Diploma of Expert Practice in Histological Dissection

Examination 2024

Paper 1

Mandatory modules short-answer questions

120 minutes

1. Attempt **all** questions
2. Questions may be answered in any order
3. Each question is worth a total of 20 marks
4. You must transfer your answers directly into the answer booklet
5. Begin each new answer on a new page

Q1. Clinical Governance

a. Give **ten** examples of information or events that should be included in an incident log in specimen dissection. (5 marks)

b. A clinician has contacted a pathologist stating that they think the report issued on a case handled by yourself does not appear to belong to this patient as no tissue was removed from this patient for histology. Briefly describe how this issue may have arisen. (1 mark)

c. You have been asked by your manager to lead on this incident, for Pathology. What steps would you take to investigate and support the clinical team manage the above? (6 marks)

d. Define the meaning of Duty of Candour. (2 marks)

e. What guiding principles should you include in policies and procedures to ensure you are meeting the requirements of Duty of Candour? (6 marks)

Q2. General Principles of Specimen Dissection

a. What information should be included in the clinical history given on a specimen request form? (6 marks)

b. Using **four** of your answers from part a) indicate the impact that this information can have on the subsequent handling of a specimen at the dissection bench. (4 marks)

c. Give **three** examples of specimen types from categories B or C, where all the tissue must be processed at dissection, and explain why. (6 marks)

d. Why is it important to demonstrate whether residual tissue has been retained or not after the dissection of a specimen? Give two examples of how you might record this information. (4 marks)

Q3.Surgical Procedures

a. Describe the three following surgical procedures which are available to a clinician investigating breast pathology and their clinical indications for use. (4 marks each)
   i. Beast Core Biopsy
   ii. Vacuum Assisted Core Biopsy
   iii. Major Duct Excision

b. Using specific examples compare and contrast the following surgical procedures. (4 marks each)
   i. Cold knife cone versus LLETZ
   ii. Skin incisional versus excisional biopsy

Q4.Pathological Processes

a. Briefly define the following terms: (1 mark each)
   i. Infarction
   ii. Hamartoma
   iii. Neoplasm
   iv. Carcinoma
   v. Sarcoma

b. What is the difference between hypertrophy and hyperplasia and explain, with a specific example, how each can develop? (5 marks)

c. Cell death has two major mechanisms, name them and give definition of both. (4 marks)

d. Outline in a table how these two processes differ. (6 marks)

Q5.Anatomical Nomenclature

a. Draw a detailed anatomical diagram of the respiratory system in the coronal/frontal plane, labelling the main features. (8 marks)

b. Define the following anatomical terms. For each term, give **two** examples where it may be found in the human body. (3 marks each)

   i. Hilum
   ii. Trabecula
   iii. Ampulla
   iv. Sphincter

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Paper 2

Optional modules short-answer questions

120 minutes

1. Attempt 6 from 11 questions
2. Each question is worth 20 marks
3. You must transfer your answers directly into the answer booklet
4. Begin each new answer on a new page
5. Questions can be answered in any order

Q1. Endocrine

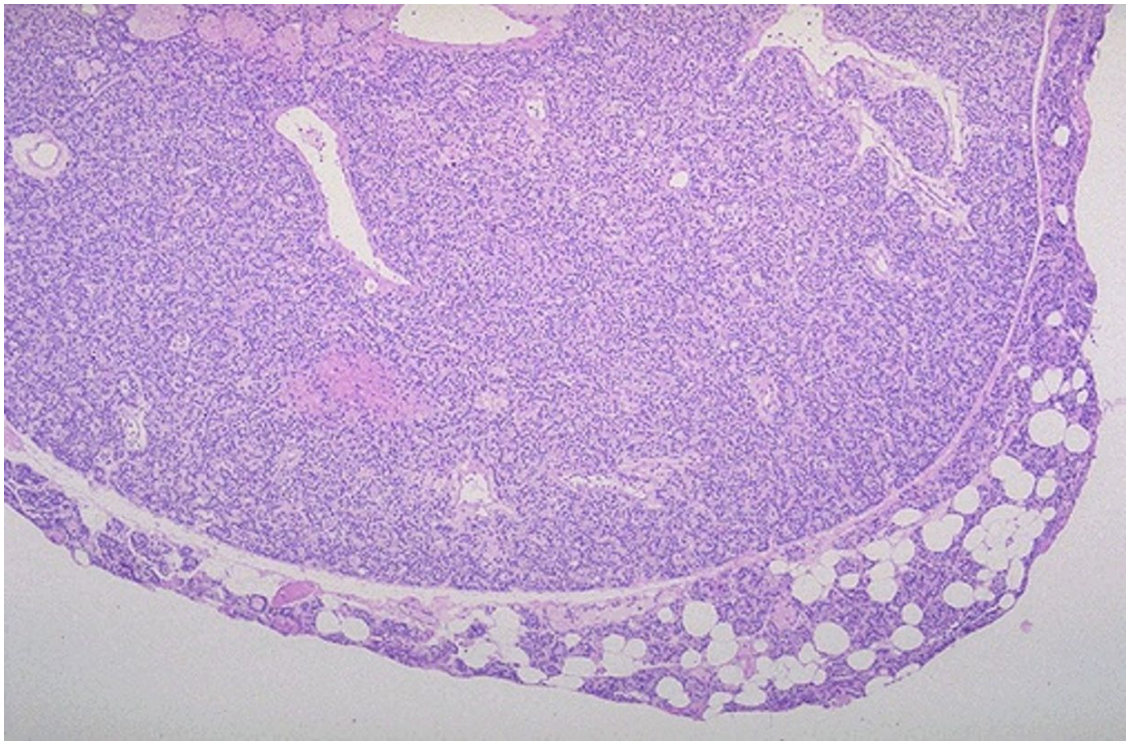
a. Describe the anatomical location of the parathyroid glands. (3 marks)

You receive a specimen described as 'right superior parathyroid 0.85g' with clinical data 'primary hyperparathyroidism'.

b. Define primary hyperparathyroidism. (2 marks)

c. Discuss, with reasons, the differential diagnosis and most likely diagnosis. (4 marks)

d. Explain how the following micrograph of the specimen confirms your diagnosis. (2 marks)



e. Give an account of the macroscopic features typically seen on the cut surface of a total thyroidectomy specimen removed for multinodular goitre. (3 marks)

f. How would you sample the specimen and why? (6 marks)

Q2. Skin

a. Briefly define the following terms. (One mark each)

i. Nodule
ii. Macule
iii. Cyst

b. Write short notes on Merkel cell carcinoma (neuroendocrine carcinoma of skin). (5 marks)

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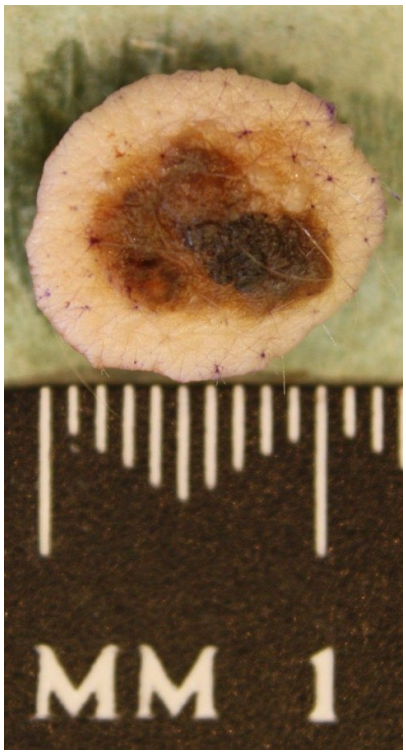
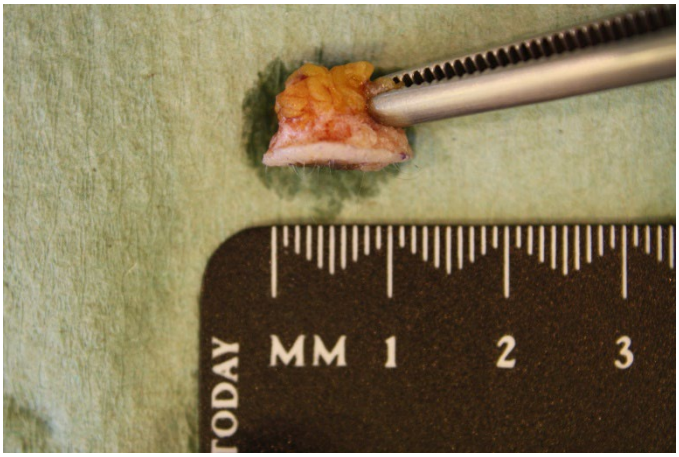
c. Give a macroscopic description for SPECIMEN A seen below and state **two** possible diagnoses for this lesion. (4 marks)

SPECIMEN A





d. How would you submit/dissect this specimen giving reasons for choice. (2 marks)

e. Compare and contrast seborrhoeic keratosis and actinic keratosis. (6 marks)

Q3. Breast

a. Describe the anatomy, structure and histology of the normal female breast. (8 marks)

b. Fibroadenoma specimens are commonly received in the pathology laboratory. Describe the:
   i. Clinical presentation
   ii. Macroscopic appearance
   iii. Microscopic appearance

(One mark each)

c. Explain how you would prepare, handle, describe and dissect a fibroadenoma specimen. (6 marks)

d. Describe three microscopic features that might raise suspicion of a Phyllodes tumour in a suspected fibroadenoma. (3 marks)

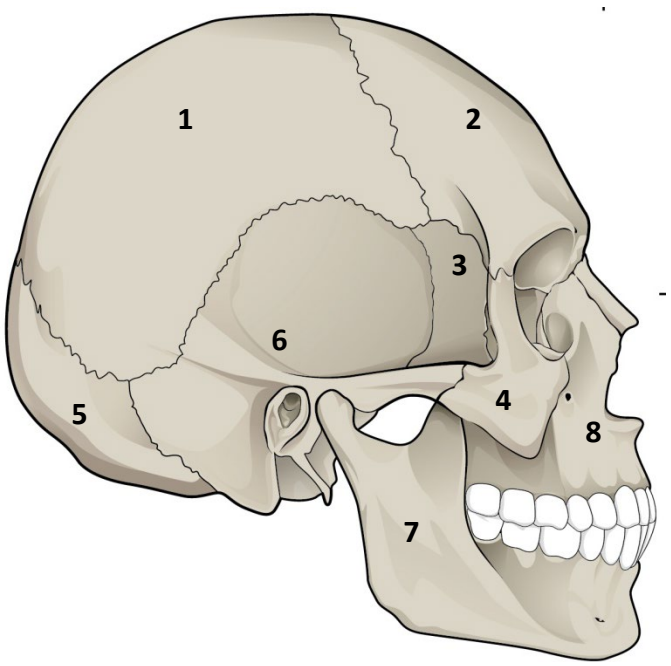
Q4. Osteoarticular and Soft Tissue

You receive an amputated hallux, with the clinical details: Necrotizing fasciitis.

a. Outline the aetiology of necrotizing fasciitis and the macroscopic appearances likely to be associated with this specimen. (5 marks)

b. Outline the laboratory handling and dissection of this specimen. (6 marks)

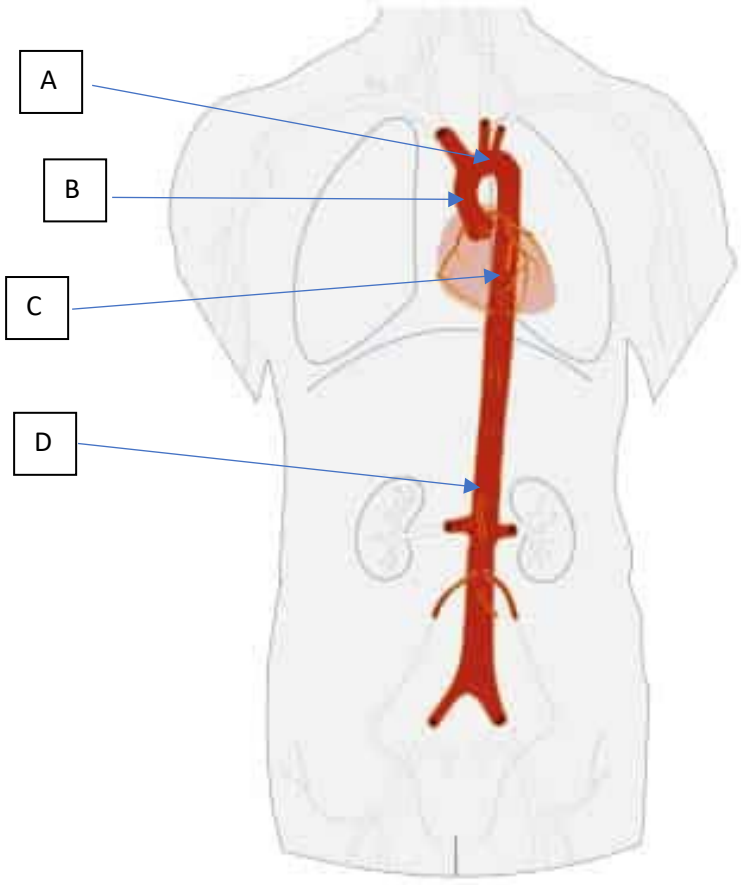
c. Name the bones of the skull indicated by numbers on this diagram. (4 marks)



d. You receive a femoral head, with clinical details of severe osteoarthritis. What are the macroscopic features associated with osteoarthritis and what blocks would you take from this specimen? (5 marks)

Q5. Cardiothoracic

a. The image below shows the aorta. Identify the four anatomical areas.
(2 marks – 0.5 marks for each area)



b. A patient presents with acute chest and back pain. Emergency radiology shows a dissection from the aortic valve to the descending aorta. The aorta is widened and there is a dissection in the wall. The patient is currently in intensive care. The surgeon is interested in presenting the case at the next surgical meeting.

What is your approach to managing this case and your dissection protocol? (8 marks)

c. Give three examples of special stains and immunohistochemistry are useful for demonstrating normal and abnormal histology and pathology of the aorta and why?
(6 marks)

d. The clinical history of four patients are listed below. Match the history with the disease.
(One mark each)

Clinical History
Patient One: Patient aged 30 with family history of skeletal and ocular problems presents with dissection of the ascending aorta.

Question continued on next page

Patient Two; Patient aged 40 presents with asymmetric blood pressure in arms and multiple transient ischaemic attacks. Radiology shows stenosis of major vessels in aortic arch.

Patient Three: Patient aged 70 presents with raised ESR and CRP. Recent history of headache and visual disturbance.

Patient Four: Patient aged 40 is involved in high-speed road traffic collision. He arrived in ED with severe hypotension.

Disease
Takayashu's aortitis
Aortic transection
Marfan's disease
Giant cell aortitis/Temporal arteritis

Q6. Gastrointestinal and Hepatobiliary

a. Describe the possible appearances at cut-up of an appendix with clinical details '?acute appendicitis'. (3 marks)

b. Describe the blocks you would take from an appendix specimen and explain the reasons for taking them. (3 marks)

c. On examining the appendix before sectioning, you identify a small defect with visible mucus on the surface. What might the significance be for the patient if you identify mucin on the surface and what specific steps might you take when handling the specimen? (7 marks)

d. You encounter a specimen of a resection of small bowel from a hernia sac. Describe the macroscopic appearances that you might expect to see, and what blocks you would take. (7 marks)

Q7. Gynaecological

You receive the hysterectomy specimen, shown below, from a 48 year old female with the clinical details:

'Menorrhagia and endometrial hyperplasia on previous biopsy'

a. What is menorrhagia? (1 mark)

On slicing, in the sagittal plane, you are presented with the following cut surface.

Please note: The cervix has been amputated in the transverse plane for fixation purposes and the anterior aspect of the specimen is marked with blue ink.

b. Describe what you see. (5 marks)

c. Describe what blocks you would take at the dissection bench and why? (8 marks)

d. Explain the following terms

i. placenta increta
ii. placenta accrea
iii. placenta percreta

(Two marks each)

Q8. Genitourinary

a. Describe the microscopic appearances of a normal bladder biopsy. (4 marks)

b. Define benign prostatic hyperplasia (BPH) and explain how this may present clinically. (4 marks)

c. What are the potential complications of untreated BPH? (4 marks)

You receive an orchidectomy specimen with the clinical details 'testis removed at time of hernia repair'.

d. Describe the handling, dissection and block selection in this type of specimen. (8 marks)

Q9. Haematolymphoid

a. Give four examples of the causes of moderately enlarged spleen. (4 marks)

b. Outline the laboratory procedure for handling a splenectomy specimen. (7 marks)

c. Name four different types of amyloidosis. (2 marks)

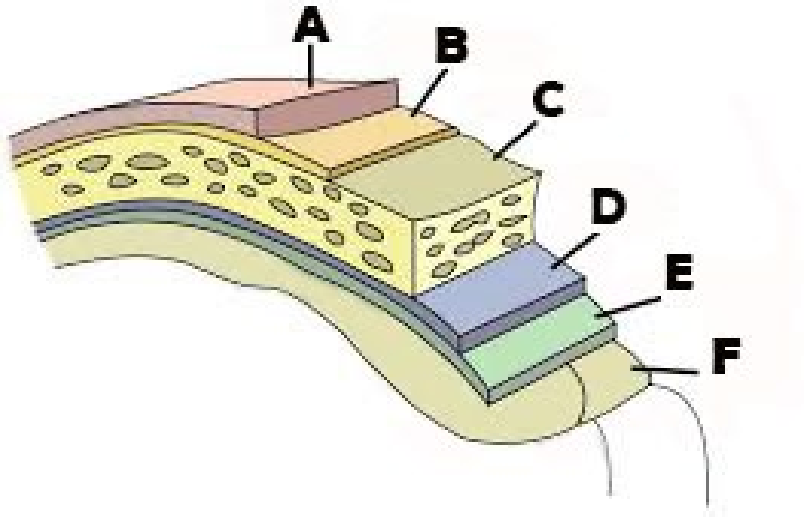
d. What is AL amyloidosis and what is its pathogenesis? (7 marks)

Q10. Neuromuscular

a. What is the function of the following structures within a nerve? (2 marks each)

i. Nerve fibre
ii. Epineurium
iii. Perineurium

b. Identify the structures labelled A to F on the following diagram of the meninges: (0.5 mark each)



Question continued on next page

c. Give **four** different ways a laboratory may use to process and investigate muscle disease? (4 marks)

d. With reasons, list seven staining and histochemical methods used when assessing muscle disease. (7 marks)

Q11. Head and Neck

You receive a specimen in the laboratory for a labial biopsy ?Sjorgrens.

a. What is a labial biopsy? (2 marks)

b. What is Sjorgrens and what are the microscopic features that you are likely to see? (2 marks)

c. List the three major salivary glands and describe their anatomical location. (Two marks each)

d. Describe the handling, dissection and block selection of a submandibular gland resected for a benign neoplasm. (6 marks)

e. Describe the macroscopic and microscopic appearance of two different benign salivary gland pathologies (4 marks)