

BIOLOGY

THE COPPERBELT UNIVERSITY-SCHOOL OF MEDICINE

PREMED-MBI 110

TUTORIAL SHEET ONE

A. CELL THEORY

1. What do you understand by the term cell theory?
2. There two corresponding basic types of cells, namely prokaryotic cells and eukaryotic cells.
 - i. Define each cell type
 - ii. Outline their structural similarities and differences
3. Draw and label the structure of a prokaryotic cell
4. Give two examples of gram positive bacteria and gram negative bacteria
5. Draw and label the structure of a nucleus
6. What role do the following play in a eukaryotic cell structure?
 - i. Rough and smooth endoplasmic reticulum
 - ii. Golgi Bodies
7. State the organelle which
 - i. carries out aerobic respiration
 - ii. is the site of protein synthesis
 - iii. contains hydrolytic enzymes
8. How are ribosomes and endoplasmic reticulum linked?
9. Describe the function and structure of the mitochondrion
10. Outline the major structural differences between a plant cell and an animal cell
11. State the difference in composition of a plant cell wall and a fungi cell wall.
12. What do you understand by plasmodesmata?

B.CELL DIVISION

13. Define the following terms;

- i. Mitosis
- ii. Meiosis
- iii. Diploid cell
- iv. Haploid cell

14. Which of the following cells would be haploid and which ones diploid?

- i. White blood cell
- ii. Male cell in a pollen grain
- iii. Guard cell
- iv. Root hair cell
- v. Ovum
- vi. Skin cell
- vii. sperm

15. Define an acrocentric chromosome, metacentric chromosome and telocentric chromosome.

16. Describe the structural composition of the chromosomes

17. Draw a labeled structure of the chromosome

18. State the significance of mitosis and meiosis

19. Describe the main stages of the cell cycle

20. Describe the three stages of interphase

21. Illustrate the process of mitosis and meiosis

22. Describe cytokinesis in plant and animal cell

23. Differentiate between prophase of mitosis and prophase I of meiosis.

24. Differentiate between anaphase of mitosis and anaphase I of meiosis.

25. Describe spindle formation

26. Describe how meiosis will cause variation in the would be offspring.

27. Where in the human body would you expect meiosis to be taking place?

- i. a human male
- ii. a human female
- iii. a flowering plant