

BOWEN UNIVERSITY, IWO
DEPARTMENT OF BIOLOGICAL SCIENCES
2011/2012 SECOND SEMESTER EXAMINATION

BLY 120: INTRODUCTORY CELL BIOLOGY

INSTRUCTION: Answer ALL questions.

Time: 1hr 30 mins

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Department _____ Programme _____

SECTION A

1. What is a microscope? _____

2. Light microscope uses _____ to make an enlarged image while electron microscope uses _____
3. _____ and _____ are used for bringing objects into focus either by moving the stage or the nose piece
4. _____, _____ and _____ are the three lens system
5. Plant and animal cells have at least three structures in common; these are _____, _____ and _____
6. Plant and animal cells store carbohydrates as _____ and _____, respectively.
7. Plant cells has three types of plastids; _____, _____ and _____
8. The cell wall has pores containing fine threads known as _____
9. A membrane that permits the free passage of some materials and not others is called _____
10. The plasma membrane is made up of a _____ sandwich between two layers of proteins.
11. The inner membrane of a mitochondrion has _____ that project into the _____ of the mitochondrion
12. _____ is called the power house of the cell
13. The difference between rough and smooth endoplasmic reticulum is _____
14. _____ and _____ are plastids containing pigments.
15. Ribosomes are the site of _____

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16. Centrioles are involved in _____
17. The largest organelle in the eukaryotic cell is the _____
18. Plasmolysis is _____
-
19. If the image of a plant cell of $150\mu\text{m}$ in diameter is enlarged by a microscope 2000 times, what will be the size of the image?
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SECTION B

Instruction: Circle the correct answer

1. How many daughter cells are produced from meiosis and mitosis?
(a) 4, 2 (b) 2, 2 (c) 1, 2 (d) 2, 4 (e) 1, 1
2. How many pairs of chromosomes does a normal human cell have?
(a) 13 (b) 23 (c) 26 (d) 46 (e) 52
3. Chromatids that are attached at the centromere are called
(a) mother (b) daughter (c) sister
(d) programmed (e) either mother or daughter
4. During which stage of the mitotic cell cycle is DNA replicated
(a) prophase (b) metaphase (c) interphase
(d) Telophase (e) cytokinesis
5. During which stage of mitosis do nucleoli reappear?
(a) Telophase (b) Anaphase (c) Prophase
(d) Metaphase (e) None of the above
6. During which state of meiosis do homologous chromosomes separate?
(a) Prophase (b) Telophase (c) Metaphase
(d) Anaphase I (e) Anaphase II
7. During which stage of meiosis do chromatids separate completely?
(a) Anaphase I (b) Anaphase II (c) Metaphase I
(d) Metaphase II (e) Telophase I
8. The phase of meiosis in which homologous chromosomes line up along the equator of the cell is
(a) Anaphase I (b) Metaphase II (c) Prophase
(d) Prophase II (e) Metaphase I
9. Which of the following events occur **only** in meiosis?
(a) Chromatids formation (b) Chromosome condensation
(b) Chromosome movement to poles
(d) Homologous chromosomes pairing (e) None of the above

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10. Meiosis II is **similar** to mitosis because
- (a) sister chromatids separate
 - (b) homologous chromosomes separate
 - (c) DNA replication precedes the division
 - (d) they both have the same amount of time

Use the following information to answer questions 11 – 15.

A cell contains 8 pairs of chromosomes. How many chromatids are present in a cell during;

11. Prophase of mitosis? _____
12. Telophase of mitosis? _____
13. Metaphase I of meiosis? _____
14. Prophase II of meiosis? _____
15. Telophase II of meiosis? _____

Answer True or False for Questions 16 – 19

16. Meiosis is a reduction division.
17. Meiosis results in producing genetically identical cells.
18. In prophase, the nuclear membrane disappears.
19. Cytokinesis is a part of mitosis.
20. What is the main **difference** between anaphase I in meiosis and anaphase in mitosis?

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SECTION C

1. Mendel's first law of inheritance states that _____

(3 Mark)
2. _____ is the basic unit of inheritance for a given characteristic
(1 Mark)
3. _____ is the position of an allele within a DNA molecule
(1 Mark)
4. Using appropriate example explain the term test cross _____
(4 Marks)
5. When two allele at a given locus are the same, the condition is known as Heterozygote. True/False. (1 Mark)
6. An inheritance pattern involving a single character is known as _____
(1 Mark)
7. Characteristics of an organism are determined by internal factors which remains discrete and are passed from parent to subsequent generation as discrete unit. True/False (1Mark)
8. What is a dominant condition? _____

(2 Marks)
9. The physical expression of the allelic composition for a given character is known as _____ while the allelic composition is known as _____
(2 Marks)
10. The units of inheritance are borne on which structure in the cell _____
(1 Mark)
11. State the principle of independent Assortment _____

(3 Marks)