FIRST YEAR HIGHER SECONDARY PRE MODEL EXAMINATION

Part – III

BIOLOGY

PART –A BOTANY

FYCBTA22/6 **KEY** **Maximum score: 30**

Q.No.	PART–I	Split score	Total score
1	(b) S phase	**1**	**1**
2	Equational division	**1**	**1**
3	Kinetochore	**1**	**1**
4	Pairing of homologous chromosomes	**1**	**1**
5	*(b) Metaphase*	**1**	**1**
6	Recombinase	**1**	**1**
7	Cytokinesis		
8	Anaphase	**1**	**1**
9	The stage between the two meiotic divisions is called interkinesis and is generally short lived.	**1**	
10	24 hour	**1**	**1**
	PART II		
11	(A) G_2 phase – *(4) Protein synthesis* (B) S phase – *(3) Centriole duplicates* (C) Interphase – *(2) Resting phase* (D) G_0 phase – *(1) Inactive stage*	½ ½ ½ ½	**2**
12	A- Metaphase B- Anaphase	**1** **1**	**2**
13	Leptotene, Zygotene, Diplotene, Diakinesis	**½ x 4**	**2**
14.	Prophase, Metaphase, Anaphase, Telophase	**½ x 4**	**2**
15.	- Mitosis results in the production of diploid daughter cells with identical genetic complement. - The growth of multicellular organisms is due to mitosis. - To restore the nucleo-cytoplasmic ratio. - Cell repair [Any 2]	**1 x 2**	**2**
16.	(a) A- G_1, B-S, C-G_2 (b) G_0 stage	**½ x 4**	**2**
17.	In some organisms karyokinesis is not followed by cytokinesis as a result of which multinucleate condition arises leading to the formation of syncytium	**2**	**2**
18.	(a) The complex formed by a pair of synapsed homologous chromosomes is called a bivalent. (b) Sites of crossovers or X-shaped structures are called chiasmata.	**1** **1**	
19.	(a) 16 (b) 2C increases to 4C / DNA doubles [Any 1]	**1** **1**	**2**
20	-Chromosomal material condenses to form compact mitotic chromosomes. -Centrosomes begin to move towards opposite poles of the cell. -Each centrosome radiates out microtubules called asters. -The two asters together with spindle fibres form mitotic apparatus. -Golgi complexes, endoplasmic reticulum, nucleolus and the nuclear envelop etc disappear [Any 2]	**1** **1**	**2**

<table>
<tr><td></td><td>PART III</td><td></td><td></td></tr>
<tr><td>21</td><td>-Meiosis is the mechanism by which conservation of specific chromosome number of each species is achieved across generations in sexually reproducing organisms.
-It results in reduction of chromosome number by half.
-It also increases the genetic variability in the population of organisms from one generation to the next.
-Variations are very important for the process of evolution. [Any 3]</td><td>1

1

1</td><td>3</td></tr>
<tr><td>22</td><td>(a) Telophase
(b) -Chromosomes cluster at opposite spindle poles and their identity is lost as discrete elements.
-Nuclear envelope develops around the chromosome clusters at each pole forming two daughter nuclei.
-Nucleolus, golgi complex and ER reform. [Any 2]</td><td>1

1

1</td><td>3</td></tr>
<tr><td>23</td><td>-In an animal cell, cytokinesis is achieved by the appearance of a furrow in the plasma membrane. -The furrow gradually deepens and ultimately joins in the centre dividing the cell cytoplasm into two.
-In plant cells, wall formation starts in the centre of the cell and grows outward to meet the existing lateral walls.
-The formation of the new cell wall begins with the formation of a simple precursor, called the cell-plate that represents the middle lamella between the walls of two adjacent cells.</td><td>1½

1½</td><td>3</td></tr>
<tr><td>24</td><td>During anaphase of mitosis centromeres split and chromatids separate and move to opposite poles
During anaphase I of meiosis the homologous chromosomes separate, while sister chromatids remain associated at their centromeres.</td><td>1½

1½</td><td>3</td></tr>
<tr><td>25</td><td><table><tr><td></td><td>Stages</td></tr><tr><td>(a)</td><td>Zygotene</td></tr><tr><td>(b)</td><td>Leptotene</td></tr><tr><td>(c)</td><td>Pachytene</td></tr><tr><td>(d)</td><td>Diplotene</td></tr><tr><td>(e)</td><td>Diakinesis</td></tr><tr><td>(f)</td><td>Metaphase</td></tr></table></td><td>½
½
½
½
½
½</td><td>3</td></tr>
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