

## CELL - THE UNIT OF LIFE

CELL CYCLE AND CELL DIVISION	
1. The main organelle involved in modification and routing of newly synthesized proteins to their destinations is: (a) Mitochondria (b) Endoplasmic reticulum (c) Lysosome (d) Chloroplast	7. Mesosome in a bacterial cell is: (a) Plasmid (b) Connection between two cells (c) Plasma membrane infolds for respiration (d) None of these
2. Chlorophyll in chloroplasts is located in: (a) Grana (b) Pyrenoid (c) Stroma (d) Both grana and stroma	8. Cell theory was given by: (a) Robert Hooke (b) Robert Brown (c) Schleiden and Schwann (d) Messelson and Stahl
3. Centromere is required for (a) Transcription (b) Crossing over (c) Cytoplasmic cleave (d) Movement of chromosomes towards poles	9. Ribosome: (a) Consists of a large and two small subunits (b) Contains identical components in prokaryote and eukaryote (c) Is the site of only RNA replication (d) Has two or three sites for t-RNAs
4. Which of the following is the simplest amino acids? (a) Alanine (b) Asparagine (c) Glycine (d) Tyrosine	10. Prokaryotic cells do not have: (a) Nucleolus (b) Centrioles (c) Membrane – bound organelles (d) All of these
5. Plasmolysis will occur when the cell is placed in _____ solution. (a) Hypotonic (b) Hypertonic (c) Isotonic (d) Hypotonic and isotonic	11. In which of the following solutions, volume of a cell increases? (a) Supertonic (b) Isotonic (c) Hypotonic (d) Hypertonic
6. Which of the following statements is not true with reference to mitochondria? (a) They divide in synchrony with cell cycle (b) They contain DNA (c) They store and release chemical energy (d) They contain cristae	12. Lysosomes contain: (a) Lytic enzymes (b) Hydrolytic enzymes (c) Hormone (d) Useful material
	13. The core metal of chlorophyll is: (a) Fe (b) Gu (c) Ni (d) Mg

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 (c) Ni                                  (d) Mg

14. Cell membrane is:  
(a) Semipermeable  
(b) Permeable  
(c) Selectively permeable  
(d) Impermeable
15. The organelle associated with aerobic respiration is:  
(a) Nucleus (b) Centriole  
(c) Chloroplast (d) Mitochondria
16. Amyloplasts are particles storing:  
(a) Starch (b) Proteins  
(c) Fats (d) All of these
17. r-RNA is synthesized by:  
(a) Nucleus  
(b) Nucleolus  
(c) Cytoplasm  
(d) Endoplasmic reticulum
18. Golgi body is associated with:  
(a) Packing and storage of material  
(b) Cell plate formation  
(c) Secretion of different substances  
(d) All of the above
19. The bacterial cell wall is made up of:  
(a) Cellulose  
(b) Hemicellulose  
(c) Cellulose and hemicellulose  
(d) Peptidoglycan  
(e) Glycogen
20. Cristae are associated with:  
(a) Endoplasmic reticulum  
(b) Mitochondria  
(c) Cytoplasm  
(d) Protoplasm
21. Site of protein synthesis is:  
(a) Ribosome (b) SER  
(c) Golgi body (d) Lysosome
22. The mineral present in the cell wall is:  
(a) Na (b) Ca  
(c) K (d) Mg
23. The cell theory was proposed by:  
(a) Virchow  
(b) Schleiden and Schwann  
(c) Robert Hooke  
(d) B. McClintock
24. In bacteria, cell wall is formed of:  
(a) Chitin (b) Murein  
(c) Pectin (d) Cellulose
25. Site of gluconeogenesis is:  
(a) Mitochondria (b) Golgi bodies  
(c) Glyoxisomes (d) None of these
26. At what stage of cell cycle are histone proteins synthesized in a eukaryotic cell?  
(a) During entire prophase  
(b) During telophase  
(c) During S-phase  
(d) During G<sub>2</sub>-phase
27. Synthesis of RNA and proteins takes place in:  
(a) M-phase (b) S-phase  
(c) G<sub>1</sub>-phase (d) G<sub>1</sub> and G<sub>2</sub>-phases
28. During the meiotic division, the:  
(a) Homologous chromosomes are separated  
(b) Homologous chromosomes do not segregate  
(c) The linkage is disturbed  
(d) All of the above
29. If a cell has twice as much DNA as in a normal functional cell, it means that the cell:  
(a) Is preparing to divide  
(b) Has completed division  
(c) Has reached the end of life span  
(d) Has ceased to function

30. Astral rays arise from:  
 (a) Centriole (b) Cytoplasm  
 (c) Chromatid (d) Centromere
31. Meiotic division is also called reductional division because:  
 (a) A gamete becomes involved  
 (b) Number of chromosomes becomes halved  
 (c) Number of chromosomes becomes doubled  
 (d) Chromosomes are eliminated
32. The drug colchicines has inhibitory effect on cell cycle in which stage?  
 (a) G<sub>1</sub> (b) S  
 (c) M (d) G<sub>2</sub>
33. In cell cycle, DNA replication occurs during:  
 (a) G<sub>1</sub> phase (b) G<sub>2</sub> phase  
 (c) Metaphase (d) Anaphase  
 (e) S-phase
34. Replication of centriole occurs during:  
 (a) Interphase (b) Prophase  
 (c) Early telophase (d) Late telophase
35. Characteristic of meiosis is:  
 (a) Two nuclear and two chromosome divisions  
 (b) Two nucleus and one chromosome division  
 (c) One nuclear and two chromosome divisions  
 (d) One nuclear and one chromosome divisions
36. The number of mitotic cell divisions required to produce 256 cells from single cell would be:  
 (a) 10 (b) 12  
 (c) 6 (d) 8
37. In meiosis, chromosome number becomes:  
 (a) Half of its parent chromosome number  
 (b) Same as that of parent chromosome number  
 (c) One fourth of its parent chromosome number  
 (d) None of the above
38. Sudden and abnormal mitosis in an organ will frequently lead to:  
 (a) Zygote (b) Cancer  
 (c) New organ (d) Gastrula
39. In meiosis, synapsis occurs during:  
 (a) Interphase (b) Prophase  
 (c) S-phase (d) Leptotene
40. Cell division of bacteria is of:  
 (a) Mitotic (b) Meiotic  
 (c) Amitotic (d) None of these
41. Which of the following organelles is common to plants and animals?  
 (a) Chloroplast (b) Centriole  
 (c) Mitochondria (d) Cell wall
42. Spindle fibres are made up of:  
 (a) Tubulin  
 (b) Humulin  
 (c) Intermeidate filament  
 (d) Flagellin
43. Synapsis occurs between:  
 (a) A male and a female gamete  
 (b) mRNA and ribosomes  
 (c) Spindle fibres and centromere  
 (d) Two homologous chromosomes
44. Polyploidy can be induced artificially by:  
 (a) Colchicine  
 (b) Inbreeding  
 (c) Line breeding  
 (d) Self pollination

45. Recombination is involved in the process is:
- (a) Cytokinesis
  - (b) Spindle formation
  - (c) Crossing over
  - (d) Chromosomes duplication
46. Chromosomes are arranged along the equator during:
- (a) Prophase
  - (b) Metaphase
  - (c) Anaphase
  - (d) Telophase
47. Amitosis is shown by:
- (a) Bacteria
  - (b) Euglena
  - (c) Syllis
  - (d) Hydra
48. Crossing over may result in:
- (a) Addition of genetic material
  - (b) Deletion of genetic material
  - (c) Exchange of genetic material
  - (d) All of these
49. Which phase comes in between  $G_1$  and  $G_2$  phases of cell cycle?
- (a) M-Phase
  - (b)  $G_0$ -phase
  - (c) S-phase
  - (d) Interphase
50. Chiasmata formation takes place during:
- (a) Prophase - I
  - (b) Metaphase - I
  - (c) Anaphase - I
  - (d) Telophase - I

**ANSWERS KEY**

<b>1</b>	<b>B</b>	<b>11</b>	<b>C</b>	<b>21</b>	<b>C</b>	<b>31</b>	<b>B</b>	<b>41</b>	<b>C</b>
<b>2</b>	<b>A</b>	<b>12</b>	<b>D</b>	<b>22</b>	<b>B</b>	<b>32</b>	<b>C</b>	<b>42</b>	<b>A</b>
<b>3</b>	<b>D</b>	<b>13</b>	<b>C</b>	<b>23</b>	<b>B</b>	<b>33</b>	<b>E</b>	<b>43</b>	<b>D</b>
<b>4</b>	<b>C</b>	<b>14</b>	<b>D</b>	<b>24</b>	<b>B</b>	<b>34</b>	<b>A</b>	<b>44</b>	<b>A</b>
<b>5</b>	<b>B</b>	<b>15</b>	<b>A</b>	<b>25</b>	<b>C</b>	<b>35</b>	<b>B</b>	<b>45</b>	<b>C</b>
<b>6</b>	<b>A</b>	<b>16</b>	<b>B</b>	<b>26</b>	<b>C</b>	<b>36</b>	<b>D</b>	<b>46</b>	<b>B</b>
<b>7</b>	<b>C</b>	<b>17</b>	<b>D</b>	<b>27</b>	<b>D</b>	<b>37</b>	<b>A</b>	<b>47</b>	<b>A</b>
<b>8</b>	<b>C</b>	<b>18</b>	<b>D</b>	<b>28</b>	<b>A</b>	<b>38</b>	<b>B</b>	<b>48</b>	<b>C</b>
<b>9</b>	<b>D</b>	<b>19</b>	<b>B</b>	<b>29</b>	<b>A</b>	<b>39</b>	<b>B</b>	<b>49</b>	<b>C</b>
<b>10</b>	<b>D</b>	<b>20</b>	<b>A</b>	<b>30</b>	<b>A</b>	<b>40</b>	<b>C</b>	<b>50</b>	<b>A</b>