## Multiple-Choice Questions:

1. **Prokaryotes reproduction** by **binary fission include all** of the following **steps except**:
   a) Chromosome duplication.
   b) Separation of copies from each other.
   c) Cell elongates.
   d) A cell plate forms in the middle to separate the daughter cells.
   e) Two identical cells arise from one cell.

2. Types of **asexual reproduction** found **in bacteria** is---------.
   a) sporulation
   b) gemmule
   c) binary fission
   d) budding
   e) formation

3. **Chromatin is a combination** of---------- and----------molecules.
   a) DNA - protein
   b) RNA - enzyme
   c) carbohydrates - protein
   d) DNA – ATP
   e) ATP - lipid

4. **Asexual reproduction requires**---------- **individual**(s).
   a) 0
   b) 1
   c) 3
   d) 4
   e) 2

5. **Two sister chromatids** are **joined together** tightly at the----------, narrow regions.
   a) nuclear envelope
   b) spindle
   c) microtubule
   d) nucleolus
   e) centromere

6. Which of the following are **eukaryotic somatic cell nuclear division mechanisms**?
   a) mitosis
   b) gene splicing
   c) binary fission
   d) meiosis
   e) budding

7. The **longest part of the cell cycle** is---------.
   a) G1 phase
   b) G2 phase
   c) prophase
   d) mitosis
   e) interphase

8. **Cytokinesis in plant cells** is accomplished by----------.
   a) binary fission
   b) cell plate formation
   c) cleavage furrow
   d) membrane fusion
   e) cleavage ring

9. **Cytokinesis is the division of**----------.
   a) nucleus
   b) nucleolus
   c) cytosol
   d) cytoplasm
   e) duplicated chromosome

10. **Body cell** is called----------.
   a) nerve cell
   b) somatic cell
   c) autosome cell
   d) sex cell
   e) tissue cell

11. What are the **correct order** for the **3 stages of cell cycle**:
   a) S,G1,G2
   b) S, G2, G1
   c) G1, G2, S
   d) G1, S, G2
   e) There is no certain order

12. The **correct sequence** of the **stages of mitosis** is:
   a) Prophase, anaphase, metaphase, prometaphase, telophase.
   b) Prophase, prometaphase, metaphase, anaphase, telophase.
   c) Metaphase, anaphase, telophase, prometaphase, prophase.
   d) Metaphase, prometaphase, prophase, anaphase, telophase.
   e) Telophase, anaphase, prometaphase, metaphase, prophase.

13. **Mendel** showed that parents pass **heritable factors** to offspring, these factors **are now called**----------.
   a) chromosomes
   b) DNA
   c) genes
   d) RNA
   e) chromatids

14. ---------- **discovered principles of genetics** in experiments with the garden **pea**.
   a) Hippocrates
   b) Aristotle
   c) Gregor Mendel
   d) Darwin
   e) William Bateson

15. It was proposed by **Hippocrates** that **particles** called---------- came from all part of the organism to be incorporated into eggs or sperm.
    a) germ cells
    b) genes
    c) histones
    d) alleles
    e) pangenes

16. For each **character**, an **organisms inherits two**----------, one from each parent.
    a) alleles
    b) genes
    c) traits
    d) DNA
    e) chromosomes

17. The **ovum (egg)** produced by a **human female** is---------- **type**.
    a) 22 + X
    b) 23 + Y
    c) 22 + Y
    d) 44 + XX
    e) 44 + XY

18. The **sex chromosome** in a normal **human female** is:
    a) XO
    b) XY
    c) YO
    d) XX
    e) YY

19. What **ratio** resulted from **monohybrid crosses**:
    a) 9:3:3:1
    b) 1:2:1
    c) 3:1
    d) 1:1
    e) 1:1:1:1

20. In **birds and butterflies sex** is determined by:
    a) X –Y system
    b) Z – W system
    c) X –O system
    d) Size of the six chromosomes
    e) Number of chromosomes.

21. An **individual who has two of the same allele** is said to be ----------.
    a) homozygous
    b) heterozygous
    c) homologous
    d) heterologous
    e) diplozygous

22. The **somatic cells** in **human male** have **chromosomes** of the **type**----------.
a) 22 + X
b) 22 + Y
c) 44 +XX
d) 44 + XY
e) 23 + Y

23. In **Mendel's F2 generation**, **one out of four plants had white flowers** because----------.
a) the trait is sex-linked
b) one parents was homozygous recessive
c) one parents was heterozygous purple
d) both parents were heterozygous white
e) both parents were heterozygous purple

24. **mRNA** is **produced in the process called**----------.
a) respiration
b) transcription
c) translation
d) transpiration
e) replication

25. **Nucleosomes** are formed when **DNA is wrapped around**---------- **proteins**.
a) chromatin
b) histone
c) proteasome
d) nucleosome
e) none of the above

26. ---------- is a **change** in the **nucleotide sequence of DNA**.
a) Transcription
b) Translation
c) Mutation
d) Gene expression
e) Modification

27. **Translation** of **mRNA produces** a----------.
a) DNA
b) RNA
c) proteins
d) glycogen
e) lipid

28. **Each amino acid** in a protein synthesis is **specified by**----------.
a) several genes
b) a promoter
c) tRNA molecule
d) a codon
e) exon