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SSC-I NATIONAL BOOK FOUNDATION FBISE

BIOLOGY TEST - CHAPTER 4: CELL CYCLE

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. The cell that divides during cell division is called the:	zygote	gamete	parent cell	daughter cell	○○●○
2. The new cells formed as a result of cell division are called:	sister cells	germ cells	daughter cells	parent cells	○○●○
3. According to the cell theory, new cells originate from:	pre-existing cells	mineral salts	spontaneous generation	non-living matter	●○○○
4. The two main phases of the cell cycle are:	S phase and G0	G1 and G2	prophase and telophase	interphase and mitotic phase	○○○●
5. Interphase is divided into:	G0, M and S	prophase, S and G2	G1, M and G2	G1, S and G2	○○○●
6. In G1, G2 the letter G stands for:	Gap	Gene	Germ	Growth	●○○○
7. The phase in which a newly formed cell grows and increases its organelles is:	G1 phase	S phase	M phase	G2 phase	●○○○
8. Enzymes and nucleotides needed for DNA replication are formed during:	G2 phase	M phase	G1 phase	G0 phase	○○●○
9. DNA replication takes place in the:	S phase	G2 phase	M phase	G1 phase	●○○○
10. Each chromosome has two chromatids after:	G1 phase	telophase	S phase	cytokinesis	○○●○
11. Two chromatids joined at one centromere are called:	non-sister chromatids	sister chromatids	bivalents	homologues	○●○○
12. Proteins needed for spindle fibre formation are made during:	G0 phase	G2 phase	G1 phase	S phase	○●○○
13. Additional mitochondria are formed and energy is stored during:	G1 phase	telophase	G2 phase	S phase	○○●○
14. A cell that exits the cell cycle and stops dividing enters:	G2 phase	M phase	G0 phase	S phase	○○●○

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Questions	A	B	C	D	A B C D
15. Which cells, once mature, never divide again and remain in G0?	Neurons	Epithelial cells	Kidney cells	Liver cells	●○○○
16. Liver and kidney cells enter G0:	only in S phase	permanently	never	temporarily	○○○●
17. Many epithelial cells divide continuously because they:	lack a nucleus	never enter G0	skip the S phase	stay in G0 forever	○●○○
18. The phase of the cell cycle during which the cell divides into daughter cells is:	S phase	M phase	G1 phase	G0 phase	○●○○
19. Cancer is a disease of the:	cell cycle	cell membrane	ribosomes	cell wall	●○○○
20. Cancer cells divide excessively because they lack:	a cell membrane	a cell cycle control system	a nucleus	mitochondria	○●○○
21. An abnormal mass of cells formed by excessive growth is called a:	tissue	zygote	tumour	clone	○○●○
22. A benign tumour:	shows metastasis	spreads to distant organs	stays at its original site	is always cancerous	○○●○
23. A malignant tumour is:	limited to one site	cancerous and can spread	made of normal cells	non-cancerous	○●○○
24. The spread of cancer cells beyond their original site is called:	mutation	regeneration	metastasis	cytokinesis	○○●○
25. The cytoskeleton of a eukaryotic cell forms the:	Golgi apparatus	nuclear envelope	spindle apparatus	cell wall	○○●○
26. The major component of the cytoskeleton is:	chromatin	lysosomes	ribosomes	microtubules	○○○●
27. The spindle apparatus moves chromosomes or chromatids to:	opposite poles	the equator permanently	the nucleolus	the cell wall	●○○○
28. Centrioles are found near the nucleus of:	all plant cells	bacteria only	animal cells	plant cells	○○●○
29. Before cell division, the pair of centrioles:	disappears	forms the cell wall	duplicates and migrates to poles	becomes the nucleolus	○○●○
30. Spindle fibres attach to the chromosome at its:	telomere	lower arm	upper arm	centromere	○○○●
31. Spindle fibres enter the nuclear region after:	DNA replication	the nuclear envelope breaks down	cytokinesis	the nucleolus forms	○●○○

Questions	A	B	C	D	A B C D
32. In plant cells the spindle apparatus forms:	without centrioles	from the nucleolus	from the cell wall	from centrioles	●○○○
33. Mitosis produces daughter cells that have:	half the chromosome number	double the chromosome number	the same chromosome number as parent	random chromosome number	○○●○
34. Mitosis is a continuous process that takes:	less than an hour	several months	about a day	about a week	●○○○
35. For easy study, mitosis is divided into:	G1 and G2	karyokinesis and cytokinesis	interphase and meiosis	synapsis and crossing over	○●○○
36. Division of the nucleus is called:	metastasis	synapsis	karyokinesis	cytokinesis	○○●○
37. Division of the cytoplasm is called:	replication	fertilization	karyokinesis	cytokinesis	○○○●
38. The correct order of karyokinesis in mitosis is:	metaphase, prophase, anaphase, telophase	prophase, anaphase, metaphase, telophase	telophase, prophase, metaphase, anaphase	prophase, metaphase, anaphase, telophase	○○○●
39. In interphase the hereditary material is in the form of thin threads called:	chromatids	chromatin	chromosomes	spindle fibres	○●○○
40. The longest phase of mitosis is:	metaphase	anaphase	telophase	prophase	○○○●
41. Chromatin fibres coil and condense into chromosomes during:	prophase	telophase	interphase	cytokinesis	●○○○
42. The nucleolus disappears in prophase because its DNA is:	replicated	packed into chromosomes	sent to cytoplasm	destroyed	○●○○
43. At the end of prophase the nuclear membrane:	splits into vesicles	becomes a cell plate	thickens	doubles	●○○○
44. Chromosomes line up at the equator in:	anaphase	prophase	telophase	metaphase	○○○●
45. In metaphase each chromosome is attached to spindle fibres from:	the nucleolus	one pole only	the cell wall	both poles	○○○●
46. Centromeres split and chromatids separate during:	telophase	prophase	anaphase	metaphase	○○●○
47. Individual chromatids are pulled to the poles during:	anaphase	metaphase	prophase	cytokinesis	●○○○
48. Nuclear envelopes re-form around chromatin at each pole in:	prophase	metaphase	anaphase	telophase	○○○●

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Questions	A	B	C	D	A B C D
49. Nucleoli reappear in the two nuclei during:	anaphase	prophase	telophase	metaphase	○○●○
50. The spindle apparatus disintegrates during:	prophase	anaphase	telophase	metaphase	○○●○
51. Cytokinesis begins while which phase is still in progress?	Prophase	Interphase	Metaphase	Telophase	○○○●
52. In animal cells cytokinesis occurs by formation of a:	middle lamella	cleavage furrow	cell plate wall	phragmoplast	○●○○
53. In animal cell cytokinesis the cell membrane invaginates at the:	poles	centriole	equator region	nucleolus	○○●○
54. In plant cells spindle fibres at the equator form the:	phragmoplast	chiasma	cleavage furrow	centriole	●○○○
55. Vesicles in the plant phragmoplast are formed by the:	ribosome	Golgi apparatus	nucleolus	lysosome	○●○○
56. In plants, vesicle contents form the middle lamella and:	centrioles	spindle fibres	nuclear envelope	primary walls	○○○●
57. Some plant cells later add a:	chiasma	centriole	secondary wall	cleavage furrow	○○●○
58. A cell with 28 chromosomes divides by mitosis. Each daughter cell has:	28 chromosomes	7 chromosomes	56 chromosomes	14 chromosomes	●○○○
59. A human skin cell (46 chromosomes) divides by mitosis. A daughter cell has:	92 chromosomes	46 chromosomes	23 chromosomes	44 chromosomes	○●○○
60. A cell with 12 chromosomes at metaphase of mitosis has how many chromatids?	24	12	48	6	●○○○
61. A cell with 8 chromosomes at anaphase of mitosis has how many chromosomes in all?	4	16	8	32	○●○○
62. After the S phase, a human cell has 46 chromosomes made of how many chromatids?	23	46	184	92	○○○●
63. The main function of mitosis is to:	maintain chromosome number	cause variation	halve chromosome number	form gametes	●○○○
64. Daughter cells from mitosis are genetically identical because:	gametes fuse	crossing over occurs	DNA replicates into two exact copies	chromosomes pair up	○○●○
65. Life of a sexually reproducing organism starts from a single cell called the:	gamete	zygote	bud	spore	○●○○

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Questions	A	B	C	D	A B C D
66. Organisms grow in size mainly by:	increasing cell number	fertilization	meiosis	decreasing cell size	●○○○
67. Worn-out skin and digestive tract cells are replaced through:	meiosis	metastasis	mitosis	fertilization	○○●○
68. Ability of some animals to regrow lost body parts is called:	regeneration	metastasis	cloning	budding	●○○○
69. Which animal can regenerate its arm?	Sponge	Hydra	Planaria	Sea star	○○○●
70. Which animal can regenerate its head?	Sea star	Earthworm	Hydra	Salamander	○●○○
71. Which animal can regenerate its limb?	Sea star	Sponge	Earthworm	Salamander	○○○●
72. Asexual reproduction involves:	two parents	gametes fusion	meiosis only	only one parent	○○○●
73. Asexually produced offspring are:	genetically identical to parent	haploid always	genetically different	formed from gametes	●○○○
74. Vegetative propagation in plants involves new plants from root, stem or:	gamete	zygote	spore tetrad	leaf	○○○●
75. Which of these reproduces asexually by vegetative propagation?	Hydra	Potato	Sponge	Planaria	○●○○
76. Which of these is an animal that reproduces asexually?	Ginger	Garlic	Hydra	Potato	○○●○
77. Budding is shown in:	Salamander	Hydra	Earthworm	Sea star	○●○○
78. Producing many identical copies of living organisms in an artificial environment is:	synapsis	fertilization	cloning	metastasis	○○●○
79. Cloning using a small mass of tissue cells is called:	budding	regeneration	crossing over	tissue culture	○○○●
80. Meiosis gives rise to:	four haploid cells	four diploid cells	two diploid cells	two haploid cells	●○○○
81. Meiosis takes place only in cells involved in:	growth	regeneration	wound healing	sexual reproduction	○○○●
82. Cells with two sets of chromosomes are:	monoploid	haploid (n)	triploid	diploid (2n)	○○○●

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Questions	A	B	C	D	A B C D
83. Cells with half the number of chromosomes are called:	zygotes	diploid (2n)	somatic	haploid (n)	○○○●
84. Chromosomes in a diploid cell exist in:	single copies	triplets	random groups	homologous pairs	○○○●
85. A haploid cell carries from each homologous pair:	both members	one member	four members	no member	○●○○
86. Meiosis consists of:	G1 and G2	meiosis I and meiosis II	only one division	mitosis I and II	○●○○
87. The reduction division is:	meiosis II	mitosis	meiosis I	interphase II	○○●○
88. The longest phase of meiosis is:	interphase II	prophase I	telophase II	prophase II	○●○○
89. Pairing of homologous chromosomes is called:	cytokinesis	synapsis	metastasis	replication	○●○○
90. Each pair of synapsed homologous chromosomes is called a:	chiasma	centromere	spindle	bivalent	○○○●
91. Points where non-sister chromatids join are called:	nucleoli	chiasmata	centromeres	bivalents	○●○○
92. Exchange of segments between non-sister chromatids is:	replication	synapsis	cytokinesis	crossing over	○○○●
93. Crossing over occurs during:	anaphase I	prophase I	prophase II	telophase II	○●○○
94. Crossing over occurs between chromatids of:	homologous chromosomes	non-homologous chromosomes	opposite gametes	the same chromosome	●○○○
95. Bivalents are arranged at the equatorial plate in:	metaphase II	anaphase I	metaphase I	prophase I	○○●○
96. In metaphase I the two members of a homologous pair get fibres from:	opposite poles	no pole	the same pole	the nucleolus	●○○○
97. In anaphase I the spindle fibres pull:	centromeres apart	homologous chromosomes apart	sister chromatids apart	nucleoli apart	○●○○
98. At the end of anaphase I each pole receives:	a haploid set of chromosomes	a diploid set	single chromatids only	no chromosomes	●○○○
99. After telophase I, the chromosomes of the haploid cells still have:	four chromatids	no chromatids	two chromatids	one chromatid	○○●○

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Questions	A	B	C	D	A B C D
100. Chromatids after meiosis I are not identical because of:	cytokinesis	crossing over	spindle formation	DNA replication	○●○○
101. During interphase II there is:	synapsis	DNA replication	crossing over	no DNA replication	○○○●
102. Meiosis II is similar to:	synapsis	mitosis	interphase	meiosis I	○●○○
103. Centromeres divide and chromatids move to poles in:	metaphase II	anaphase I	telophase I	anaphase II	○○○●
104. The number of chromosomes is halved because of the separation of:	chromatin in S phase	chromatids in mitosis	homologous chromosomes in meiosis I	sister chromatids in meiosis II	○○●○
105. A bivalent consists of:	two chromatids, two centromeres	two chromatids, one centromere	four chromatids, two centromeres	four chromatids, four centromeres	○○●○
106. Human gametes (egg and sperm) contain:	46 chromosomes	92 chromosomes	44 chromosomes	23 chromosomes	○○○●
107. Chromosome number 46 is restored in the human:	zygote	sperm	gamete	egg	●○○○
108. In plants meiosis takes place during:	leaf growth	root growth	wound healing	spore formation	○○○●
109. Differences among members of the same species are called:	clones	regenerations	variations	tumours	○○●○
110. Two meiosis events providing variation are crossing over and:	cytokinesis	DNA replication	independent chromosome combinations	spindle formation	○○●○
111. Variations are necessary for:	asexual reproduction	faster mitosis	tumour growth	survival in changing environment	○○○●
112. A fruit fly has 8 chromosomes in its body cells. Its gametes contain:	16 chromosomes	4 chromosomes	8 chromosomes	2 chromosomes	○●○○
113. A plant cell with 28 chromosomes undergoes meiosis. Each daughter cell has:	28 chromosomes	7 chromosomes	56 chromosomes	14 chromosomes	○○○●
114. Down syndrome people have 47 chromosomes due to an extra copy of chromosome:	47	23	46	21	○○○●
115. Somatic cells are diploid and divide by:	synapsis	mitosis	meiosis	fertilization	○●○○
116. Germ line cells divide by:	cloning	mitosis only	budding	meiosis	○○○●

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Questions	A	B	C	D	A B C D
117. Mitosis differs from meiosis in that mitosis has:	crossing over	one division	chiasmata	two divisions	○●○○
118. Number of daughter cells formed in mitosis is:	two	one	eight	four	●○○○
119. Daughter cells of meiosis form:	skin cells	somatic body	tumours	gametes	○○○●
120. Which process has no chiasma formation?	Synapsis	Prophase I	Mitosis	Meiosis I	○○●○
121. Which event does NOT occur in mitosis?	Nucleolus disappearance	Pairing of homologues	Spindle formation	Chromatin condensation	○●○○
122. In meiosis, daughter cells are genetically different from:	each other and the parent	only the parent	neither	only each other	●○○○
123. Gametes produced by meiosis:	cannot divide further	divide by mitosis	are somatic	are diploid	●○○○
124. Which type of cell division occurs in a zygote developing into an embryo?	Mitosis	Synapsis	Reduction division	Meiosis	●○○○
125. Acetocarmine in the onion root tip activity is used as a:	solvent	stain	acid	fixative	○●○○
126. Aceto-alcohol is a mixture of glacial acetic acid and ethanol in the ratio:	3:1	1:3	1:1	1:2	○●○○
127. The acid applied to the root tip on the slide is:	conc. H_2SO_4	N/10 HCl	vinegar	N/10 HNO_3	○●○○
128. Onion roots take about how many days to grow in water?	3 weeks	10 to 12 days	1 to 2 days	4 to 6 days	○○○●
129. The length of onion root trimmed for the activity is about:	30 cm	3 cm	10 cm	1 mm	○●○○
130. Root tips are left in aceto-alcohol for:	one complete day	10 minutes	one hour	one week	●○○○
131. The tissue of the root tip used to observe mitosis is:	meristematic	cork	vascular	epidermal	●○○○
132. Mitosis in the onion root tip is observed using a:	electron microscope	dissecting microscope	compound microscope	hand lens	○○●○
133. Excess stain on the slide is removed using:	filter paper	needle	blade	forceps	●○○○

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Questions	A	B	C	D	A B C D
134. The slide with HCl and stain is heated:	until boiling	lightly so stain does not dry	not at all	until stain dries	○●○○
135. The coverslip is gently tapped to:	squash tissue into a fine layer	remove the stain	kill cells	dry the slide	●○○○
136. During G2 phase, the cell prepares for:	G0 phase	S phase	mitotic phase	meiosis II	○○●○
137. Which is NOT part of interphase?	S phase	G2 phase	Mitotic phase	G1 phase	○○●○
138. Cancerous cells and skin cells both divide rapidly, but only cancer cells:	divide without control	have a nucleus	have DNA	divide by mitosis	●○○○
139. Sister chromatids are:	identical copies at one centromere	chromatids of homologous chromosomes	two separate centromeres	chromosomes of two parents	●○○○
140. Non-sister chromatids belong to:	the same centromere	homologous chromosomes	one chromatid pair	the same chromosome	○●○○
141. In metaphase II each chromosome is attached to a fibre from:	the centriole only	one pole only	no pole	both poles	○○○●
142. Meiosis II chromosomes line up:	separately around the equator	as bivalents	in the nucleolus	at the poles	●○○○
143. During telophase II, nuclear envelopes form around:	the cell wall	bivalents	chromatin at each pole	centrioles	○○●○
144. Meiosis in a diploid cell with 2n = 6 gives daughter cells with:	3 chromosomes	6 chromosomes	12 chromosomes	2 chromosomes	●○○○
145. The pairing of chromosomes at point-to-point occurs in:	prophase II	metaphase II	anaphase II	prophase I	○○○●
146. The centromeres of paired homologues are:	in the same position	fused into one	absent	at opposite ends	●○○○
147. Near the end of prophase I paired chromosomes repel but remain attached at:	chiasmata	nucleoli	spindle poles	centrioles	●○○○
148. Fusion of haploid gametes forms a:	spore	haploid zygote	diploid zygote	somatic cell	○○●○
149. Chromosome number of a species is maintained across generations by:	budding	meiosis and fertilization	only mitosis	only meiosis	○●○○
150. Plant cell cytokinesis differs from animal cell because plants form a:	centriole pair	cleavage furrow	cell wall between daughters	bivalent	○○●○