# NEET SS Pathology High-Yield MCQs

## High Yield Multiple Choice Questions

### 199 Comprehensive MCQs with Answers & Explanations

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**Designed for NEET SS aspirants focusing on high-yield pathology concepts.**



This book is intended for educational purposes only and does not substitute formal medical training or institutional guidelines.

**Kindle Edition**

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# Preface

This book is designed for postgraduate medical students preparing for NEET SS with Pathology as their primary or supporting subject. It is especially intended for aspirants who want high-yield, exam-oriented multiple-choice questions that test concepts rather than rote memory.

The MCQs in this book have been carefully curated to reflect the pattern and depth expected in NEET SS. Each question focuses on commonly tested concepts, integrated pathology, and areas where candidates frequently make mistakes. Emphasis has been placed on understanding mechanisms, morphology, and clinico-pathological correlations rather than isolated facts.
Each question has been framed after reviewing standard pathology textbooks and recent examination trends. The explanations are deliberately concise yet concept-oriented, aiming to clarify why an option is correct and why others are not.

Readers are advised to use this book in multiple passes. During the first pass, attempt each MCQ without referring to the answer and mark doubtful questions. In the second pass, carefully read the explanations and revise the underlying concepts from standard textbooks if required. A final pass closer to the examination can be used purely for rapid revision and selfassessment.

This book is not intended to replace standard pathology textbooks such as Robbins or Harsh Mohan. Instead, it serves as a revision and assessment tool to reinforce important concepts and identify weak areas while preparing for NEET SS.

It is hoped that this book will help aspirants approach NEET SS Pathology with greater clarity, confidence, and focus.

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# Abbreviations Used

- AIH — Autoimmune Hepatitis  AKI — Acute Kidney Injury

- BCC — Basal Cell Carcinoma
- BRCA — Breast Cancer Gene

- CRC — Colorectal Cancer
- CUP — Carcinoma of Unknown Primary

- DAD — Diffuse Alveolar Damage
- DIF — Direct Immunofluorescence

- EGFR — Epidermal Growth Factor Receptor  ER — Estrogen Receptor

- FAP — Familial Adenomatous Polyposis
- FNAC — Fine Needle Aspiration Cytology

- GIST — Gastrointestinal Stromal Tumor
- HCC — Hepatocellular Carcinoma
- HER2 — Human Epidermal Growth Factor Receptor 2

- IHC — Immunohistochemistry

- JPS — Juvenile Polyposis Syndrome

- LVI — Lymphovascular Invasion

- MEN — Multiple Endocrine Neoplasia

- NEET SS — National Eligibility cum Entrance Test - Super Specialty
- NET — Neuroendocrine Tumor

- PAS — Periodic Acid-Schiff

- RCC — Renal Cell Carcinoma

- SETTLE — Spindle Epithelial Tumor with Thymus-like Differentiation

- TLS — Tumor Lysis Syndrome
- TNBC — Triple-Negative Breast Cancer

- UIP — Usual Interstitial Pneumonia

- WHO — World Health Organization

# Thyroid Pathology

**Question 1:** Which of the following molecular alterations is most commonly associated with invasive encapsulated follicular variant of papillary thyroid carcinoma (EFVPTC)?

A. BRAF V600E mutation
B. RAS mutation (HRAS/NRAS/KRAS)
C. RET/PTC rearrangement
D. TERT promoter mutation
E. NTRK gene fusion

**Correct Answer: B**

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**Question 2:** A thyroid tumor in a 23-year-old woman shows cribriform areas with spindlecell morules. Immunostaining shows nuclear β-catenin and ER positivity in morules. Which molecular alteration is MOST commonly associated?

A. BRAF V600E mutation
B. Germline APC mutation
C. RET/PTC1 fusion
D. HRAS mutation

**Correct Answer: B**

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**Question 3:** Congo red stain is positive, but IHC for calcitonin is negative. Which stain would be most helpful next to confirm medullary thyroid carcinoma?

A. Thyroglobulin
B. Chromogranin A
C. TTF-1
D. CK7

**Correct Answer: B**

**Explanation:** Calcitonin-negative medullary thyroid carcinoma (CNMTC) is a rare variant where the tumor shows classic MTC histopathology but without elevated serum calcitonin. Chromogranin A is helpful in confirming the neuroendocrine nature of the tumor.

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**Question 4:** A 35-year-old female with a thyroid tumor is found to have a TERT promoter mutation. What is the most likely implication?

A. Indolent course with excellent prognosis
B. Resistance to radioactive iodine
C. Association with familial medullary thyroid carcinoma

D. No impact on prognosis

**Correct Answer: B**

**Explanation:** TERT promoter mutations are associated with more aggressive behavior and resistance to radioactive iodine therapy in papillary thyroid carcinoma.

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**Question 5:** KRAS mutation is NOT commonly seen in:

A. Follicular adenoma
B. NIFTP
C. iFVPTC (invasive follicular variant PTC)
D. enFVPTC (encapsulated non-invasive follicular variant PTC)

**Correct Answer: C**

**Explanation:** NIFTPs are characterized by a high frequency of RAS mutations, particularly in NRAS, which is similar to follicular thyroid adenoma. Invasive FVPTC does not commonly show KRAS mutations.

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**Question 6:** Which has the HIGHEST association with BRAF mutation?

A. Classic variant PTC
B. Tall cell variant PTC
C. Follicular variant PTC

**Correct Answer: B**

**Explanation:** The reported prevalence of BRAF mutation in tall cell variant PTCs (TCVPTC) is as high as 80% to 100%.

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**Question 7:** What is the mitotic count criterion for high-grade medullary carcinoma of thyroid?

A. >5/2 $mm^2$ B.
>2/2 $mm^2$
C. >3/2 $mm^2$
D. >10/2 $mm^2$

**Correct Answer: A**

**Explanation:** High-grade MTC is defined as tumors with at least one of the following three features: mitotic index ≥5 per 2 $mm^2$, Ki67 proliferative index ≥5%, and/or tumor necrosis.

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**Question 8:** Which is NOT true about SETTLE tumor of thyroid?

A. CD5 is used as an IHC marker
B. Occurs in young patients
C. Aggressive behavior
D. Biphasic histology

**Correct Answer: C**

**Explanation:** SETTLE refers to Spindle Epithelial Tumor with Thymus-like Differentiation, a rare, low-grade malignant thyroid tumor with indolent behavior.

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**Question 9:** What are the Turin criteria for mitotic count in poorly differentiated thyroid carcinoma?

A. Mitosis >3/2 mm²
B. Mitosis >5/2 mm²
C. Mitosis >10/2 mm²
D. Mitosis >2/2 mm²

**Correct Answer: A**

**Explanation:** According to Turin criteria, poorly differentiated thyroid carcinoma shows >3 mitoses per 2 mm².

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**Question 10:** What is the mitotic count criterion for differentiated high-grade thyroid carcinoma?

A. Mitosis >5/2 mm²
B. Mitosis >3/2 mm²
C. Mitosis >10/2 mm²
D. Mitosis >20/2 mm²

**Correct Answer: A**

**Explanation:** Any conventional PTC with mitosis >5/2 mm² or necrosis has to be evaluated for differentiated high-grade PTC (DHGPTC), which has intermediate prognosis, worse than conventional PTC.

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**Question 11:** Which mutation is associated with hereditary medullary carcinoma of thyroid?
A. BRAF
B. KRAS
C. RET
D. P53

**Correct Answer: C**

**Explanation:** Hereditary MTC: Germline mutations in the RET gene are responsible for hereditary forms of MTC, often in the context of Multiple Endocrine Neoplasia (MEN) syndromes (e.g., MEN2A, MEN2B).

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**Question 12:** Cowden syndrome increases risk of malignancy in all EXCEPT:

A. Thyroid
B. Breast
C. Liver
D. Endometrium
**Correct Answer: C**

**Explanation:** Though some studies mention HCC as a risk, it is lesser than other organs' risk in Cowden syndrome.

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# Breast Pathology

**Question 13:** A breast carcinoma shows moderate, complete membranous staining in >10% tumor cells on HER2 IHC. What is the correct interpretation?

A. Negative (Score 0)
B. Equivocal (Score 2+) - reflex ISH required
C. Positive (Score 3+)
D. Positive without need for ISH

**Correct Answer: B**

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**Question 14:** What is the difference between systemic ALCL versus breast implantassociated ALCL (BIA-ALCL)?

A. ALK positivity for systemic ALCL
B. CD30 positivity for BIA-ALCL
C. T cell receptor rearrangement
D. Seroma
**Correct Answer: Both A and B**

**Explanation:** Systemic ALCL is ALK positive, while BIA-ALCL is characterized by CD30 positivity with ALK negativity.

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**Question 15:** Which of the following patients with breast carcinoma (TNBC) is most likely to be recommended for BRCA1 genetic testing?

A. 68-year-old woman with TNBC and no family history of cancer
B. 45-year-old woman with hormone receptor-positive breast cancer
C. 35-year-old woman with TNBC and a family history of ovarian cancer
D. 55-year-old woman with HER2-positive breast cancer

**Correct Answer: C**

**Explanation:** Inherited mutations in BRCA1 and BRCA2 are associated with an extraordinarily high risk of breast and ovarian cancers. The population of women with triplenegative breast cancer is enriched for germline BRCA mutations.

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**Question 16:** All of the following statements about the Manchester Scoring System used to calculate the probability of pathogenic variants in the BRCA1 and BRCA2 genes in families suspected of having hereditary breast and ovarian cancer are true, EXCEPT:

A. Adds up the score for each affected relative with cancer on the maternal side
B. Adds up the score for each affected relative with cancer on the paternal side
C. If cancers occurred on both sides of the family, the lineage with the highest score is used for scoring
D. If the mother is unaffected, but maternal grandmother had BRCA-associated cancer, then the maternal grandmother should be included in the scoring
E. If the father is unaffected, but paternal grandmother had BRCA-associated cancer, then the paternal grandmother should not be included in the scoring

**Correct Answer: E**

**Explanation:** Affected relatives on both maternal and paternal sides should be included appropriately in the scoring.

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**Question 17:** What is the size criterion for isolated tumor cells in breast carcinoma lymph node?

A. <0.2 mm
B. <0.3 mm
C. <0.1 mm
D. <0.5 mm

**Correct Answer: A**

**Explanation:** By definition, usually <0.2 mm or less than 200 cells. If seen in metastatic lymph node in case of breast carcinoma, the lymph node is not considered positive for N staging. Designated as pN0(i+).

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**Question 18:** Positive internal mammary nodes indicate which N stage for breast carcinoma?

A. N2a
B. N2b
C. N2c
D. N3a

**Correct Answer: B**

**Explanation:** N2b indicates that cancer cells have spread to one or more internal mammary lymph nodes.

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**Question 19:** Tall cell carcinoma with reverse polarity (TCCRP) of breast is associated with which mutation?

A. IDH2
B. BRCA1
C. p53
D. HER2neu

**Correct Answer: A**

**Explanation:** Tall cell carcinoma with reverse polarity (TCCRP) is a rare subtype characterized by IDH2 mutations and papillary structures with reverse cellular polarity.

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**Question 20:** Claudin-low breast carcinoma does NOT show:

A. Pushing margins
B. Hormone receptor positivity
C. Increased TILs
D. Metaplastic features

**Correct Answer: B**

**Explanation:** Claudin-low tumors are usually triple negative and therefore do not show hormone receptor positivity.

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**Question 21:** What is the most common mutation in fibroadenoma?

A. BRCA1
B. p53
C. HER2
D. MED12 exon 2

**Correct Answer: D**

**Explanation:** Mutations in MED12, especially in exon 2, are frequently observed in fibroadenomas.

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**Question 22:** Which markers are used to separate usual ductal hyperplasia (UDH) versus atypical ductal hyperplasia (ADH) in breast?

A. CK5/6 and ER
B. ER and PR
C. PR and Ki67
D. HER2neu and E-cadherin

**Correct Answer: A**

**Explanation:** UDH shows mosaic CK5/6 staining and focal ER staining, while ADH shows uniform ER positivity and lacks CK5/6 staining.

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**Question 23:** Which of the following stromal lesions of the breast shares a similar MED12 mutation profile with fibroadenoma?

A. Phyllodes tumor (benign and borderline types)
B. Myofibroblastoma
C. Pseudoangiomatous stromal hyperplasia (PASH)
D. Lipoma

**Correct Answer: A**

**Explanation:** Phyllodes tumors, particularly benign and borderline types, can harbor MED12 mutations similar to fibroadenomas.

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**Question 24:** Which of the following is NOT a recognized cause of a false positive HER2 IHC result?

A. Truncation artifact in small biopsies
B. Excessive antigen retrieval
C. Polysomy 17
D. Poor fixation

**Correct Answer: C**

**Explanation:** Polysomy 17 can cause false-positive HER2 FISH results (not IHC). Falsepositive HER2 IHC can result from truncation artifact, excessive antigen retrieval, or poor fixation.

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**Question 25:** Adenoid cystic carcinoma of breast is typically:

A. ER+, PR+, HER2+
B. ER-, PR-, HER2- C. ER+, PR-, HER2- D. ER-, PR+, HER2+
**Correct Answer: B**

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**Question 26:** A 35-year-old woman presents with a slowly growing, painless breast mass. Histological sections show a well-circumscribed tumor composed of microcystic, tubular, and solid patterns. The tumor cells have abundant pale to eosinophilic cytoplasm, and many of the luminal spaces contain eosinophilic secretions. The nuclei are uniform and bland, and mitotic figures are rare. Which is the most likely diagnosis?

A. Invasive ductal carcinoma, no special type (NST)
B. Secretory carcinoma
C. Mucinous carcinoma
D. Acinic cell carcinoma
E. Apocrine carcinoma

**Correct Answer: B**

**Explanation:** Secretory carcinoma is characterized by ETV6-NTRK3 fusions.

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# Hepatobiliary Pathology

**Question 27:** A 58-year-old man presents with a mass in the liver. Histology shows adenocarcinoma with gland formation. Which IHC profile supports intrahepatic cholangiocarcinoma over hepatocellular carcinoma?

A. HepPar-1 (+), Arginase-1 (+), Glypican-3 (+)
B. CK7 (+), CK19 (+), MOC31 (+)
C. CDX2 (+), CK20 (+), SATB2 (+)
D. Synaptophysin (+), Chromogranin (+), INSM1 (+)

**Correct Answer: B**

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**Question 28:** Megamitochondria in hepatocytes in Alcoholic Steatohepatitis (ASH) indicate:

A. Regenerative mitochondrial proliferation
B. Mitochondrial injury from oxidative stress and alcohol metabolism
C. Specificity for alcoholic hepatitis
D. Normal aging change

**Correct Answer: B**

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**Question 29:** Which hepatic zone most commonly shows PAS-positive, diastase-resistant globules in $\alpha_1$-antitrypsin deficiency?

A. Zone 1 (Periportal)
B. Zone 2 (Midzonal)
C. Zone 3 (Centrilobular)
D. Random lobular distribution

**Correct Answer: A**

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**Question 30:** In type 1 autoimmune hepatitis (AIH), the infiltrate is classically rich in:

A. CD8+ cytotoxic T cells
B. Plasma cells and CD4+ T cells
C. Neutrophils
D. Eosinophils

**Correct Answer: B**

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**Question 31:** Which histologic feature is most characteristic of autoimmune hepatitis?

A. Ballooning degeneration
B. Interface hepatitis with plasma cells
C. Ground-glass hepatocytes
D. Perivenular fibrosis

**Correct Answer: B**

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**Question 32:** A liver lesion shows hepatocyte nodules with fibrous septa, ductular reaction, and abnormal arteries. Which IHC pattern supports focal nodular hyperplasia?

A. Diffuse CD34
B. Diffuse glutamine synthetase
C. Map-like glutamine synthetase
D. Nuclear β-catenin
E. HepPar-1 negative

**Correct Answer: C**

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**Question 33:** Glutamine synthetase positive IHC is NOT seen in:
A. HCC
B. β-catenin mutated hepatic adenoma
C. FNH (map-like pattern)
D. Dysplastic nodule liver

**Correct Answer: D**

**Explanation:** FNH shows map-like positivity, β-catenin mutated adenoma shows diffuse positivity similar to HCC. Dysplastic nodules do not show glutamine synthetase positivity.

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**Question 34:** Mallory-Denk bodies in hepatocytes are formed due to:

A. Iron deposition
B. Copper deposits
C. Oxidative stress
D. $\alpha_1$-antitrypsin deficiency

**Correct Answer: C**

**Explanation:** MDBs are thought to form due to the accumulation of misfolded proteins, particularly cytokeratins 8 and 18. Chronic inflammation, oxidative stress, and metabolic dysfunction contribute to MDB formation.

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**Question 35:** Gallbladder involvement in HCC indicates which T stage?

A. T2 B.
T3
C. T4
D. M1
**Correct Answer: It could be T2 or T3**

**Explanation:** Based on size and vascular invasion, it could be T2 or T3, but not T4 or M1.

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**Question 36:** β-catenin mutated hepatic adenoma is associated with:

A. Hemorrhage
B. Risk of HCC
C. Spontaneous regression
D. Steatosis
**Correct Answer: B**

**Explanation:** β-catenin mutated hepatic adenoma has the highest risk of HCC among all types of hepatic adenoma. It is also the one which can show atypia.

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**Question 37:** What is the IHC marker that is uncommonly expressed in fibrolamellar HCC?

A. AFP (Alpha-fetoprotein)
B. Fibrinogen
C. HepPar-1
D. CD68

**Correct Answer: A**

**Explanation:** In fibrolamellar variant hepatocellular carcinoma (FL-HCC), AFP levels are typically normal or near normal, and IHC staining for AFP is usually negative.

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**Question 38:** Which is NEGATIVE for Glypican-3?

A. HCC
B. Yolk sac tumor
C. Hepatoblastoma
D. Pancreatic adenocarcinoma

**Correct Answer: D**

**Explanation:** Glypican-3 (GPC3) is positive in HCC, yolk sac tumor, and hepatoblastoma, but negative in pancreatic adenocarcinoma.

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**Question 39:** Which feature suggests an alternative diagnosis to IgG4-related disease?
A. Granulomas
B. Obliterative phlebitis
C. IgG4+ plasma cells
D. Dense fibrosis

**Correct Answer: A**

**Explanation:** Granulomas and neutrophils are never seen in IgG4 disease.

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**Question 40:** β-catenin mutation is NOT seen in:
A. Hepatoblastoma
B. Pancreatoblastoma
C. Low-grade fibromyxoid sarcoma
D. Medulloblastoma

**Correct Answer: C**

**Explanation:** Apart from the mentioned pediatric tumors, Wilms tumor can also show βcatenin mutation. Low-grade fibromyxoid sarcoma does not show this mutation.

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**Question 41:** Which of the following is NOT a stain used for copper detection?

A. Rhodanine
B. Orcein
C. Timm's stain
D. Prussian blue

**Correct Answer: D**

**Explanation:** Prussian blue reacts with iron, aiding in the diagnosis of hemochromatosis, not copper detection.

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**Question 42:** If Rhodanine staining is negative in a suspected Wilson's disease case, what additional test is recommended?

A. Serum ceruloplasmin
B. Quantitative hepatic copper assay
C. Urinary copper excretion
D. Electron microscopy

**Correct Answer: B**

**Explanation:** Biochemical quantification of copper in liver tissue remains the gold standard for diagnosis.

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**Question 43:** Which is the most common genetic alteration in small-duct intrahepatic cholangiocarcinoma?

A. TERT promoter mutation
B. DNAJB1-PRKACA fusion
C. HNF1α mutation
D. FGFR2 fusions and IDH1/2 mutations
E. JAK-STAT fusion

**Correct Answer: D**

**Explanation:** Small-duct intrahepatic cholangiocarcinoma commonly shows FGFR2 fusions and IDH1/2 mutations.

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**Question 44:** The hallmark molecular alteration in fibrolamellar HCC is:

A. TERT promoter mutation
B. HBV integration
C. DNAJB1-PRKACA fusion
D. CTNNB1 mutation

**Correct Answer: C**

**Explanation:** DNAJB1-PRKACA fusion is the pathognomonic molecular alteration in fibrolamellar hepatocellular carcinoma.

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**Question 45:** A hepatic tumor composed of 'sheets of polygonal cells with abundant eosinophilic cytoplasm, prominent nucleoli and lamellar fibrosis' in a young adult is classically associated with which molecular alteration?

A. TERT promoter mutation
B. DNAJB1-PRKACA fusion
C. IDH1/2 mutation
D. p53 mutation
E. CTNNB1 mutation

**Correct Answer: B**

**Explanation:** This classic description is of fibrolamellar hepatocellular carcinoma (FLHCC), which is pathognomonic for DNAJB1-PRKACA fusion.

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# Pancreatic Pathology

**Question 46:** A pancreatic tumor shows solid/acinar pattern with granular eosinophilic cytoplasm. IHC is positive for trypsin and BCL10, negative for chromogranin. Most likely diagnosis?

A. Neuroendocrine tumor
B. Solid pseudopapillary neoplasm
C. Acinar cell carcinoma
D. Ductal adenocarcinoma

**Correct Answer: C**

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**Question 47:** Which is NOT associated with pancreatic NET?

A. VHL syndrome

B. MEN1 syndrome
C. NF1 syndrome
D. Lynch syndrome

**Correct Answer: D**

**Explanation:** Lynch syndrome causes pancreatic adenocarcinoma, not pancreatic NET.

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**Question 48:** Which of the following statements regarding PAX6 immunohistochemistry (IHC) in pancreatic neuroendocrine tumors (PanNETs) is TRUE?

A. PAX6 is consistently negative in well-differentiated PanNETs and is useful for excluding pancreatic origin
B. PAX6 is a transcription factor essential for pancreatic islet cell development and shows nuclear positivity in most PanNETs
C. PAX6 is a cytoplasmic marker expressed in pancreatic acinar cell carcinoma but not in PanNETs
D. PAX6 is highly specific for pancreatic tumors and never expressed in neuroendocrine tumors from other sites

**Correct Answer: B**

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**Question 49:** Which pancreatic neoplasm shows nuclear β-catenin positivity and demonstrates perivascular hyalinization histologically?
A. Pancreatic ductal adenocarcinoma
B. Acinar cell carcinoma
C. Solid-pseudopapillary neoplasm
D. Pancreatic neuroendocrine tumor

**Correct Answer: C**

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**Question 50:** Which genetic alteration is most frequently seen in pancreatic ductal adenocarcinoma?
A. BRAF V600E mutation
B. KRAS codon 12 mutation
C. JAK2 V617F mutation
D. MYC amplification

**Correct Answer: B**

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**Question 51:** What is the characteristic feature of intraductal tubulopapillary neoplasm (ITPN) of the pancreas?

A. Abundant mucin production with papillary growth
B. Complex tubulopapillary architecture with high-grade atypia and scant mucin
C. Frequent KRAS and GNAS mutations
D. Arises exclusively in main pancreatic duct and never in branch ducts
E. Predominantly low-grade dysplasia with indolent course

**Correct Answer: B**

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**Question 52:** Which hereditary syndrome involves TP53 germline mutation and can include pancreatic adenocarcinoma in its spectrum?

A. Lynch syndrome
B. Li-Fraumeni syndrome
C. Peutz-Jeghers syndrome
D. MEN1

**Correct Answer: B**

**Explanation:** Li-Fraumeni syndrome is caused by germline TP53 mutations and has a broad tumor spectrum including pancreatic adenocarcinoma.

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**Question 53:** In VHL syndrome, a pancreatic cystic lesion lined by clear cuboidal epithelium without atypia is most likely:

A. Serous cystadenoma
B. Mucinous cystic neoplasm
C. SPN
D. PDAC

**Correct Answer: A**

**Explanation:** VHL syndrome is associated with pancreatic serous cystadenomas.

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# Immunology

**Question 54:** The transcription factor FOXP3 (Forkhead box P3) is considered the master regulator and a key characteristic marker for which of the following cell types?

A. Cytotoxic T lymphocytes (CD8+ T cells) B.
Helper T lymphocytes (Th1 cells)
C. Regulatory T lymphocytes ($T_{re}$□ cells)
D. B lymphocytes (B cells)

**Correct Answer: C**

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**Question 55:** What is the most common CD4 and CD8 expression profile of thymic lymphocytes (thymocytes)?

A. CD4+ CD8+
B. CD4- CD8- C. CD4+ CD8- D. CD4- CD8+

**Correct Answer: A**

**Explanation:** During development, thymocytes initially express both CD4 and CD8 (doublepositive).

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**Question 56:** How do ICAM-1 and PECAM-1 differ in their roles during inflammation?

A. ICAM-1 mediates rolling; PECAM-1 mediates adhesion
B. ICAM-1 aids adhesion; PECAM-1 aids transmigration
C. ICAM-1 activates platelets; PECAM-1 inhibits clotting
D. ICAM-1 is on leukocytes; PECAM-1 is only on endothelial cells
**Correct Answer: B**

**Explanation:** ICAM-1 (CD54) binds to LFA-1 integrins on leukocytes, stabilizing adhesion to endothelial cells. PECAM-1 (CD31) facilitates leukocyte movement through endothelial junctions (transmigration).

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**Question 57:** Overproduction of which cytokine is linked to tissue necrosis and cavitation in pulmonary TB?

A. IL-10
B. TNF-α (Tumor Necrosis Factor-alpha)
C. IL-4
D. IL-2

**Correct Answer: B**

**Explanation:** TNF-α is essential for granuloma formation but excessive levels cause tissue destruction, leading to caseous necrosis and lung cavitation.

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**Question 58:** Caspase-9 is activated by which of the following complexes?

A. Death-inducing signaling complex (DISC)
B. Apoptosome

C. Inflammasome
D. Necrosome

**Correct Answer: B**

**Explanation:** The apoptosome, formed by cytochrome c, Apaf-1, and caspase-9, activates caspase-9.

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# Dermatopathology

**Question 59:** Squamous cell carcinoma in scalp with surface ulceration. Depth of invasion is determined from:

A. Base of ulcer to deepest point of tumor invasion
B. Basal layer of adjacent normal epidermis to deepest point of tumor invasion
C. Granular layer of adjacent normal epidermis to deepest point of tumor invasion
D. Spinous layer of adjacent normal epidermis to deepest point of tumor invasion **Correct**

**Answer: B**

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**Question 60:** Which of the following immunohistochemical markers is most consistently positive in desmoplastic melanoma?

A. HMB-45
B. Melan-A
C. S-100 protein
D. Cytokeratin AE1/AE3
**Correct Answer: C**

**Explanation:** Desmoplastic melanoma can be negative or weakly positive for HMB-45, Melan-A, or tyrosinase. S-100 remains a valuable tool for diagnosis.

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**Question 61:** Which of the following best describes the immunohistochemical (IHC) staining pattern of PHLDA1 in Basal Cell Carcinoma (BCC)?

A. Diffuse nuclear positivity
B. Strong dot-like perinuclear positivity
C. Negative or only focal weak staining
D. Diffuse cytoplasmic and membranous positivity

**Correct Answer: C**

**Explanation:** PHLDA1 is typically expressed in trichoepitheliomas but not in BCC.

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**Question 62:** Epidermolysis bullosa acquisita (EBA) is caused by autoantibodies against which target?

A. Desmoglein 1
B. Type VII collagen
C. Laminin-332
D. BP180

**Correct Answer: B**

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**Question 63:** Which DIF pattern is essential to support histology in diagnosing paraneoplastic pemphigus?

A. Linear IgA deposition along basement membrane
B. Intercellular IgG and C3 in epidermis plus granular deposition along basement membrane
C. Perivascular IgM deposits only
D. Negative DIF, rely only on ELISA
**Correct Answer: B**

**Explanation:** Paraneoplastic pemphigus shows both intercellular IgG/C3 in epidermis and granular deposition along the basement membrane.

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**Question 64:** Which of the following is the single most important histopathological prognostic factor in cutaneous melanoma?
A. Clark's level of invasion
B. Breslow thickness
C. Ulceration
D. Mitotic count

**Correct Answer: B**

**Explanation:** Breslow thickness (tumor depth in millimeters) is the single most important prognostic factor in cutaneous melanoma.

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**Question 65:** A 44-year-old female presented with itchy rash on extensor surface. What is the likely DIF finding?

A. Linear IgG fluorescence at dermo-epidermal junction
B. Linear IgA fluorescence at dermo-epidermal junction
C. Granular IgA fluorescence in dermal papillae
D. Intraepidermal intercellular IgG fishnet fluorescence
E. Intraepidermal intercellular IgA fishnet fluorescence

**Correct Answer: C**

**Explanation:** Dermatitis Herpetiformis (DH) reveals granular IgA deposits in the papillary dermis.

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# Salivary Gland Pathology

**Question 66:** Which gene fusion is most characteristic of microsecretory adenocarcinoma?

A. ETV6::NTRK3
B. SS18::MEF2C
C. MAML2::CRTC1
D. MYB::NFIB

**Correct Answer: A**

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**Question 67:** SOX10 expression in non-salivary lesions may lead to diagnostic confusion with salivary tumors. Which lesion is typically SOX10 positive?

A. Metastatic melanoma
B. Keratinizing squamous cell carcinoma
C. Thyroid papillary carcinoma
D. Paraganglioma
**Correct Answer: A**

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**Question 68:** A salivary gland FNAC shows a cellular aspirate with oncocytic cells in cohesive sheets and papillary fragments, mild nuclear atypia, and granular cytoplasm. Background shows no necrosis. Mucicarmine is negative. Which is the most appropriate Milan System category?

A. Non-diagnostic (I)
B. Atypia of undetermined significance (AUS) (III)
C. Salivary gland neoplasm of uncertain malignant potential (SUMP) (IV)
D. Suspicious for malignancy (V)

**Correct Answer: C**

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**Question 69:** A 65-year-old patient presents with a parotid mass showing cribriform and comedo-necrotic architecture. The tumor cells have prominent nucleoli and abundant eosinophilic cytoplasm. Which immunoprofile most supports a diagnosis of salivary duct carcinoma?

A. p63+, CK5/6+, DOG1+, S100+
B. Androgen receptor (AR)+, GCDFP-15+, HER2 (3+), GATA3+
C. SMA+, Calponin+, p63+, CK14+
D. Mammaglobin+, S100+, SOX10+, ER+

**Correct Answer: B**

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**Question 70:** NKX3.1 IHC is NOT expressed by:

A. IPMN salivary gland
B. Prostate adenocarcinoma
C. Metastatic prostate adenocarcinoma
D. Lung NSCLC

**Correct Answer: D**

**Explanation:** NKX3.1 is considered a marker for prostate and salivary mucinous acini, but not for lung NSCLC.

---

**Question 71:** ETV6-NTRK3 fusion is NOT commonly seen in:

A. MASC salivary gland
B. Secretory carcinoma breast
C. Congenital mesoblastic nephroma
D. Warthin's tumor

**Correct Answer: D**

**Explanation:** Warthin tumor does not show this fusion. The other three tumors are defined by ETV6-NTRK3 fusion.

---

**Question 72:** Which is commonly SOX10 IHC negative?

A. Acinic cell carcinoma
B. Adenoid cystic carcinoma
C. Myoepithelial carcinoma
D. Mucoepidermoid carcinoma

**Correct Answer: D**

**Explanation:** Mucoepidermoid carcinoma is usually SOX10 negative.

---

# Forensic Pathology

**Question 73:** A 2-year-old child is brought to the emergency department with vomiting, abdominal pain, confusion, and oliguria two days after ingesting a cough syrup. On examination, the child is drowsy, tachypneic, and shows signs of metabolic acidosis. What is the causative toxin?

A. Diethylene glycol
B. Acetone
C. NAPQI
D. Glutathione

**Correct Answer: A**

---

**Question 74:** A 28-year-old man is found dead at home. At autopsy, the lungs are heavy and edematous with copious frothy fluid. Multiple fresh needle marks are noted in the antecubital fossa. Toxicology reveals 6-MAM in femoral blood. Which of the following is the most likely cause of death?

A. Acute morphine toxicity due to therapeutic overdose
B. Acute heroin poisoning due to intravenous drug use
C. Acute cocaine intoxication with arrhythmic death
D. Sudden cardiac death due to hypertrophic cardiomyopathy

**Correct Answer: B**

**Explanation:** 6-MAM (6-monoacetylmorphine) is a specific metabolite of heroin and confirms heroin use.

---

**Question 75:** In a suspected post-mortem insulin overdose, which single specimen is the most useful to collect for confirming hypoglycemia and assessing insulin levels?

A. Cardiac (central) blood
B. Femoral (peripheral) blood
C. Vitreous humour
D. Urine

**Correct Answer: C**

**Explanation:** Vitreous humour is the most reliable specimen for post-mortem glucose measurement.

---

# Clinical Governance in Pathology

**Question 76:** In an NHS pathology department, several breast carcinoma cases were incorrectly scored as HER2 negative due to non-participation in the external quality

assessment (EQA) scheme. As a result, patients were denied HER2-targeted therapy. Which pillar of clinical governance is MOST directly breached in this scenario?

A. Risk management
B. Clinical effectiveness
C. Patient and public involvement
D. Education and training
E. Audit and clinical effectiveness

**Correct Answer: E**

**Explanation:** Non-participation in EQA schemes directly breaches the audit and clinical effectiveness pillar.

---

**Question 77:** In your hospital, 3 of 4 pathologists go on unexpected leave, severely affecting reporting. What is the MOST appropriate governance action?

A. Suspend all pathology services
B. Prioritise urgent/cancer cases, escalate to Trust, arrange locum/regional support
C. Ask the remaining consultant to cover all work
D. Divert samples to private lab without informing Trust
E. Lower reporting standards to keep turnaround times

**Correct Answer: B**

---

**Question 78:** Following breast FNAC was misreported as C3. On realizing the error, the pathologist should:

A. Wait for repeat FNAC
B. Amend to C5, inform surgeon, and file incident report
C. Discuss only at audit
D. Ignore since repeat FNAC is planned

**Correct Answer: B**

---

# Gynecological Pathology

**Question 79:** PARP inhibitors are most effective in ovarian tumors with:

A. TP53 mutation only
B. Wild-type BRCA
C. Homologous recombination deficiency (HRD) including BRCA
D. Mismatch repair deficiency

**Correct Answer: C**

---

**Question 80:** Patient with synchronous low-grade endometrioid carcinoma in the uterus (confined to the endometrium) and unilateral ovarian tumor (limited to the ovary without capsule breach) is best staged as:

A. FIGO Stage IA for both tumors
B. FIGO Stage IIIA endometrial cancer
C. Ovarian cancer Stage IIIC
D. Synchronous Stage IVB disease
**Correct Answer: A**

---

**Question 81:** What immunohistochemical profile is most consistent with mesonephric adenocarcinoma of the endometrium?

A. ER+, PR+, PAX8-
B. ER-, PR-, GATA3+, TTF-1+, CD10+
C. ER+, PR+, WT1+, p53 mutant pattern
D. p16+, HPV+, GATA3+

**Correct Answer: B**

**Explanation:** Mesonephric adenocarcinoma is typically positive for GATA3, TTF-1, CD10, and PAX2.

---

**Question 82:** Which of the following IHC markers is NOT positive in epithelioid trophoblastic tumor (ETT)?

A. p63
B. CK18
C. Inhibin
D. hPL

**Correct Answer: D**

**Explanation:** hPL is typically negative in ETT and is used for differentiating it from placental site trophoblastic tumor (PSTT).

---

**Question 83:** The presence of which chromosomal translocation is most commonly associated with high-grade ESS with YWHAE rearrangement?

A. t(10;17)(q22;p13)

B. t(7;17)(p15;q21)
C. t(6;7)(p21;p15)
D. t(X;18)(p11;q11)

**Correct Answer: A**

**Explanation:** The translocation t(10;17)(q22;p13) results in the fusion of the YWHAE and NUTM2 genes, frequently found in high-grade endometrial stromal sarcoma.

---

**Question 84:** What is the most appropriate sequence for testing in molecular classification of endometrial carcinoma per RCPath and ESGO/ESP/ESTRO guidelines?

A. p53 IHC → POLE sequencing → MMR IHC
B. POLE sequencing → MMR IHC → p53 IHC
C. MMR IHC → p53 IHC → POLE sequencing (if required)
D. Perform all tests simultaneously always
**Correct Answer: C**

**Explanation:** Analyses of both MMR proteins and p53 expression allow identification of low-risk cases, which don't require further molecular analysis. Patients not at low risk should be analyzed for POLE mutation.

---

**Question 85:** A 43-year-old woman undergoes hysterectomy for fibroid. Grossly, the tumor is infiltrative, soft, and tan-yellow, involving the myometrium with worm-like extensions. Histology shows uniform spindle to oval cells resembling proliferative endometrial stroma, with minimal cytologic atypia, low mitotic activity (<5/10 HPF). IHC shows positivity for ER, PR, CD10. Which genetic alteration is MOST characteristically associated with this neoplasm?

A. t(7;17)(p15;q21), JAZF1-SUZ12 fusion
B. t(10;17)(q22;p13), YWHAE-NUTM2 fusion
C. BCOR internal tandem duplication (ITD)
D. t(X;22)(p11;q13), SS18-SSX fusion
E. TP53 mutation

**Correct Answer: A**

**Explanation:** This is a case of low-grade endometrial stromal sarcoma. The JAZF1-SUZ12 fusion is most characteristic.

---

**Question 86:** Which immunohistochemical marker is most consistently positive in low-grade endometrial stromal sarcoma?

A. CD10 B.
p53

C. CK20
D. S100

**Correct Answer: A**

**Explanation:** CD10 shows strong and diffuse positivity in ESS tumor cells.

---

**Question 87:** Reflex POLE mutation testing in endometrial carcinoma is recommended for:

A. Only stage IV disease
B. All newly diagnosed endometrioid carcinomas
C. Only MMR-deficient tumors
D. Exclusively serous carcinomas

**Correct Answer: B**

**Explanation:** POLE mutation testing defines the prognosis and should be performed on all newly diagnosed endometrioid carcinomas.

---

**Question 88:** A histological diagnosis of FIGO Grade 2 endometrioid carcinoma is made. The tumor shows wild-type p53 and loss of MLH1/PMS2 expression. What is the most likely molecular subtype?

A. POLE ultramutated
B. MMR-deficient
C. p53-abnormal
D. NSMP

**Correct Answer: B**

**Explanation:** Loss of MLH1 and PMS2 on IHC indicates MMR-deficient molecular subtype.

---

**Question 89:** A 50-year-old female underwent pan-hysterectomy for simultaneous diagnosis of endometrial and right ovarian tumor. Endometrial tumor is a grade 2 endometrioid carcinoma, infiltrating less than 50% of myometrium, no involvement of cervical stroma, and no LVI. Right ovary tumor is also an endometrioid subtype carcinoma, grade 2, with no capsular breach. What is the FIGO 2023 stage?

A. IA3
B. IIA
C. IIB
D. IIC
E. IIIA1

**Correct Answer: A**

**Explanation:** Synchronous endometrial and ovarian endometrioid carcinomas with favorable features are staged as FIGO IA for both tumors independently.

---

**Question 90:** A woman has high-risk HPV positive screening with normal cytology under the NHS Cervical Screening Programme. What is the next step?

A. Immediate colposcopy
B. Repeat screening in 3 years
C. Repeat HPV test in 12 months
D. Cytology only in 6 months
**Correct Answer: C**

**Explanation:** A single high-risk HPV positive result with normal cytology requires repeat HPV testing at 12 months.

---

**Question 91:** A 34-year-old woman has tested positive for high-risk HPV on cervical screening for the third consecutive year, with negative cytology each time. According to current NHS Cervical Screening Programme guidelines, what is the most appropriate next step?

A. Repeat HPV testing in 1 year
B. Refer for colposcopy
C. Discharge to routine 3-year recall
D. Perform immediate LLETZ
E. Repeat cytology in 6 months

**Correct Answer: B**

**Explanation:** Three consecutive positive HPV tests (at 0, 12, and 24 months) with normal cytology require referral to colposcopy.

---

**Question 92:** Which clinical scenario is most suggestive of multiple nephrogenic rests with a high-risk background for Wilms tumor?

A. Child with Beckwith-Wiedemann syndrome
B. Child with Denys-Drash syndrome
C. Child with NF1
D. Child with Li-Fraumeni syndrome

**Correct Answer: A**

**Explanation:** Beckwith-Wiedemann syndrome is strongly associated with nephrogenic rests and increased risk of Wilms tumor.

---

**Question 93:** FOXL2 (402C→G) mutation is characteristic of which ovarian tumor?
A. Juvenile granulosa cell tumor
B. Adult granulosa cell tumor
C. Sertoli-Leydig cell tumor
D. Thecoma
E. Fibroma
**Correct Answer: B**

**Explanation:** FOXL2 C402G (C134W) mutation is pathognomonic for adult granulosa cell tumor.

---

**Question 94:** High-grade serous ovarian carcinoma is MOST characteristically associated with:

A. KRAS mutation and low mitotic index
B. Wild-type p53 staining pattern
C. Homologous recombination deficiency with genomic instability
D. ARID1A mutation and endometriosis
E. Micropapillary architecture

**Correct Answer: C**

**Explanation:** High-grade serous ovarian carcinoma is characterized by homologous recombination deficiency and TP53 mutations in >95% of cases.

---

# Genitourinary Pathology - Prostate

**Question 95:** Which of the following will be least useful for confirmation of prostate primary in metastatic lymph node?

A. AMACR
B. PSA
C. NKX3.1
D. Prostein

**Correct Answer: A**

---

**Question 96:** What chromosomal translocation is commonly associated with ERG overexpression in prostate cancer?

A. t(9;22)
B. t(14;18)
C. t(21;22)
D. TMPRSS2-ERG gene fusion

**Correct Answer: D**

**Explanation:** TMPRSS2-ERG gene fusion is a common genetic alteration in prostate cancer.

---

**Question 97:** Which hereditary mutation confers the highest risk of aggressive prostate carcinoma?

A. BRCA1
B. BRCA2
C. MLH1
D. PTEN
E. CHEK2

**Correct Answer: B**

**Explanation:** BRCA2 germline mutations confer the highest risk of aggressive prostate carcinoma.

---

**Question 98:** Loss of PTEN staining in tumor glands (prostate adenocarcinoma) with intact benign glands indicates:

A. Benign prostatic hyperplasia
B. Diagnostic of intraductal carcinoma
C. Poor prognosis and higher-grade tumor
D. Distinguishing prostate vs urothelial origin
E. ERG-negative tumor

**Correct Answer: C**

**Explanation:** Loss of PTEN in prostate adenocarcinoma is associated with poor prognosis and higher-grade tumors.

---

# Genitourinary Pathology - Renal

**Question 99:** Which of the following immunohistochemical stains is most specific for lymphatic endothelium?

A. CD34
B. Factor VIII
C. D2-40 (podoplanin)
D. CD31

**Correct Answer: C**

---

**Question 100:** In the Oxford Classification of IgA nephropathy, M1 indicates:

A. Mesangial matrix expansion involving >50% of glomeruli
B. Mesangial hypercellularity in >50% of glomeruli
C. Mesangial IgG deposition
D. Mesangial sclerosis in <50% of glomeruli
E. Presence of subendothelial deposits

**Correct Answer: B**

---

**Question 101:** A "basket-weave" appearance of the GBM on electron microscopy is indicative of:

A. Minimal change disease
B. Alport syndrome
C. Membranous nephropathy
D. IgA nephropathy **Correct Answer: B**

**Explanation:** Alport syndrome is inherited in an X-linked pattern and caused by COL4A5 gene mutations.

---

**Question 102:** Which immunofluorescence pattern is typically absent in Dense Deposit Disease (DDD)?

A. C3
B. IgG
C. IgM
D. Both IgG and IgM

**Correct Answer: D**

**Explanation:** Both IgG and IgM are absent in DDD; only C3 is deposited.

---

**Question 103:** What is the most common cause for steroid-resistant nephrotic syndrome in children? A. NPHS2
B. NPHS1
C. CD2AP
D. WT1
**Correct Answer: A**

**Explanation:** NPHS2 codes for podocin, responsible for most common cause of steroidresistant nephrotic syndrome.

---

**Question 104:** Which antigen is associated with secondary membranous nephropathy?

A. PLA2R
B. NELL1
C. THSD7A
D. SEMAPHORIN3B

**Correct Answer: B**

**Explanation:** NELL1 is associated with secondary membranous nephropathy. PLA2R and THSD7A are associated with primary membranous nephropathy.

---

**Question 105:** Which IHC marker is positive in nephrogenic adenoma?

A. CK7
B. CK20
C. PAX8
D. CDX2

**Correct Answer: C**

**Explanation:** PAX8 is a positive immunohistochemical marker in nephrogenic adenoma.

---

**Question 106:** A 39-year-old female was diagnosed with a ~55×40 mm sized right lower pole kidney tumor. CAIX, CK7 and CD117 immunohistochemistry were performed. What would be the most likely immunoprofile of this tumor?

A. CAIX-, CK7-, CD117+
B. CAIX-, CK7+, CD117- C. CAIX-, CK7+, CD117+
D. CAIX+, CK7-, CD117+
E. CAIX+, CK7+, CD117-

**Correct Answer: D**

---

**Question 107:** Which translocation is associated with Xp translocation RCC fusion?
A. TFE3-ASPSCR1
B. EWSR1-WT1
C. VHL-HIF1α
D. DDIT3-FUS

**Correct Answer: A**

---

**Question 108:** Which of the following genetic alterations is most characteristic of classic Clear Cell Sarcoma of the Kidney (CCSK)?

A. EWSR1-WT1 fusion
B. BCOR internal tandem duplication
C. SMARCB1 loss
D. TP53 mutation
E. TFE3 gene fusion

**Correct Answer: B**

**Explanation:** BCOR internal tandem duplication (ITD) is the most characteristic genetic alteration in CCSK.

---

**Question 109:** Which mutation is associated with congenital mesoblastic nephroma?

A. WT1
B. VHL
C. NTRK3
D. P53

**Correct Answer: C**

**Explanation:** NTRK fusions are prevalent in congenital mesoblastic nephroma.

---

**Question 110:** Which IHC marker is NEGATIVE in clear cell sarcoma of kidney?

A. BCOR
B. Cyclin D1
C. NGFR
D. CD34

**Correct Answer: D**

**Explanation:** CD34 is negative in clear cell sarcoma of kidney.

---

**Question 111:** Which of the following histologic features MOST strongly suggests immunotactoid nephropathy rather than fibrillary glomerulonephritis (FGN)?

A. Congo red-negative deposits
B. Randomly arranged non-branching fibrils
C. Microtubular deposits larger than 30 nm in diameter
D. Positive DNAJB9

**Correct Answer: C**

**Explanation:** Immunotactoid nephropathy shows organized microtubular deposits >30 nm in diameter. FGN shows randomly arranged fibrils 10-30 nm with DNAJB9 positivity.

---

**Question 112:** NELL-1-associated membranous nephropathy is MOST strongly associated with which clinical context?

A. Prior malaria infection
B. Diabetes mellitus
C. Malignancy, especially colon or breast cancer

**Correct Answer: C**

**Explanation:** NELL-1-associated membranous nephropathy is strongly associated with malignancy.

---

**Question 113:** Which podocyte protein interacts directly with nephrin to maintain the slit diaphragm structure?

A. Podocalyxin
B. CD2AP
C. WT1
D. Laminin β2

**Correct Answer: B**

**Explanation:** CD2AP (CD2-associated protein) interacts directly with nephrin.

---

**Question 114:** A renal tumor in a 47-year-old woman shows solid and cystic areas, granular eosinophilic cells, CK7-, CK20+, CD117-, AMACR variable. Likely diagnosis?
A. Chromophobe RCC
B. Oncocytoma
C. ESC-RCC (Eosinophilic Solid and Cystic RCC)
D. Papillary RCC

**Correct Answer: C**

**Explanation:** ESC-RCC is characterized by CK7 negativity, CK20 positivity, CD117 negativity, and variable AMACR.

---

**Question 115:** Which of the following immunohistochemical profiles is most typical for TCEB1-mutated RCC?

A. CAIX (cup-shaped) + CD10++ CK7- B.
CK7++ CAIX patchy/non-cup-shaped + CD10- C. CK7-+
KIT++ Hale's colloidal iron positive
D. PAX8-+ GATA3+

**Correct Answer: B**

**Explanation:** TCEB1-mutated RCC typically shows CK7 positivity, patchy or noncupshaped CAIX, and CD10 negativity.

---

**Question 116:** The hallmark of Renal Medullary Carcinoma is the loss of:

A. INI-1 (SMARCB1)
B. PAX8
C. TFE3
D. CD117

**Correct Answer: A**

**Explanation:** Renal medullary carcinoma is characterized by loss of INI-1 (SMARCB1) expression.

---

# Genitourinary Pathology - Urothelial

**Question 117:** Loss of which transcription factors is characteristic of basal-type urothelial carcinoma?

A. p63 and SOX2
B. FOXA1 and GATA3
C. RB1 and TP53
D. KDM6A and ARID1A
E. FGFR3 and PIK3CA

**Correct Answer: B**

**Explanation:** Basal-type urothelial carcinoma is characterized by loss of luminal transcription factors FOXA1 and GATA3.

---

**Question 118:** Decoy cells in urine cytology are caused by:

A. CMV
B. HPV
C. HSV
D. Polyomavirus

**Correct Answer: D**

**Explanation:** Decoy cells are urothelial cells with viral inclusions caused by polyomavirus (BK virus).

---

# Gastrointestinal Pathology - Colorectal

**Question 119:** Loss of MSH3 is associated with which type of CRC?

A. MSI-H
B. MSI-L
C. CIN
D. EMAST

**Correct Answer: D**

**Explanation:** EMAST (Elevated Microsatellite Alterations at Selected Tetranucleotides) is associated with MSH3 dysfunction.

---

**Question 120:** What is the most common mutation in KIT receptor for GIST?

A. Exon 9
B. Exon 11
C. Exon 13
D. Exon 17

**Correct Answer: B**

**Explanation:** Exon 11 (codons 557-558) is the most common site of KIT mutations in GIST.

---

**Question 121:** Which is the defective gene for serrated polyposis syndrome?

A. APC
B. MLH1
C. STK11
D. RNF43

**Correct Answer: D**

**Explanation:** RNF43 mutations are detected in a subset of patients with Serrated Polyposis Syndrome.

---

**Question 122:** MSI in HNPCC is due to defect in which gene?

A. APC
B. MLH1
C. P53
D. KRAS

**Correct Answer: B**

**Explanation:** MLH1 is one of the key genes responsible for microsatellite stability.

---

**Question 123:** Which is the defective gene in juvenile polyposis syndrome?

A. STK11
B. APC
C. PTEN
D. BMPR1A

**Correct Answer: D**

**Explanation:** BMPR1A mutations are most commonly associated with Juvenile Polyposis Syndrome.

---

**Question 124:** A key early molecular event in the development of tubular adenomas is mutation in which gene?
A. BRAF
B. TP53
C. KRAS
D. APC

**Correct Answer: D**

**Explanation:** APC mutations occur early in adenoma development.

---

**Question 125:** A 22-year-old man with a known APC gene mutation undergoes colonoscopy showing hundreds of colonic adenomas. What is the approximate risk of developing colorectal carcinoma if prophylactic colectomy is not performed?

A. 20-30% B.
40-50%
C. 60-70%
D. >90%

**Correct Answer: D**

**Explanation:** Familial adenomatous polyposis (FAP) carries a >90% risk of developing colorectal carcinoma by age 40.

---

**Question 126:** A 40-year-old woman with a family history of HNPCC presents with a signet ring adenocarcinoma in the transverse colon. Molecular analysis reveals MSI-H status, a germline mutation in the MLH1 gene and a somatic mutation in the TP53 gene. What is the most likely underlying mechanism contributing to the development of this tumor?

A. Defective mismatch repair leading to accumulation of mutations in oncogenes and tumor suppressor genes
B. Epigenetic silencing of tumor suppressor genes through promoter hypermethylation
C. Activation of the Wnt/β-catenin signaling pathway through mutations in the APC gene
D. Inactivation of the TP53 tumor suppressor gene through mutations and/or deletions

**Correct Answer: A**

**Explanation:** MSI-H leads to susceptibility for multiple mutations. p53 is often the last mutation to happen in CRC.

---

# Gastrointestinal Pathology - Small Intestine & Esophagus

**Question 127:** In small intestinal biopsy, Cryptosporidium organisms are found:
A. Intranuclear
B. In lamina propria
C. Extracytoplasmic to enterocytes
D. In submucosa

**Correct Answer: C**

**Explanation:** Cryptosporidium appears as basophilic dots extracytoplasmic to enterocytes.

---

**Question 128:** What pH is used for Alcian blue stain for Barrett's esophagus?

A. 2.5
B. 4 C. 8
D. 9

**Correct Answer: A**

**Explanation:** Alcian blue at pH 2.5 stains acid mucins.

---

**Question 129:** HSV affects which cells in esophagitis?

A. Epithelial cells
B. Stromal cells
C. Endothelial cells
D. Neutrophils

**Correct Answer: A**

**Explanation:** HSV affects epithelial cells. In contrast, stromal and endothelial cells are affected by CMV.

---

**Question 130:** Fundic gland polyps with stomach adenocarcinoma are associated with which syndrome?

A. Lynch syndrome
B. GAPPS syndrome
C. Cowden syndrome
D. Peutz-Jeghers syndrome
**Correct Answer: B**

**Explanation:** GAPPS (Gastric adenocarcinoma and proximal polyposis of the stomach) is caused by germline pathogenic variants in promoter 1B of the APC gene.

---

**Question 131:** In eosinophilic esophagitis, the distribution of eosinophils is usually:

A. Patchy, distal-only involvement

B. Uniform throughout the esophagus, including mid and upper
C. Confined to the gastroesophageal junction
D. Localized to ulcerated areas

**Correct Answer: B**

**Explanation:** Eosinophilic esophagitis typically shows uniform distribution throughout the esophagus.

---

**Question 132:** A child presents with rectal bleeding and a solitary juvenile polyp. Which feature suggests JPS (Juvenile Polyposis Syndrome) rather than a sporadic juvenile polyp?

A. Polyp located in the rectum
B. Presence of cystically dilated glands
C. ≥5 juvenile polyps throughout the colon
D. Polyp shows ulceration

**Correct Answer: C**

**Explanation:** JPS is diagnosed when there are ≥5 juvenile polyps in the colorectum.

---

**Question 133:** A 35-year-old male, HIV positive on ART, presented with 6 months history of chronic watery diarrhea refractory to antibiotic therapy. Which special stain will confirm the diagnosis?

A. PAS
B. PAS after diastase digestion
C. Masson trichrome
D. Warthin-Starry
E. Ziehl-Neelsen

**Correct Answer: E**

**Explanation:** Ziehl-Neelsen (modified acid-fast stain) is used to identify Cryptosporidium organisms.

---

**Question 134:** Which statement about anti-gliadin antibodies (AGA) in children is TRUE?

A. They are the most specific test for celiac disease in all age groups
B. They are no longer recommended because of very low sensitivity in infants
C. They may still be useful in children <2 years where tTG-IgA sensitivity is lower
D. AGA levels correlate strongly with degree of villous atrophy **Correct Answer: C**

---

**Question 135:** A 22-year-old female presented with chronic diarrhea and malabsorption, prone to upper respiratory tract infection. Duodenal biopsy revealed hyper-infestation with Giardia, variable villous blunting and nodular lymphoid aggregates, with marked paucity of plasma cells. Which laboratory serological test should be requested for diagnosis?

A. Serum IgA tissue transglutaminase
B. Serum total IgG, IgA & IgM level
C. Serum IgA & IgG antigliadin antibody
D. Serum anti-enterocyte antibody
E. Serum apolipoproteins B48 & B100

**Correct Answer: B**

**Explanation:** This suggests common variable immunodeficiency (CVID). Serum immunoglobulin levels should be measured.

---

# Pediatric Renal Pathology

**Question 136:** Which of the following best explains the mechanism of tumorigenesis in ATRT due to INI1 loss?

A. Overactivation of p53 pathway
B. Constitutive activation of BRAF V600E mutation
C. Loss of chromatin remodeling via SWI/SNF complex dysfunction
D. Uncontrolled activation of MYC oncogene due to translocation

**Correct Answer: C**

**Explanation:** INI1 is a component of the SWI/SNF chromatin remodeling complex.

---

**Question 137:** Genomic imprinting is seen in which syndrome?
A. Beckwith-Wiedemann syndrome
B. WAGR syndrome
C. Denys-Drash syndrome
D. Lynch syndrome

**Correct Answer: A**

**Explanation:** Beckwith-Wiedemann Syndrome (BWS) is an imprinting disorder involving abnormal regulation of genes in the 11p15 region.

---

**Question 138:** A 42-year-old patient with clear cell renal cell carcinoma faces a massive right pleural effusion and epithelioid mesothelioma, with a legacy of RCC in his bloodline and a paternal uncle who had uveal melanoma. Which gene must be uncovered?

A. VHL
B. TSC1/TSC2
C. BAP1
D. FLCN (folliculin)
E. TP53

**Correct Answer: C**

**Explanation:** BAP1 germline mutations are associated with BAP1 tumor predisposition syndrome (RCC, mesothelioma, uveal melanoma).

---

# Infectious Disease Pathology

**Question 139:** Which of the following is NON acid-fast?

A. Cryptosporidium
B. Balantidium coli
C. Cyclospora
D. Isospora

**Correct Answer: B**

**Explanation:** Cryptosporidium, Isospora, and Cyclospora are acid-fast. Balantidium coli is not.

---

**Question 140:** Which autoantibody is most commonly associated with a fine speckled pattern on IIF in SLE?
A. Anti-dsDNA
B. Anti-Smith (Sm)
C. Anti-SSA/Ro
D. Anti-histone

**Correct Answer: C**

**Explanation:** Anti-SSA/Ro and anti-SSB/La form a fine-speckled pattern. Anti-Smith antibodies fluoresce in a coarse-speckled pattern.

---

**Question 141:** A peripheral blood smear from a patient with fever, lymphadenopathy, and recent travel to sub-Saharan Africa shows motile extracellular parasites with a slender shape, a flagellum, and a prominent undulating membrane. Which feature is most specific to confirm the diagnosis?

A. Presence of a kinetoplast adjacent to the nucleus
B. Red blood cell ring forms
C. Intracellular amastigotes
D. Sheathed microfilariae

**Correct Answer: A**

**Explanation:** Kinetoplast is a hallmark of Trypanosoma spp.

---

**Question 142:** Which mechanism best explains the pathogenesis of COVID-19-associated coagulopathy?

A. Direct viral inhibition of clotting factors
B. Endothelial injury, cytokine storm, and NETs driving thrombo-inflammation
C. Vitamin K deficiency due to poor intake
D. Autoantibody-mediated platelet destruction

**Correct Answer: B**

---

# Hematopathology - Leukemia and MDS

**Question 143:** Which laboratory finding is MOST critical to monitor in a leukemia patient with hyperuricemia and suspected tumor lysis syndrome (TLS)?

A. Hypokalemia
B. Hypophosphatemia
C. Hyperkalemia
D. Hypocalcemia

**Correct Answer: C**

**Explanation:** Tumor Lysis Syndrome is characterized by hyperkalemia, which is the most critical finding to monitor.

---

**Question 144:** A patient with MDS and a TP53 mutation is at high risk for:

A. Transformation to CMML
B. Progression to AML and resistance to therapy
C. Development of autoimmune disease
D. Spontaneous remission

**Correct Answer: B**

---

**Question 145:** What is the significance of NPM1 mutations in AML MRD monitoring?

A. They are rarely used due to instability
B. They serve as stable biomarkers for tracking residual disease
C. They indicate resistance to chemotherapy
D. They are only relevant at diagnosis

**Correct Answer: B**

**Explanation:** NPM1 mutations are stable during disease evolution and tracked for MRD via RT-qPCR.

---

**Question 146:** Which of the following is TRUE about NPM1 mutations in AML?

A. They are always accompanied by FLT3-ITD mutations
B. They are stable during disease evolution, making them reliable for MRD tracking
C. They are only found in pediatric AML
D. They are undetectable after induction therapy

**Correct Answer: B**

---

**Question 147:** A 50-year-old male with a history of back pain for 5 years has MRI spine suggestive of multiple myeloma, M spike 2.4 g/dL, no CRAB features. Bone marrow aspiration reveals 15% plasma cells. What is the diagnosis?

A. Multiple myeloma
B. Smoldering multiple myeloma
C. MGUS
D. Plasmacytoma

**Correct Answer: B**

**Explanation:** Smoldering multiple myeloma (SMM) is defined by serum M protein ≥3 g/dL and/or 10-60% clonal bone marrow plasma cells with no CRAB criteria.

---

**Question 148:** Which of the following features is NOT consistent with a diagnosis of Smoldering Multiple Myeloma?

A. Serum monoclonal protein ≥3 g/dL
B. Clonal bone marrow plasma cells ≥10%
C. Hypercalcemia
D. Absence of end-organ damage

**Correct Answer: C**

**Explanation:** Hypercalcemia is part of CRAB criteria for multiple myeloma. Smoldering myeloma should not have CRAB features.

---

# Hematopathology - Anemia

**Question 149:** Which endocrine disorder is LEAST associated with iron overload in thalassemia?

A. Hypogonadism
B. Hypothyroidism
C. Hyperparathyroidism
D. Diabetes mellitus

**Correct Answer: C**

---

**Question 150:** A 60-year-old with refractory microcytic anemia undergoes iron studies. Results show: serum iron 320 µg/dL, TIBC 250 µg/dL, transferrin saturation 90%, and ferritin 450 ng/mL. Which diagnosis is most consistent?

A. Iron deficiency anemia
B. Sideroblastic anemia
C. Anemia of chronic disease
D. Hemochromatosis
E. α-thalassemia

**Correct Answer: B**

---

**Question 151:** What is the primary advantage of using soluble transferrin receptor (sTfR) for diagnosing iron deficiency anemia?
A. It is a more sensitive marker than serum ferritin
B. It is less affected by inflammation than serum ferritin
C. It is a more specific marker than serum ferritin

D. It is easier to measure than serum ferritin

**Correct Answer: B**

---

**Question 152:** Paroxysmal cold hemoglobinuria (PCH) is associated with which antibody?

A. IgG Donath-Landsteiner antibody
B. IgM cold agglutinin
C. Anti-Jk3 alloantibody
D. Anti-D IgG

**Correct Answer: A**

**Explanation:** PCH is caused by the Donath-Landsteiner antibody, which demonstrates specificity for the P-antigen.

---

**Question 153:** Which marker is expressed on the surface of erythroid lineage cells?

A. CD34
B. CD71
C. CD19
D. CD33

**Correct Answer: B**

**Explanation:** CD71 (Transferrin receptor) is expressed on erythroid lineage cells.

---

# Hematopathology - Lymphoma

**Question 154:** A 68-year-old man presents with lymphadenopathy and skin rash. Lymph node biopsy shows a polymorphous infiltrate. Tumor cells are positive for CD3, CD4, CD10, PD-1, and CXCL13. What is the most likely diagnosis?
A. Peripheral T-cell lymphoma, NOS
B. Angioimmunoblastic T-cell lymphoma
C. Classical Hodgkin lymphoma
D. Anaplastic large cell lymphoma, ALK-negative

**Correct Answer: B**

**Explanation:** AITL. Neoplastic cells show follicular T helper cell IHC markers.

---

**Question 155:** A lymph node shows "popcorn" (LP) cells that are CD20+, BCL6+, EMA+, strong PAX5+, STAT6-, CD30-, CD15-. Most likely diagnosis?

A. Classic Hodgkin lymphoma
B. Nodular lymphocyte predominant Hodgkin lymphoma (NLPHL)
C. THRLBCL
D. PMBCL

**Correct Answer: B**

**Explanation:** NLPHL is characterized by LP cells that are CD20+, BCL6+, EMA+, strong PAX5+, but CD30- and CD15-.

---

**Question 156:** Which IHC profile supports the diagnosis of RS-like cells (bystander immunoblasts) over true RS cells?

A. CD20+, CD30-, CD45-, weak PAX5+
B. CD20-, CD30 strong+, CD45-, weak PAX5+
C. CD20-, CD30-, CD45+, PAX5-
D. CD20+, CD30 weak+, CD45+, strong PAX5+
E. CD20+, CD30 strong+, CD45-, weak PAX5+

**Correct Answer: D**

**Explanation:** Bystander immunoblasts retain strong B-cell markers (CD20+, strong PAX5+, CD45+) with only weak CD30 positivity.

---

**Question 157:** In WHO 5th Edition classification, AITL is categorized under:

A. Peripheral T-cell lymphoma, NOS
B. Mature T-cell leukemia/lymphoma
C. Nodal T-follicular helper cell lymphoma
D. EBV-associated T-cell lymphoma
E. Anaplastic large cell lymphoma

**Correct Answer: C**

**Explanation:** In WHO 5th Edition (2022), AITL is classified under "Nodal T-follicular helper (TFH) cell lymphoma."

---

**Question 158:** Which of the following molecular subtypes is recognized in ALK-negative ALCL with prognostic significance?

A. DUSP22 rearrangement
B. BCL2 rearrangement
C. MYD88 mutation
D. CCND1 rearrangement

**Correct Answer: A**

**Explanation:** DUSP22 rearrangement in ALK-negative ALCL is associated with favorable prognosis.

---

**Question 159:** A 75-year-old female with fever and cervical lymphadenopathy. IHC shows: Large cells are CD20+, CD79a+, PAX-5+, CD30+, BCL6 focal+, MUM-1+, EBV-LMP+, CD3-, CD5-, CD10-, CD15-. Ki67 ~60%. Diagnosis?

A. Classical Hodgkin lymphoma
B. DLBCL, NOS, post-germinal center subtype
C. EBV-positive DLBCL
D. T-cell rich histiocyte-rich large B-cell lymphoma
E. Diffuse pattern NLPHL with T-rich background

**Correct Answer: C**

**Explanation:** The combination of large B-cell lymphoma with EBV-LMP positivity in an elderly patient is diagnostic of EBV-positive DLBCL.

---

**Question 160:** Which is NOT associated with HHV-8 virus?

A. Primary effusion lymphoma
B. Multicentric Castleman disease
C. Kaposi sarcoma
D. Angioimmunoblastic T-cell lymphoma
**Correct Answer: D**

**Explanation:** Angioimmunoblastic T-cell lymphoma (AITL) is associated with EBV, not HHV-8.

---

# Head and Neck Pathology - Sinonasal

**Question 161:** Low-risk HPV is NOT associated with:
A. Inverted papilloma
B. Laryngeal papilloma
C. Multiphenotypic sinonasal carcinoma
D. Condyloma acuminatum

**Correct Answer: C**

**Explanation:** Multiphenotypic sinonasal carcinoma is caused by high-risk HPV.

---

**Question 162:** Polyphenotypic sinonasal carcinoma is NEGATIVE for:

A. p16
B. S100
C. p40
D. Chromogranin

**Correct Answer: C**

---

**Question 163:** Which is NEGATIVE for biphasic sinonasal sarcoma?

A. S100
B. SMA
C. Calponin
D. CD34

**Correct Answer: D**

**Explanation:** Biphasic synovial sarcoma shows dual expression of neural and smooth muscle markers. CD34 is negative.

---

**Question 164:** Sinonasal undifferentiated carcinoma is associated with which gene defect?
A. p16
B. IDH2
C. NUT1
D. EWSR1

**Correct Answer: B**

**Explanation:** Sinonasal undifferentiated carcinoma is associated with IDH2 R172 mutations.

**Question 165:** Multiphenotypic sinonasal carcinoma most closely resembles which salivary gland tumor in morphology?

A. Adenoid cystic carcinoma
B. Mucoepidermoid carcinoma
C. Pleomorphic adenoma
D. Basal cell adenocarcinoma

**Correct Answer: A**

---

# Molecular Pathology - Viral Oncogenesis

**Question 166:** Which HPV oncoprotein is mainly responsible for peri-nuclear cytoplasmic clearing in koilocytes?

A. E4
B. E5
C. E6
D. E7

**Correct Answer: B (E5) and C (E6)**

**Explanation:** Both E5 and E6 oncoproteins contribute to koilocytosis.

---

**Question 167:** What distinguishes high-risk HPV (16/18) from low-risk HPV (6/11) in pathogenesis regarding host DNA integration?

A. Low-risk HPV integrates, causing benign tumors
B. High-risk HPV integrates, disrupting viral regulation and overexpressing oncoproteins; low-risk remains episomal
C. Both integrate, but high-risk evades immune detection
D. Integration silences oncogenes in high-risk HPV

**Correct Answer: B**

**Explanation:** High-risk HPV integrates into host DNA, disrupting regulatory genes and causing unchecked overexpression of E6/E7 oncoproteins.

---

# Soft Tissue Pathology

**Question 168:** HEY1-NCOA2 fusion is seen in:

A. Osteosarcoma
B. Mesenchymal chondrosarcoma
C. Mucosal melanomas
D. Synovial sarcoma

**Correct Answer: B**

**Explanation:** HEY1::NCOA2 expression modulates transcriptional program in chondrogenic differentiation.

---

**Question 169:** Extraskeletal myxoid chondrosarcoma is defined by which fusion?

A. EWSR1-FLI1
B. EWSR1-WT1
C. EWSR1-NR4A3
D. EWSR1-ATF1

**Correct Answer: C**

**Explanation:** EWSR1-NR4A3 fusion defines extraskeletal myxoid chondrosarcoma.

---

**Question 170:** BCOR alterations are NOT seen in:

A. Clear cell sarcoma of kidney
B. High-grade endometrial stromal sarcoma
C. Ewing-like sarcoma
D. Solitary fibrous tumor

**Correct Answer: D**

---

# Endocrine Pathology - Paraganglioma

**Question 171:** SDHB-mutant paragangliomas are most strongly associated with:

A. Low risk of malignancy
B. Exclusive adrenal location
C. High metastatic potential
D. Association with MEN2 syndrome

**Correct Answer: C**

**Explanation:** SDHB-mutant paragangliomas have high metastatic potential.

---

# Carcinoma of Unknown Primary (CUP)

**Question 172:** A PAX8-positive CUP with co-expression of CD5 and CD117 is most suggestive of a primary tumor originating in the:

A. Thyroid B.
Kidney
C. Thymus
D. Ovary

**Correct Answer: C**

**Explanation:** Thymic carcinomas often express PAX8 alongside CD5 and CD117 (c-KIT).

---

# Metastatic Carcinoma - Immunophenotyping

**Question 173:** Metastatic carcinoma in cervical lymph node. Which IHC panel is consistent with squamous cell carcinoma?

A. CK7+, CK20-, p63- B. CK7-,
CK20+, p63+
C. CK7-, CK20-, p63+

**Correct Answer: C**

**Explanation:** Metastatic squamous cell carcinoma shows: CK7-, CK20-, p63+.

---

**Question 174:** GATA3 IHC is NEGATIVE in which tumor?

A. Salivary gland tumors
B. Urothelial carcinoma
C. Prostatic carcinoma
D. Trophoblastic tumors

**Correct Answer: C**

---

# General Pathology - Calcification

**Question 175:** Dystrophic calcification is characterized by:
A. Normal serum calcium levels
B. Systemic hypercalcemia
C. Metastatic spread of calcium

D. Renal failure

**Correct Answer: A**

**Explanation:** Dystrophic calcification is associated with normal serum calcium levels.

---

# Molecular Pathology - Cellular Stress

**Question 176:** Phosphorylation of eIF2α during cellular stress leads to:

A. Increased global protein synthesis
B. Inhibition of global translation with selective translation of stress-response mRNAs
C. Enhanced ribosome recycling
D. Degradation of misfolded proteins via ubiquitin-proteasome **Correct Answer: B**

---

# Neuropathology - Molecular

**Question 177:** Which metabolite accumulates as a result of IDH1 mutation?

A. Fumarate
B. Succinate
C. 2-hydroxyglutarate
D. α-ketoglutarate
**Correct Answer: C**

**Explanation:** 2-hydroxyglutarate (2-HG) is an "oncometabolite" that accumulates with IDH mutations.

---

**Question 178:** In oligodendrogliomas, 1p/19q codeletion is best defined as:

A. Partial loss of 1p and 19q arms
B. Whole-arm combined loss of 1p and 19q
C. Loss of 1p only
D. Seen in glioblastoma with EGFR amplification

**Correct Answer: B**

**Explanation:** True oligodendroglioma requires whole-arm 1p + 19q loss from t(1;19)(q10;p10).

---

# Bone Pathology - Molecular

**Question 179:** A lytic, expansile lesion of the distal radius in a 25-year-old shows evenly distributed osteoclast-like giant cells and mononuclear stromal cells. IHC is positive for H3.3 G34W in stromal cells. Which diagnosis is most likely?

A. Giant cell tumor of bone
B. Chondroblastoma
C. Brown tumor of hyperparathyroidism
D. Telangiectatic osteosarcoma

**Correct Answer: A**

**Explanation:** H3.3 G34W is a specific mutation for giant cell tumor of bone.

---

**Question 180:** A bone tumor biopsy from suspected chondromyxoid fibroma decalcified with formic acid shows weak/focal GRM1 immunoreactivity. What is the most likely explanation?

A. Incorrect antibody dilution
B. Underlying malignancy
C. Decalcification-induced antigen loss
D. Sampling error
**Correct Answer: C**

**Explanation:** Formic acid can cause damage to antigens/proteins.

---

**Question 181:** Which of the following histological features is most characteristic of rickets in the growth plate of long bones?

A. Normal thickness of the epiphyseal plate with orderly endochondral ossification
B. Narrow, mineralized osteoid seams
C. Disorganized proliferation of chondrocytes with bulbous expansion of the growth plate
D. Increased cortical bone thickness and trabecular connectivity
E. Prominent cement lines in lamellar bone

**Correct Answer: C**

---

**Question 182:** IDH1 mutation is NOT seen in:

A. Cholangiocarcinoma
B. Osteosarcoma
C. Enchondromas
D. Chondrosarcoma

**Correct Answer: B**

---

# Pulmonary Pathology

**Question 183:** A 58-year-old male with a heavy smoking history presents with rapidly progressing dyspnea and a large mediastinal mass. Biopsy reveals poorly differentiated cells with abundant eosinophilic cytoplasm and eccentric nuclei. IHC shows loss of BRG1 expression. Most likely diagnosis?

A. Large Cell Neuroendocrine Carcinoma
B. SMARCA4-Deficient Undifferentiated Thoracic Tumor (SMARCA4-DUT)
C. Squamous Cell Carcinoma
D. Adenocarcinoma of Lung

**Correct Answer: B**

**Explanation:** Loss of BRG1 is diagnostic of SMARCA4-Deficient Undifferentiated Thoracic Tumor.

---

**Question 184:** A 65-year-old male with smoking history presents with a lung mass. Histopathology shows glandular structures resembling colorectal adenocarcinoma. IHC: CK7+, CK20+, CDX2+, Napsin A+. Most likely diagnosis?

A. Colorectal adenocarcinoma metastatic to the lung
B. Primary enteric-type lung adenocarcinoma
C. Pancreatic adenocarcinoma
D. Mucinous ovarian carcinoma metastatic to lung
E. Pulmonary squamous cell carcinoma

**Correct Answer: B**

**Explanation:** Enteric-type lung adenocarcinoma is a rare primary lung tumor. Napsin A positivity supports pulmonary origin.

---

**Question 185:** Which of the following best reflects EGFR reflex testing in NSCLC?
A. EGFR mutation testing is performed only if the tumor is squamous and patient is a smoker
B. Reflex testing for EGFR mutations is recommended in all NSCLC cases with adenocarcinoma
C. EGFR testing should only be ordered if patient is planned for surgical resection
D. EGFR testing is unnecessary if ALK immunohistochemistry is negative

**Correct Answer: B**

**Explanation:** EGFR mutation testing is recommended for all patients with advanced-stage lung adenocarcinoma.

---

**Question 186:** The presence of fibroblastic foci in a patchy, subpleural distribution is characteristic of which pattern of interstitial lung disease?

A. Organizing pneumonia
B. Nonspecific interstitial pneumonia (NSIP)
C. Usual interstitial pneumonia (UIP)
D. Hypersensitivity pneumonitis

**Correct Answer: C**

**Explanation:** Fibroblastic foci are part of temporal heterogeneity feature of UIP.

---

**Question 187:** Which of the following lung biopsy findings is LEAST supportive of a diagnosis of IPF (UIP pattern)?
A. Temporal heterogeneity
B. Fibroblastic foci
C. Diffuse alveolar damage
D. Honeycomb change E. Patchy interstitial fibrosis

**Correct Answer: C**

**Explanation:** DAD (Diffuse alveolar damage) is an acute process, not part of IPF.

---

**Question 188:** Surfactant dysfunction in IPF primarily reflects injury to which cell type?

A. Alveolar macrophages
B. Endothelial cells
C. Type II pneumocytes
D. Fibroblasts

**Correct Answer: C**

**Explanation:** Type II pneumocytes produce surfactant, and their injury is a key feature of IPF.

---

**Question 189:** Most common cause of pulmonary alveolar proteinosis in adults is:

A. Silica exposure
B. Hematologic malignancy
C. Anti-GM-CSF antibodies
D. Surfactant protein gene mutation

**Correct Answer: C**

**Explanation:** Autoimmune PAP caused by anti-GM-CSF antibodies is the most common form in adults (~90%).

---

**Question 190:** A patient with EGFR-mutant lung adenocarcinoma on erlotinib shows disease progression. Re-biopsy reveals same histology. The most likely resistance mechanism is:

A. ALK fusion
B. Small cell transformation
C. EGFR T790M mutation
D. KRAS mutation
**Correct Answer: C**

**Explanation:** EGFR T790M mutation is the most common resistance mechanism (~50-60%) to first-generation EGFR TKIs.

---

**Question 191:** Which of the following is a characteristic immunohistochemical feature of Bronchiolar Adenoma (Ciliated Muconodular Papillary Tumor) of the lung?

A. Loss of basal cell layer with diffuse TTF-1 positivity
B. Continuous p40-positive basal cell layer
C. Strong synaptophysin and chromogranin positivity
D. Diffuse p63 negativity with high Ki-67 index

**Correct Answer: B**

**Explanation:** Bronchiolar adenoma characteristically shows a continuous p40-positive basal cell layer.

---

**Question 192:** A lung biopsy shows lepidic growth of tall columnar goblet-like cells with abundant intracellular mucin. Tumor cells are TTF-1 negative and CK20 positive. Which molecular alteration is most likely?

A. EGFR exon 19 deletion
B. ALK rearrangement

C. KRAS mutation
D. ROS1 fusion

**Correct Answer: C**

**Explanation:** This describes invasive mucinous adenocarcinoma of the lung, which most commonly harbors KRAS mutations.

---

**Question 193:** A lung tumor shows features consistent with which diagnosis?

A. Congenital Pulmonary Airway Malformation
B. Bronchogenic Cyst
C. Pleuropulmonary Blastoma
D. Inflammatory Myofibroblastic Tumor

**Correct Answer: C**

---

**Question 194:** A 62-year-old chronic smoker presents with a central lung mass. Histology shows sheets of small cells with scant cytoplasm, nuclear molding, and high mitotic activity. IHC: Synaptophysin+, Chromogranin+, TTF-1+, Ki-67 ~90%. Which molecular alteration is most characteristic?

A. EGFR exon 19 deletion
B. ALK rearrangement
C. RB1 and TP53 inactivation
D. KRAS mutation

**Correct Answer:** C
**Explanation:** Small cell lung carcinoma shows near-universal **RB1 and TP53 loss**, driving aggressive biology and high proliferation.

---

**Question 195:** A peripheral lung tumor shows papillary architecture with fibrovascular cores. Tumor cells are TTF-1+, Napsin A+, and show diffuse nuclear β-catenin negativity. Which subtype is most likely?

A. Acinar adenocarcinoma
B. Papillary adenocarcinoma
C. Micropapillary adenocarcinoma
D. Solid adenocarcinoma

**Correct Answer:** B
**Explanation:** True papillary adenocarcinoma has **fibrovascular cores**. Micropapillary lacks cores and behaves worse.

---

**Question 196:** Which histologic feature best predicts poor prognosis in lung adenocarcinoma, regardless of stage?

A. Lepidic growth pattern
B. Presence of mucin
C. Micropapillary pattern
D. TTF-1 positivity

**Correct Answer:** C
**Explanation: Micropapillary pattern** is a silent killer—strongly linked to lymphovascular invasion and recurrence.

---

**Question 197:** A lung biopsy shows dense lymphoplasmacytic infiltrate with storiform fibrosis. Obliterative phlebitis is present. Which IHC finding supports the diagnosis?

A. ALK positivity
B. Increased IgG4-positive plasma cells
C. CD1a positivity
D. Langerin positivity

**Correct Answer:** B
**Explanation:** This is **IgG4-related lung disease**—storiform fibrosis + obliterative phlebitis + IgG4 plasma cells.

---

**Question 198:** Which lung tumor characteristically shows **ALK rearrangement** and occurs in younger patients with minimal smoking history?

A. Squamous cell carcinoma
B. Small cell carcinoma
C. Inflammatory myofibroblastic tumor
D. Large cell carcinoma

**Correct Answer:** C
**Explanation:** Inflammatory myofibroblastic tumor is the **classic ALK-driven lung tumor**, especially in young patients.

---

**Question 199:** A lung tumor shows nests of polygonal cells with clear cytoplasm, delicate vasculature, and HMB-45 positivity. TTF-1 is negative. Diagnosis?

A. Clear cell adenocarcinoma
B. Metastatic renal cell carcinoma
C. PEComa
D. Pulmonary hamartoma

**Correct Answer:** C
**Explanation: PEComa** is HMB-45 positive, TTF-1 negative, and loves clear cells with thin vessels.

---

**Question 200:** Which feature helps distinguish **reactive type II pneumocyte hyperplasia** from adenocarcinoma in situ?

A. Nuclear enlargement
B. Prominent nucleoli
C. Preservation of alveolar architecture
D. TTF-1 positivity
**Correct Answer:** C
**Explanation:** Reactive hyperplasia keeps the **alveolar framework intact**. AIS replaces it with neoplastic intent.

---

# Appendix A: Comprehensive Abbreviations (A–Z)

**A**

- AGA — Anti-Gliadin Antibodies
- AIH — Autoimmune Hepatitis
- AITL — Angioimmunoblastic T-Cell Lymphoma AKI — Acute Kidney Injury
- ALCL — Anaplastic Large Cell Lymphoma
- ALK — Anaplastic Lymphoma Kinase
- AML — Acute Myeloid Leukemia
- APC — Adenomatous Polyposis Coli
- ASH — Alcoholic Steatohepatitis
- ATRT — Atypical Teratoid Rhabdoid Tumor
- AUS — Atypia of Undetermined Significance

**B**

- BAP1 — BRCA1-Associated Protein 1
- BCC — Basal Cell Carcinoma
- BIA-ALCL — Breast Implant-Associated Anaplastic Large Cell Lymphoma

BRCA — Breast Cancer Gene

**C**

- CCSK — Clear Cell Sarcoma of Kidney
- CNMTC — Calcitonin-Negative Medullary Thyroid Carcinoma
- CRC — Colorectal Cancer
- CUP — Carcinoma of Unknown Primary
- CVID — Common Variable Immunodeficiency

**D**

- DAD — Diffuse Alveolar Damage
- DDD — Dense Deposit Disease
- DHGPTC — Differentiated High-Grade Papillary Thyroid Carcinoma
- DIF — Direct Immunofluorescence
- DLBCL — Diffuse Large B-Cell Lymphoma

**E**

- EBA — Epidermolysis Bullosa Acquisita
- EFVPTC — Encapsulated Follicular Variant of Papillary Thyroid Carcinoma
- EGFR — Epidermal Growth Factor Receptor
- EMAST — Elevated Microsatellite Alterations at Selected Tetranucleotides
- EQA — External Quality Assessment
- ER — Estrogen Receptor
- ESC-RCC — Eosinophilic Solid and Cystic Renal Cell Carcinoma
- ESS — Endometrial Stromal Sarcoma
- ETT — Epithelioid Trophoblastic Tumor

**F**

- FAP — Familial Adenomatous Polyposis
- FGN — Fibrillary Glomerulonephritis
- FIGO — International Federation of Gynecology and Obstetrics
- FL-HCC — Fibrolamellar Hepatocellular Carcinoma
- FNAC — Fine Needle Aspiration Cytology
- FNH — Focal Nodular Hyperplasia

**G**

- GAPPS — Gastric Adenocarcinoma and Proximal Polyposis of the Stomach
- GBM — Glomerular Basement Membrane
  GIST — Gastrointestinal Stromal Tumor **H**

  HCC — Hepatocellular Carcinoma
  HER2 — Human Epidermal Growth Factor Receptor 2

HG-ESS — High-Grade Endometrial Stromal Sarcoma
HNPCC — Hereditary Non-Polyposis Colorectal Cancer HPF — High Power Field

- HPV — Human Papillomavirus
- HRD — Homologous Recombination Deficiency

**I**

- IHC — Immunohistochemistry
- IPF — Idiopathic Pulmonary Fibrosis
- ISH — In Situ Hybridization
- ITPN — Intraductal Tubulopapillary Neoplasm

**J**

- JPS — Juvenile Polyposis Syndrome

**L**

- LVI — Lymphovascular Invasion

**M**

- MASC — Mammary Analogue Secretory Carcinoma
- MDB — Mallory-Denk Body
- MDS — Myelodysplastic Syndrome
- MEN — Multiple Endocrine Neoplasia
- MMR — Mismatch Repair
- MRD — Minimal Residual Disease
- MSI — Microsatellite Instability
- MTC — Medullary Thyroid Carcinoma

**N**

- NEET SS — National Eligibility cum Entrance Test - Super Specialty
- NET — Neuroendocrine Tumor
- NIFTP — Non-Invasive Follicular Thyroid Neoplasm with Papillary-Like Nuclear Features
  NLPHL — Nodular Lymphocyte Predominant Hodgkin Lymphoma
- NSCLC — Non-Small Cell Lung Cancer
- NSIP — Nonspecific Interstitial Pneumonia
- NSMP — No Specific Molecular Profile

**P**

- PAP — Pulmonary Alveolar Proteinosis
- PAS — Periodic Acid-Schiff

- PCH — Paroxysmal Cold Hemoglobinuria
  PDAC — Pancreatic Ductal Adenocarcinoma
  PNP — Paraneoplastic Pemphigus
  PR — Progesterone Receptor
  PSTT — Placental Site Trophoblastic Tumor
  PTC — Papillary Thyroid Carcinoma

**R**

- RCC — Renal Cell Carcinoma

**S**

- SETTLE — Spindle Epithelial Tumor with Thymus-like Differentiation
- SMARCA4-DUT — SMARCA4-Deficient Undifferentiated Thoracic Tumor
- SMM — Smoldering Multiple Myeloma
- SPN — Solid Pseudopapillary Neoplasm
- SUMP — Salivary Gland Neoplasm of Uncertain Malignant Potential

**T**

- TCCRP — Tall Cell Carcinoma with Reverse Polarity
- TFH — T-Follicular Helper
- THRLBCL — T-cell/Histiocyte-Rich Large B-Cell Lymphoma
- TIL — Tumor-Infiltrating Lymphocytes
- TKI — Tyrosine Kinase Inhibitor
- TLS — Tumor Lysis Syndrome
- TNBC — Triple-Negative Breast Cancer
- tTG — Tissue Transglutaminase

**U**

- UDH — Usual Ductal Hyperplasia
  UIP — Usual Interstitial Pneumonia

**V**

- VHL — Von Hippel-Lindau

**W**

- WHO — World Health Organization

# Final Note

**Congratulations!** You have completed this comprehensive collection of **199 high-yield MCQs for NEET SS Pathology**. This resource covers:

- Molecular Pathology
- Immunohistochemistry
- Organ System Pathology
- Hematopathology
- Cytopathology
- Forensic Pathology
- Clinical Governance

We wish you the best in your preparation!

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