SSR DEGREE COLLEGE (AUTONOMOUS) NIZAMABAD
SEM – I INTERNAL – II
CELL BIOLOGY
INTERNAL QUESTION BANK

CHOOSE THE CORRECT ANSWERS

1. Autocrine signaling is best described as
A. Signaling between distant organs
B. Signaling between neighboring cells
C. Cell responding to its own secreted signal
D. Signaling through blood circulation
✓ Correct Answer: C

2. Which type of signaling is commonly seen in cancer cells?
A. Endocrine
B. Paracrine
C. Autocrine
D. Synaptic
✓ Correct Answer: C

3. Paracrine signaling differs from endocrine signaling because it
A. Uses hormones
B. Acts over long distances
C. Acts on nearby target cells
D. Uses blood as a medium
✓ Correct Answer: C

4. Which molecule is commonly involved in paracrine signaling?
A. Insulin
B. Growth factors
C. Thyroxine
D. Adrenaline
✓ Correct Answer: B

5. Endocrine signaling involves
A. Local diffusion of signals
B. Direct cell contact
C. Hormones released into bloodstream
D. Signaling within the same cell
✓ Correct Answer: C

6. Which hormone is an example of endocrine signaling?

A. Nitric oxide
B. Cytokines
C. Insulin
D. Neurotransmitters
✓ Correct Answer: C

Mechanism of Hormone Action
7. Steroid hormones are
A. Water-soluble
B. Protein in nature
C. Lipid-soluble
D. Stored in vesicles
✓ Correct Answer: C

8. Steroid hormones exert their action by
A. Binding to membrane receptors
B. Activating second messengers
C. Binding to intracellular receptors
D. Opening ion channels
✓ Correct Answer: C

9. The hormone-receptor complex of steroid hormones acts as
A. Enzyme
B. Transport protein
C. Transcription factor
D. Second messenger
✓ Correct Answer: C

10. Protein hormones bind to receptors located on
A. Nucleus
B. Cytoplasm
C. Cell membrane
D. Mitochondria
✓ Correct Answer: C

11. Protein hormones act through
A. Direct gene activation
B. Second messenger systems
C. DNA binding
D. Chromosome condensation
✓ Correct Answer: B

12. cAMP is an example of
A. Hormone

B. Enzyme
C. Receptor
D. Second messenger
✓ Correct Answer: D

13. Amino acid–derived hormones include
A. Insulin
B. Estrogen
C. Thyroxine
D. Progesterone
✓ Correct Answer: C

14. Thyroid hormones differ from other amino acid–derived hormones because they
A. Are water soluble
B. Bind membrane receptors
C. Are lipid soluble
D. Act only locally
✓ Correct Answer: C

15. The cell cycle in eukaryotes consists of
A. G1, S, G2 and M phases
B. G0, G1 and M only
C. Binary fission
D. Sporulation
✓ Correct Answer: A

16. DNA replication occurs during
A. G1 phase
B. G2 phase
C. S phase
D. M phase
✓ Correct Answer: C

17. Mitosis occurs during
A. Interphase
B. S phase
C. G1 phase
D. M phase
✓ Correct Answer: D

18. Prokaryotic cell cycle mainly includes
A. G1, S and G2
B. Meiosis

C. Binary fission
D. Mitosis
✓ Correct Answer: C

19. Prokaryotes lack a true cell cycle because they
A. Have no DNA
B. Have no nucleus
C. Do not divide
D. Do not synthesize proteins
✓ Correct Answer: B

20. Which phase is absent in prokaryotic cell cycle?
A. DNA replication
B. Cell elongation
C. Cytokinesis
D. G1, S and G2 phases
✓ Correct Answer: D

FILL IN THE BLANKS

1. Actin filaments are also known as _____ filaments.
Answer: Microfilaments

2. Actin filaments are mainly involved in _____ and cell motility.
Answer: Muscle contraction

3. The protein subunits of actin filaments are called _____.
Answer: Actin (G-actin)

4. Intermediate filaments provide _____ strength to the cell.
Answer: Mechanical

5. Keratin is an example of _____ filaments.
Answer: Intermediate

6. Microtubules are composed of the protein _____.
Answer: Tubulin

7. Microtubules play an important role in the formation of the _____ spindle.
Answer: Mitotic

8. Cilia and flagella are mainly composed of _____.
Answer: Microtubules

9. Tight junctions prevent the _____ movement of substances between cells.
Answer: Paracellular

10. The main function of gap junctions is _____ communication between cells.
Answer: Direct

11. Gap junctions are formed by protein complexes called _____.
Answer: Connexons

12. Desmosomes provide _____ between adjacent cells.
Answer: Strong adhesion

13. Desmosomes are especially abundant in _____ tissues.
Answer: Epithelial

14. Cell adhesion molecules (CAMs) are located on the _____ membrane.
Answer: Cell (plasma)

15. Cadherins are a type of CAM that require _____ ions for their function.
Answer: Calcium

16. Mitosis results in the formation of _____ daughter cells.
Answer: Two identical

17. Crossing over occurs during the _____ phase of meiosis.
Answer: Prophase I

18. Meiosis produces cells that are _____ in chromosome number.
Answer: Haploid

19. Separation of sister chromatids occurs during _____ of mitosis.
Answer: Anaphase

20. Synapsis of homologous chromosomes is a characteristic feature of _____.
Answer: Meiosis I

LONG QUESTION AND ANSWERS

1) Define Cell signalling and write about Autocrine, paracrine, and endocrine signalling process?

2) Describe about tight junctions and Gap junctions with neat labelled diagrams?

3) write about phases of cell cycle in prokaryotes and eukaryotes?

4) Define Mitosis and explain the stages of mitosis?

5) write about the significance of mitosis and meiosis?