Pathology Study Guide:

Pathology Unit 1:

Important:

- Know cellular adaptations of growth & definitions:
  - Hyperplasia.
  - Hypertrophy.
  - Atrophy.
  - Metaplasia. (& examples of each)

- Causes of cell injury.
- Sequence of events & appearances in reversible cell injury / irreversible cell injury / necrosis.
- Types of necrosis (with examples).

Definitions:

- Cell injury: - Reversible/Irreversible.
- Cell death.
- Necrosis.

Pathology Unit 2:

- Free radical and chemically-induced injury.
- Definition of apoptosis.
- Morphological changes in apoptosis.
- Intracellular accumulations.
- Fatty change.
- Pigments.
- Calcification:- Types & examples (Popular viva & MCQ)

Pathology Unit 3
**Acute inflammation:**

- Components / Sequence of events.
- Mechanisms.
- Chemical mediators (need to read histamine, serotonin, complement, kinins, clotting system & PAF.)
- Cytokines: Definitions, general properties and functional classes; IL-1 and TNF.
- Look at figure 2-21
- Tables 2-5 & 2-6 are important.

**Pathology Unit 4:**

- Outcomes of acute inflammation
- Chronic inflammation
  - definition / examples.
  - histologic features.
  - macrophages and the mononuclear phagocyte system.
  - Table 2-7 as an MCQ or a viva question.
  - other cell types in chronic inflammation.
- Morphologic features of chronic inflammation.
- Granulomatous inflammation (TB as a popular example).
- Systemic effects of inflammation.

**Pathology Unit 5:**

- Overview of cell cycle (events during each phase could be an MCQ).
- Three populations of cells (with examples).
- Regulation of cell division / Growth inhibition / Growth factor
- Collagen: Characteristics of different types (Table 3-2) could be an MCQ.
• Other constituents of extra cellular matrix

• Repair / Healing is a lot more important:
  * Figure 3-19 = MCQ.
  * Table 3-4 = MCQ.
  * Wound healing by primary / secondary intention.
  * Factors influencing healing.
  * Complications of wound healing.
  * Fibrosis.

**Pathology Unit 6:**
Revision Week

**Pathology Unit 7:**

• Oedema: Definition, types (Table 4-1).
• Haemostatic process: -Sequence of events
  -Components:   -1^o haemostasis.
  -2^o haemostasis.
  -Coagulation pathways.
• Thrombosis: -Definition.
  -Pathogenesis.
  -Predisposing conditions (Table 4-2)
  -Potential outcomes of thrombosis.
• Embolism –Definition, types (& examples).
• Infarction –Definition, types.
• Shock -Definition.
  -Types   • Cardiogenic
           • Hypovolaemic
           • Septic
  -Stages, particularly features of irreversible shock

**Pathology Unit 8:**

• Constituents of the immune system (**overlap with Physiology):
  * B cells.
  * Macrophages.
  * Dendritic cells.
* NK cells.
* Cytokines - IL 1 & IL 2.

- MHC.
- Hypersensitivity
  * Definition
  * Different types of hypersensitivity.
    (Use classical examples).
    e.g. Type 1: Anaphylaxis to IV Penicillin.
    Type 2: Transfusion of ABO-incompatible blood.
    Type 3: Serum sickness; Arthus reaction.
    Type 4: Mantoux test.

- Transplant rejection:
  - Mechanisms involved.

**Pathology Unit 9:**

- Auto-immune diseases:
  - Know some for MCQs (Table 6-7).
  - SLE: know the major clinical manifestations.

- Immunodeficiency syndromes:
  - 1º vs 2º

- **HIV / AIDS:** (Very important subject).
  - Risk groups.
  - Know that HIV is a retrovirus (lentivirus family) for MCQs.
  - Viral structure (Fig. 6-43).
  - Fig. 6-45 is good.
  - Mechanism of immunopathogenesis.
  - Fig 6-47 is an MCQ.
  - Table 6-12 (major abnormalities of immune function).
  - Natural history (see Fig. 6-50)
  - Clinical features.
  - AIDS-defining illnesses:
    * Add: HIV-related encephalopathy.
    - HIV wasting syndrome.
    - CD4 count < 200/µl. (advanced immune deficiency).

- Amyloid:
  - Definition.
  - Mainly for MCQs.
  - Types / associated conditions.
  - Clinical effects.
  - Staining characteristics (MCQ).
-Organs which are mainly affected (MCQ).

**Pathology Unit 10:**

- Atherosclerosis:
  * Definition.
  * Risk factors.
  * Pathogenesis.
  * Complications.

- Hypertension:
  * Causes / Pathogenesis.

- Vasculitides:
  * Types (mainly for MCQ’s, eg temporal arteritis)

- Aneurysms:
  * Sites.
  * Causes / Pathogenesis.
  * Complications.
  * Aortic dissection.

**Pathology Unit 11:**

- CHF: -definition.
  -causes.
  -ventricular hypertrophy.

- LVF vs. RVF:
  -organ system effects.

- Congenital heart disease: familiarity with major lesions.

- Coarctation.

- IHD: -definition.
  -risk factors.
  -pathogenesis.
  -Angina.
-MI.
- complications.
-thrombolysis.

**Pathology Unit 12**

- Valvular disease: aetiologies.
- Rheumatic fever.
- Infective endocarditis.
- Artificial valves: complications.
- Cardiomyopathies: types.
- Myocarditis.
- Pericarditis.

**Pathology Unit 13:**

Revision Week

**Pathology Unit 14:**

- Definitions: -Neoplasia.
- Differentiation.
- Anaplasia.
- Pleomorphism.
- Dysplasia.
- Grading.
- Staging.

- Characteristics of benign and malignant neoplasms.
  - Table 7-2 important.

- Metastasis.
- Fig. 7-23 could produce an MCQ.

- Carcinogenesis (basic understanding).

- Clinical features of tumours.
  - Paraneoplastic syndromes.

- Tumour markers.

- Don’t spend time on the molecular basis of cancer.

**Pathology Unit 15**

- Categories of infectious agents.

- Host barriers to infection.
  - Another very popular question.
  - Requires organisation and structure.
  - e.g. opening statement re physical and mechanical factors, immune system, etc. Then best answered system by system.

- How micro-organisms cause disease.

- Specific infections:
  * Staphylococcal.
  * Streptococcal.

**Pathology Unit 16:**

- Gram negative infections
  - Neisserial
  - Pseudomonas

- TB
- Syphilis
- Clostridial infections
- Chlamydia
- Candidiasis
- Malaria
Pathology Unit 17:

- Tobacco.
- Alcohol: organ effects.
- Air pollution (yes it has been asked!).
- Lead poisoning.
- Radiation injuries. (A lot of people gloss over this, so it is a pretty good discriminator).
  - Likely to relate to acute radiation syndrome (Table 9-17).
- Burns.
- Electrical injuries.
- Blast injuries.

- Malnutrition / Vitamins:

Pathology Unit 18:

Revision Week

Pathology Unit 19:

- Acute renal failure:
  * Causes.
  * Consequences.
- ATN:
  * Causes.
  * Pathogenesis.
  * Stages.
- Chronic renal failure:
  * Systemic manifestations (Table 20-1).
- Causes of urinary obstruction.
- Renal stones:
  * Types.
  * Complications.

Pathology Unit 20:

- Atelectasis

- Pulmonary oedema (table 15-1)
• ARDS
• Emphysema
• Chronic bronchitis
• Asthma
• Sarcoidosis

**Pathology Unit 21:**

• PE
• Pneumonia
• Bronchogenic carcinoma
• Pleural effusions
• Pneumothorax

**Pathology Unit 22:**

• Varices.
• Barrett’s oesophagus.
• Ca oesophagus.

• Peptic ulcers:
  * Sites (MCQs).
  * Pathogenesis.
  * Complications: Table 17-3 (MCQs).

• Appendicitis.

• Infective gastroenteritis: causative organisms

• Inflammatory bowel disease
* Crohn’s disease.
* Ulcerative colitis.

- Diverticular disease: complications.

**Pathology Unit 23:**

- Hepatic failure: Causes / Clinical features.
- Cirrhosis: Causes / Pathogenesis
- Portal hypertension: Causes. Consequences.
- Jaundice: Overview of bilirubin metabolism. Classification / Causes
- Viral hepatitis (mainly A, B & C):
  * Patterns of serological markers
  * Clinical syndromes.
- Alcoholic liver disease
- Gallstones: Risk factors.
  Pathogenesis / Constituents.
  Complications.

**Pathology Unit 24:**

Revision Week

**Pathology Unit 25:**

- Neutropaenia.

- Overview of lymphomas, leukaemias and myeloproliferative disorders.

- Functions of the spleen.

- Splenomegaly (good MCQ).

**Pathology Unit 26:**

- Acute pancreatitis:
  * Aetiology.
Pathogenesis.
* Complications / sequelae.

- Chronic pancreatitis:
  * Pathogenesis.
  * Complications.

**Pathology Unit 27:**

- Anaemia (mainly with regard to classification rather than detail about each specific type).
  * Table 13-1.
  * Overview of Fe metabolism.

- Bleeding disorders (again mainly with a view to being able to name a classification system).
  * ITP worthy of more in-depth attention.
  * Haemophilia the same.

- DIC (Important).
  * Causes.
  * Pathogenesis.

**Pathology Unit 28:**

- Fracture healing (popular viva question).

- Osteomyelitis.

- Origin of bony metastases (MCQ).

- OA.

- RA.

- Septic arthritis.

- Gout / Pseudogout.
Pathology Unit 29:

- Hyperthyroidism
- Hypothyroidism
- Know the types and incidence of Ca thyroid (MCQ).
- Cushing’s syndrome
- Hyeraldosteronism

- Diabetes mellitus:
  - Types (Table 19-2).
  - Type I vs. Type II.
  - Pathogenesis.
  - Complications (some overlap with Physiology).

- Phaeo is worth a quick look.

Pathology Unit 30:

Revision Week

Pathology Unit 31:

- Nerve regeneration – most important section of this chapter.
- Overview of Guillain-Barre syndrome.
- Classification system for neuropathies (with examples):
  * Immune-mediated e.g. GBS.
  * Infectious e.g. Shingles.
  * Hereditary e.g. Charcot-Marie-Tooth syndrome.
  * Metabolic e.g. Diabetic neuropathy.
  * Toxic e.g. Lead poisoning.
  * Neoplastic-associated e.g. Paraneoplastic syndromes.
  * Traumatic.

- Overview of myopathies.
- Myasthenia gravis.
Pathology Unit 32:

- Trauma
- CVA
- Bacterial meningitis
- Multiple sclerosis
- Dementia

Pathology Week 33:

- Pelvic Inflammatory disease
- Bartholin cyst
- Cervical carcinoma
- Disorders of early pregnancy
- Pre-eclampsia