Cell Biology-BIO 2153, PART A, 1X30 marks

1) Cells that secrete large amounts of glycoproteins will contain large amounts of
a) Golgi apparatus
b) Mitochondria
c) Rough endoplasmic reticulum
d) All the above

2) Rough endoplasmic reticulum is so named because if its appearance of the outer surface, which is studded with
a) mitochondria
b) lysosomes
c) Golgi bodies
d) ribosomes

3) Which of the following is NOT a characteristic of an animal plasma membrane?
a) provides mechanical strength
b) responsible for the synthesis of ATP
c) provides mechanical shape
d) maintains cellular homeostasis

4) Faulty mitochondria will result in
a) Poor growth
b) Respiratory problems
c) Diabetes
d) All the above

5) Detection of colocalization can be done by
a) Biotin-avidin staining
b) Only primary antibodies
c) Fluorescence microscopy
d) Only secondary antibodies

6) Using confocal microscopy, we can
a) Have a 3D image
b) Have live cell imaging
c) Both a and b
d) None of the above

7) In eukaryotes gene expression can be controlled
a) only at transcriptional level
b) only at epigenetic level
c) at transcriptional and translational level
d) at transcriptional, epigenetic and translational level

8) DNA binding motifs bind to the
a) Outer groove of DNA helix

b) Inner grove of DNA helix
c) Minor groove of DNA helix
d) Major groove of DNA helix

9) Which of the following statements about the human genome is correct?
a) Introns are the sections of protein-coding genes that actually encode amino acid sequences.
b) All non-protein coding sequences in the genome are believed to be 'junk' DNA with no function.
c) The human genome is believed to contain approximately 50,000 protein coding genes.
d) None of the above

10) Epigenetic modification is
a) Addition of nucleosomes to DNA
b) Addition of reversible changes to histone proteins
c) Change in nucleotide sequence
d) All the above

11) Protein structure may be changed by
a) Changing exon sequences
b) Changing the enhancer sequences
c) Both a and b
d) None of the above

12) Eukaryotic promotors
a) may require binding of multiple transcription factors to form a complex
b) have DNA sequences such as the ‘TATA’ box that are recognized by proteins
c) are DNA sequences to which RNA polymerases bind
d) all the above

13) Ligands of cell-surface receptors do not enter the cells. This happens because
a) Ligands are neutral
b) Ligands are hydrophobic
c) Ligands are hydrophilic
d) None of the above

14) Signaling between cells generally result in activation of
a) Ligases
b) Phosphatases
c) Kinases
d) Proteases

15) Secretion of hormones is an example of
a) Endocrine signaling
b) Paracrine signaling
c) Contact dependent signaling
d) Autocrine signaling

16) Addition of glycosyl group is done by
a) Golgi bodies
b) Nucleus
c) Peroxisome
d) None of the above

17) Which of the following is NOT a typical cell signaling event?
a) Production of second messenger cAMP
b) Activation of G-protein
c) Protein kinase activation
d) Initiation of apoptosis

18) Compared to paracrine signals, endocrine signals are slower because
a) of improper binding of ligands to carrier proteins
b) of quick ligand degradation
c) the ligands have to travel greater distance through blood stream
d) the target and signaling cells are close to each other

19) Few cells were analyzed for DNA content following mitosis and it was found that they have 10 picograms of DNA per nucleus. At the end of S and G2 phase how many picograms will be found?
a) 10, 10
b) 10, 20
c) 20, 10
d) 20, 20

20) Which among the following is a housekeeping gene
a) Ras
b) p53
c) Beta actin
d) GPCR

21) Which of the following attaches mainly to the chromosomes:
a) Astral microtubules
b) Kinetochore microtubules
c) Interpolar microtubules
d) None of the above

22) Histone not involved in the octamer formation is
a) H1
b) H2A
c) H2B
d) H4

23) Relationship between early p53 mutation and development of cancer is

a) mutant p53 initiates M phase of cell cycle leading to faulty cell division
b) p53 leads a cell to enter G0, thus blocking cell division
c) mutant p53 directly stimulates the growth of cancer cells
d) p53 mutations prevent abnormal cells from undergoing apoptosis.

24) Sequence of cell cycle phases in eukaryotes is
a) G1 to S to G2 to M
b) G2 to S to G1 to M
c) M to S to G1 to G2
d) S to M to G1 to G2

25) Cell specialization process is called
a) Cryopreservation
b) Proliferation
c) Differentiation
d) Complementation

26) Tissue of an unrelated individual is
a) Allogenic
b) Autologous
c) Syngenic
d) None of the above

27) Stem cells
a) can give rise to specialized cells
b) can self-renew
c) Both a and b
d) are specialized cells

28) Totipotent stem cells can give rise to
a) any of the approximately 200 cell types found in embryo as well as extra-embryonic cells.
b) only limited number of cells
c) only cells of neural lineage
d) None of the above

29) Commitment to be a myoblast depends on
a) Pax 3
b) Pax 7
c) Myo D
d) All the above

30) If a muscle is damaged the following cells initiates the repair
a) Satellite cells
b) Hematopoietic cells
c) Transit amplifying cells
d) Progenitor cells