A, Murphy's sign: tender arrest of inspiration in acute cholecystitis.
- B, Boas' sign: hyperaesthesia below the right scapula in cholecystitis.
- D, Charcot's triad: fever, jaundice and pain of ascending cholangitis.

Final Answer: Courvoisier's law ⇒ C

Answer: (C) [Go Back to Q4](#)



Q5.

Solution

Concept – anatomy of the Whipple resection: The operation removes structures sharing a common blood supply.

Step 1 – list the resected parts: Pancreaticoduodenectomy removes the pancreatic head, the duodenum, the gallbladder and the **distal common bile duct**.

Step 2 – reconstruction: Pancreaticojejunostomy, hepaticojejunostomy and gastrojejunostomy restore continuity.

Why the other options are wrong:

- A, entire stomach: only the gastric antrum (or none, in a pylorus-preserving Whipple) is removed.
- B, spleen: removed in distal pancreatectomy, not a Whipple.
- C, left kidney: not part of the resection.

Final Answer: Distal common bile duct ⇒ D

Answer: (D) [Go Back to Q5](#)

Q6.

Solution

Concept – causes of hyperthyroidism: The commonest cause is autoimmune.

Step 1 – match the picture: Diffuse goitre with exophthalmos and pretibial myxoedema is **Graves' disease**, driven by TSH-receptor stimulating antibodies.

Step 2 – distinguishing feature: The eye and skin signs are unique to Graves' among the causes listed.

Why the other options are wrong:

- A, toxic multinodular goitre: nodular gland in older patients, no eye signs.
- B, toxic adenoma: a single hyperfunctioning nodule.
- D, de Quervain's thyroiditis: painful, transient thyrotoxicosis after a viral illness.

Final Answer: Graves' disease ⇒ C

Answer: (C) [Go Back to Q6](#)



Q7.

Solution

Concept – pre-operative preparation for thyroidectomy: Iodine changes the gland before surgery.

Step 1 – state the purpose: Lugol's iodine **reduces the vascularity** and firms up the Graves' gland, making dissection safer with less bleeding.

Step 2 – mechanism: Iodine also inhibits hormone release (Wolff-Chaikoff effect), helping maintain the euthyroid state.

Why the other options are wrong:

- A, exophthalmos: not improved by iodine.
- C, hypoparathyroidism: avoided by careful parathyroid preservation, not iodine.
- D, recurrent laryngeal nerve: protected by surgical identification, not iodine.

Final Answer: Reduce the vascularity of the gland $\Rightarrow$ **B**

Answer: (B) [Go Back to Q7](#)

Q8.

Solution

Concept – tension pneumothorax: Air trapped under pressure shifts the mediastinum.

Step 1 – read the figure: Trachea and mediastinum pushed away from the affected side, marked X, with absent breath sounds and distended neck veins, define **tension pneumothorax**.

Step 2 – act immediately: It is a clinical diagnosis; treat at once with **needle decompression** (second intercostal space, mid-clavicular line, or fifth space anterior axillary line) followed by a chest drain.

Why the other options are wrong:

- B, pericardiocentesis: treats tamponade, not pneumothorax.
- C, CT scan: dangerous delay in a peri-arrest patient.
- D, intubation alone: worsens the tension by adding positive pressure.

Final Answer: Needle decompression then chest drain $\Rightarrow$ **A**

Answer: (A) [Go Back to Q8](#)



Q9.

Solution

Concept – paradoxical chest movement: A free rib segment moves opposite to the chest wall.

Step 1 – name the injury: Two or more adjacent ribs fractured in two places each create a **flail chest**, with a segment that moves inward on inspiration.

Step 2 – clinical concern: The underlying pulmonary contusion, more than the paradox, drives hypoxia; treat with analgesia, oxygen and ventilatory support as needed.

Why the other options are wrong:

- A, tension pneumothorax: causes mediastinal shift, not paradoxical wall movement.
- B, open pneumothorax: a sucking chest wound.
- C, massive haemothorax: blood in the pleural space, dullness on percussion.

Final Answer: Flail chest ⇒

Answer: (D) [Go Back to Q9](#)

Q10.

Solution

Concept – Beck's triad: Three signs point to fluid compressing the heart.

Step 1 – interpret the triad: Hypotension, muffled heart sounds and distended neck veins are Beck's triad of **cardiac tamponade**.

Step 2 – management: Blood in the pericardium after a precordial stab needs urgent pericardiocentesis or surgical drainage (pericardial window/thoracotomy).

Why the other options are wrong:

- A, tension pneumothorax: has tracheal shift and absent breath sounds, not muffled heart sounds.
- C, massive haemothorax: hypotension with a dull, silent hemithorax.
- D, pulmonary contusion: causes hypoxia, not Beck's triad.

Final Answer: Cardiac tamponade ⇒

Answer: (B) [Go Back to Q10](#)



Q11.

Solution

Concept – symptoms of peripheral arterial disease: Exercise unmasks an inadequate arterial supply.

Step 1 – name the symptom: Reproducible calf cramp on walking, relieved by a few minutes of rest, is **intermittent claudication**.

Step 2 – significance: It marks a fixed arterial stenosis; progression to rest pain or tissue loss signals critical limb ischaemia.

Why the other options are wrong:

- A, rest pain: pain at rest, a later and more severe stage.
- B, deep vein thrombosis: a venous problem with a swollen, tender calf.
- C, nocturnal cramps: benign muscle cramps unrelated to walking.

Final Answer: Intermittent claudication $\Rightarrow$ **D**

Answer: (D) [Go Back to Q11](#)

Q12.

Solution

Concept – ankle-brachial index: The ABI grades the severity of arterial disease.

Step 1 – interpret the value: An ABI of **0.5**, marked **X**, lies in the 0.4 to 0.9 band and indicates **significant arterial insufficiency** (moderate to severe disease, typically claudication).

Step 2 – reference bands: Normal is 0.9 to 1.3; below 0.4 suggests critical limb ischaemia; above 1.3 suggests non-compressible calcified vessels.

Why the other options are wrong:

- A, normal: would need an ABI of 0.9 to 1.3.
- B, calcified vessels: give a falsely high ABI above 1.3.
- D, venous insufficiency: is not assessed by the ABI.

Final Answer: Significant arterial insufficiency $\Rightarrow$ **C**

Answer: (C) [Go Back to Q12](#)



Q13.

Solution

Concept – timing of graft rejection: The speed of rejection reveals its mechanism.

Step 1 – name the type: Rejection within minutes to hours, caused by pre-formed recipient antibodies, is **hyperacute rejection**.

Step 2 – mechanism: Antibodies bind donor endothelium, activate complement and cause thrombosis, so the graft turns blue and flaccid; it must be removed.

Why the other options are wrong:

- A, acute cellular rejection: days to weeks, T-cell mediated.
- C, chronic rejection: months to years, with fibrosis and vascular narrowing.
- D, graft-versus-host reaction: donor lymphocytes attack the host, seen mainly in marrow transplants.

Final Answer: Hyperacute rejection ⇒ **B**

Answer: (B) [Go Back to Q13](#)

Q14.

Solution

Concept – mechanisms of immunosuppressants: Each drug blocks a different step of T-cell activation.

Step 1 – name the calcineurin inhibitor: **Ciclosporin** inhibits calcineurin, blocking the transcription of interleukin-2 and thus T-cell activation.

Step 2 – clinical use: It is a cornerstone of maintenance regimens; nephrotoxicity requires monitored dosing.

Why the other options are wrong:

- A, azathioprine: a purine antimetabolite blocking DNA synthesis.
- C, prednisolone: a corticosteroid with broad anti-inflammatory action.
- D, mycophenolate mofetil: inhibits inosine monophosphate dehydrogenase, not calcineurin.

Final Answer: Ciclosporin ⇒ **B**

Answer: (B) [Go Back to Q14](#)



Q15.

Solution

Concept – classifying grafts: Grafts are named by the genetic relationship of donor and recipient.

Step 1 – name the graft: Tissue moved between two genetically different individuals of the same species is an **allograft**.

Step 2 – consequence: Allografts provoke rejection and need immunosuppression, as with an unrelated deceased-donor kidney.

Why the other options are wrong:

- B, autograft: tissue moved within the same individual.
- C, isograft: between genetically identical individuals (identical twins).
- D, xenograft: between different species.

Final Answer: Allograft ⇒

Answer: (A) [Go Back to Q15](#)



Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	A	3	A	4	C	5	D
6	C	7	B	8	A	9	D	10	B
11	D	12	C	13	B	14	B	15	A

