Glands Test Bank

1) Which type of epithelial cells mainly produce and secrete various macromolecules?

A) Squamous cells

B) Cuboidal cells

C) Columnar cells

D) Secretory cells

E) Transitional cells

2) Glands that lack ducts and release their products directly into the bloodstream are known as:

A) Exocrine glands

B) Endocrine glands

C) Sebaceous glands

D) Salivary glands

E) Mucous glands

3) What type of glands develop from covering epithelia in the fetus and retain their connection with the surface?

A) Exocrine glands

B) Endocrine glands

C) Myoepithelial glands

D) Merocrine glands

E) Apocrine glands

4) Which connective tissue element surrounds and supports the secretory part of glands?

A) Parenchyma

B) Stroma

C) Capsule

D) Septa

E) Lobules

5) Glands with unbranched ducts are classified as:

A) Simple glands

B) Compound glands

C) Tubular glands

D) Acinar glands

E) Serous glands

6) What is the most common method of protein or glycoprotein secretion from exocrine glands?

A) Merocrine secretion

B) Apocrine secretion

C) Holocrine secretion

D) Serous secretion

E) Mucous secretion

7) Which type of glandular secretion involves the release of product together with small amounts of cytoplasm and cell membrane?

A) Salivary secretion

B) Mammary secretion

C) Holocrine secretion

D) Serous secretion

E) Mucous secretion

8) Serous cells of exocrine glands are characterized by:

A) Accumulation of product at the cells' apical ends

B) Presence of heavily glycosylated proteins

C) Well-developed RER and Golgi complexes

D) Strong contractions by myoepithelial cells

E) Staining poorly with basophilic or acidophilic stains

9) Mucous cells of exocrine glands contain heavily glycosylated proteins called:

A) Mucins

B) Digestive enzymes

C) Serous granules

D) Secretory vesicles

E) Apical proteins

10) Which class of gland do salivary glands belong to based on the presence of duct systems?

A) Branched Acinar glands

B) Coiled Tubular glands

C) Tubular glands

D) Acinar glands

E) Tubloacinar glands

11) The smallest compartmentalization of Glands is:

A) Capsule

B) Septum

C) Lobe

D) Duct

E) Lobules

12) Myoepithelial cells are rich in which proteins to cause strong contractions?

A) Actin and myosin

B) Tubulin and dynein

C) Keratin and vimentin

D) Collagen and elastin

E) Troponin and tropomyosin

13) Which glandular secretion is characterized by the continuous accumulation of product leading to complete cell disruption?

A) Merocrine secretion

B) Apocrine secretion

C) Holocrine secretion

D) Serous secretion

E) Mucous secretion

14) What is the primary function of myoepithelial cells in glandular tissue?

A) Synthesizing secretory products

B) Releasing hormones into the bloodstream

C) Supporting the stroma

D) Contracting to propel secretory products

E) Regulating glandular growth

15) Which type of glandular secretion involves exocytosis from membrane-bound vesicles or secretory granules?

A) Merocrine secretion

B) Apocrine secretion

C) Holocrine secretion

D) Serous secretion

E) Mucous secretion

16) Glands with two or more branches in their ducts are classified as:

A) Simple glands

B) Compound glands

C) Tubular glands

D) Acinar glands

E) Serous glands

17) Secretory epithelia and glands develop from covering epithelia in the fetus by:

A) Cell Differentiation

B) Growth into underlying connective tissue

C) Cell proliferation

D) Cell hypertrophy

E) All of the above except D

18) Which of the following is NOT a classification of exocrine glands based on their structure?

A) Simple glands

B) Compound glands

C) Tubular glands

D) Myoepithelial glands

E) Acinar glands

19) The secretory portions of glands are also known as the:

A) Parenchyma

B) Stroma

C) Capsule

D) Septa

E) Lobules

20) What surrounds glands and sends septa to divide them into smaller compartments?

A) Parenchyma

B) Stroma

C) Capsule

D) Septa

E) Lobules

Critical Thinking:

21) Some salivary glands are mixed seromucous glands, what characterizes the secretory composition of these glands?

A) Presence of only serous acini

B) Presence of mucous tubules containing heavily glycosylated proteins

C) Presence of both serous acini and mucous tubules

D) Absence of secretory structures

E) Presence of serous acini containing heavily glycosylated proteins

22) In histological preparations, how would the staining characteristic be observed in secretory granules of mucous cells in exocrine glands typically?

A) Intense staining with basophilic or acidophilic stains

B) Faint staining with basophilic or acidophilic stains

C) No staining observed

D) Staining pattern similar to serous granules

E) Staining pattern resembling nuclear staining

23) Which staining technique would be most appropriate for mucous cells in histological preparations, considering their staining behavior?

A) Hematoxylin and eosin (H&E) stain

B) Periodic acid-Schiff (PAS) stain

C) Masson's trichrome stain

D) Giemsa stain

E) Wright's stain

24) Which cellular structure is primarily responsible for the synthesis and packaging of secretory products in exocrine glands?

A) Golgi apparatus, where secretory granules are formed and packaged

B) Rough endoplasmic reticulum (RER), which synthesizes secretory proteins

C) Smooth endoplasmic reticulum (SER), involved in lipid synthesis

D) Peroxisomes, responsible for detoxification reactions

E) Lysosomes, involved in intracellular digestion

25) In what specific cellular location do mucous cells store their secretory products before release?

A) Mitochondria

B) Basolateral cytoplasmic vesicles

C) Golgi apparatus

D) Endoplasmic reticulum

E) Apical cytoplasmic vesicles

26) Which organelle is most involved in the production of mucins, the main secretory product of mucous cells?

A) Ribosomes

B) Rough endoplasmic reticulum

C) Mitochondria

D) Golgi apparatus

E) Lysosomes

27) What is the primary function of the secretory granules present in mucous cells?

A) Storage of enzymes for intracellular digestion

B) Synthesis of hormones for systemic circulation

C) Packaging and secretion of mucins for extracellular use

D) Generation of ATP for cellular energy

E) Facilitation of cell division during mitosis

28) Which type of glandular secretion involves the accumulation of product at the cells' apical ends, followed by extrusion of portions of the cell to release the product?

A) Merocrine secretion

B) Apocrine secretion

C) Holocrine secretion

D) Serous secretion

E) Mucous secretion

29) What is the specific cellular mechanism by which holocrine secretion occurs in sebaceous glands?

A) Exocytosis of secretory vesicles containing sebum

B) Accumulation of sebum in apical cytoplasmic vacuoles

C) Extrusion of portions of the cell filled with sebum

D) Breakdown of the entire cell to release sebum

E) Fusion of multiple cells to form a sebum reservoir

30) What is the primary function of the stroma in glandular tissue?

A) Synthesizing secretory products

B) Providing structural support to the secretory cells

C) Regulating hormone secretion

D) Facilitating cellular communication

E) Transporting nutrients to the secretory cells

31) Which type of glandular secretion involves the release of product through exocytosis from membrane-bound vesicles or secretory granules?

A) Merocrine secretion

B) Apocrine secretion

C) Holocrine secretion

D) Serous secretion

E) Mucous secretion

32) In histological preparations, how would the staining characteristic be observed in secretory granules of serous cells?

A) Intense staining with basophilic or acidophilic stains

B) Faint staining with basophilic or acidophilic stains

C) No staining observed

D) Staining pattern similar to serous granules

E) Staining pattern resembling nuclear staining

33) Which class of glands do sweat glands belong to based on the presence of duct systems?

A) Compound Acinar glands

B) Coiled Tubular glands

C) Tubular glands

D) Branched Acinar glands

E) Tubloacinar glands

34) Which class of glands do Sebaceous glands of skin belong to based on the presence of duct systems?

A) Branched Acinar glands

B) Coiled Tubular glands

C) Tubular glands

D) Acinar glands

E) Tubloacinar glands

35) Which of the following examples of glands are considered Compound Tubular?

A) Exocrine pancreas glands

B) Submucosal muscous glands

C) Mucous glands

D) Glands of the Uterus and stomach

E) All of the above except A

36) Which class of glands are rounded and have a saclike secretory portion?

A) Compound Acinar glands

B) Coiled Tubular glands

C) Tubular glands

D) Acinar glands

E) Tubloacinar glands

37) Which of the following examples of glands have several long secretory parts joining to drain into one duct?

A) Exocrine pancreas glands

B) Submucosal muscous glands

C) Mucous glands

D) Glands in the Uterus and stomach

E) Salivary Glands

38) Which type of secretion depends on undergoing terminal differentiation in cells?

A) Mammary Secretion

B) Salivary Secretion

C) Sebaceous Secretion

D) Serous Secretion

E) Mucous Secretion

39) Which of the following examples of glands have several elongated coiled secretory units and their ducts converge to form lager ducts?

A) Exocrine pancreas glands

B) Submucosal muscous glands

C) Mucous glands

D) Glands of the Uterus and stomach

E) Salivary Glands

40) Which class of glands does crypts of Lieberkühn belong to based on the presence of duct systems?

A) Simple Tubular glands

B) Coiled Tubular glands

C) Compound Alveolar glands

D) Branched Tubular glands

E) Tubloacinar glands

41) Which class of glands have several saclike secretory units with small ducts that converge at larger duct?

A) Alveolar glands

B) Coiled Tubular glands

C) Branched Alveolar glands

D) Tubuloaclnar glands

E) Compound Alveolar glands

42) Which class of glands usually have a short or absent duct?

A) Branched Alveolar glands

B) Coiled Tubular glands

C) Simple Tubular glands

D) Alveolar glands

E) Tubuloaclnar glands

43) Which glands form hormones that are delivered by capillaries?

A) Apocrine glands

B) Merocrine glands

C) Endocrine glands

D) Exocrine glands

E) Seromucous glands

44) Which type of cells are only present in exocrine glands?

A) Myoepithelial Cells

B) Secretory Cells

C) Pancreatic Cells

D) None of the above

E) A+B

45) Which protein catalyzes the formation of colored product in Indirect Immunohistochemistry?

A) Labelled Secondary Antibody

B) HRPO

C) DAB

D) Primary Antibody

E) Apical Proteins

Answer Key

1) D
2) B
3) A
4) B
5) A
6) A
7) B
8) C
9) A
10) E
11) E
12) A
13) C
14) D
15) A
16) B
17) E
18) D
19) A
20) C
21) C
22) B
23) B
24) A
25) E
26) D
27) C
28) B
29) D
30) B
31) A
32) A
33) B
34) A
35) B
36) D
37) D
38) C
39) B
40) A
41) E
42) C
43) C
44) A
45) B