



# PATHOLOGY MCQS



## GENERAL PATHOLOGY- CHAPTER 1 ROBBINS 10TH EDITION QUESTIONS

**1. All of the following are part of functional non-protein coding sequences except?**

- A) Non-coding regulatory RNA
- B) Promoter and Enhancer regions
- C) Exons
- D) Centromere

**2. True statement about histone organization are all except?**

- A) Histone subunits are negatively charged
- B) Nucleosomes are comprised of octamers of histone proteins encircled by 1.8 147 bp DNA loops
- C) Euchromatin is transcriptionally active
- D) Histone acetylation opens up the chromatin

**3. True about CRISPR/Cas9 system?**

- A) High precision gene editing system
- B) Non-homologous end joining is better than homologous end joining to repair DNA breaks.
- C) Cas9 is a dual RNA guided DNA endonuclease enzyme.
- D) CRISPR stands for- Clustered regularly interspaced short palindromic repeats.

**4. Which of the following is not matched correctly?**

- A) Lysosome- Autophagy
- B) Endosomal vesicles- shuttle internalized materials outside the cell
- C) Proteasome- Degrades tagged proteins
- D) Peroxisomes- Breaks down very long chain fatty acids.

**5. Most abundant cytoskeletal protein, 5-9 nm in diameter is**

- A) Actin
- B) Myosin
- C) Desmin
- D) Laminin

**6. All are true regarding protein synthesis except?**

- A) Membrane bound ribosomes in the RER translate mRNA.
- B) Chaperones assist folding of proteins.
- C) From the RER, proteins and lipids destined for other organelles or extracellular export are shuttled into the Golgi apparatus
- D) O- linked oligosaccharides are converted into N- linked Oligosaccharides in golgi apparatus.

**7. All are true about receptors with tyrosine kinase activity except?**

- A) Downstream phosphorylation is a common pathway of signal transduction
- B) Changes in receptor geometry can stimulate intrinsic receptor protein kinase activity
- C) The cellular homologue of the transforming protein of the Rous sarcoma virus, called Src, is the prototype of this family.

**8. Which one is matched correctly?**

- A) EGFR- synonymous to ERB-B2
- B) Her-2-neu -ERB-B1
- C) TGF-beta- Inflammatory cytokine
- D) Hepatocyte growth factor- Scatter factor.



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**9. Which of the following is false about collagen ?**

- A) Collagen I, V and XI are heterotrimers
- B) Defects in collagen occur in marfan syndrome
- C) Helix formation occurs in the golgi apparatus
- D) Cross-linking occurs in the extracellular space

**10. Correctly matched with organ and stem cell niche are all except?**

- A) Intestine- crypts
- B) Eyes- limbus of cornea
- C) Brain- periventricular zones
- D) Bone marrow- Paratrabecular area

**11. Which is the true statement**

- A) Rb gene is the key regulator of G2M cell cycle transition.
- B) Rb is active in hypophosphorylated state
- C) MDM2 protein activates p53
- D) p53 activation leads to cell cycle progression



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## ANSWERS

### 1. C

There are five major classes of functional non-protein-coding sequences in the human genome

- a) Promoter and enhancer
- b) Noncoding regulatory RNAs
- c) Mobile genetic elements (e.g., transposons)
- d) telomeres
- e) centromeres

### 2. A

Histones are positively charged and DNA are negatively charged.

### 3. B

Homologous end joining is superior to Nonhomologous end joining.

### 4. B

Endosomal vesicles- shuttle internalized materials to other organelles inside the cell

### 5.A

Actin microfilaments are 5- to 9-nm diameter fibrils formed from the globular protein actin (G-actin), the most abundant cytosolic protein in cells. G-actin monomers noncovalently polymerize into long filaments (F-actin) that intertwine to form double stranded helices with a defined polarity

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### 6. D

N-linked oligosaccharides are pruned and extended in a stepwise fashion into O-linked oligosaccharides in the golgi . Some of this glycosylation is important in sorting molecules to lysosomes (via the mannose-6-phosphate receptor); other glycosylation adducts are important for cell-cell or cell-matrix interactions or for clearing senescent cells (e.g., platelets and erythrocytes).

### 7. C

Src (Rous sarcoma virus) is a prototype of non- receptor tyrosine kinase family.

### 8. D

erb-b1 is EGFR, erb-b2 is her2-! and TGF-beta is anti-inflammatory

### 9. B

Marfan syndrome is caused by defects in fibrillin

### 10. D

Bone marrow stem cell niche is in peri-sinusoidal region.

### 11. B

Rb is the regulator of G1/S phase, MDM2 protein inhibits p53 and p53 active leads to transient cell cycle arrest.

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