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SSC-I NATIONAL BOOK FOUNDATION FBISE

BIOLOGY TEST - CHAPTER 10: EVOLUTION

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 number of species of living things on Earth currently exceeds	A million	Ten thousand	One hundred thousand	One billion	●○○○
2. Which two animals are given as similar yet different examples in the chapter's introduction?	Cat and dog	Horse and zebra	Lion and tiger	Cow and buffalo	○●○○
3. One definition of evolution is a change that occurs to living things	in one day	only in labs	only in plants	over time	○○○●
4. The differences in traits shown by members of the same species are called	adaptation	variation	speciation	migration	○●○○
5. Differences in size, coat colour and eye colour among domestic cats are examples of	homology	variation	speciation	vestigial traits	○●○○
6. Variations that help an organism survive are called	undesirable variations	vestigial variations	artificial variations	desirable variations	○○○●
7. A variation that causes a genetic defect is generally	always beneficial	harmful and undesirable	neutral and useless	the cause of speciation	○●○○
8. Which cell division process is a main source of variation?	Mitosis	Binary fission	Budding	Meiosis	○○○●
9. Genetic recombination results from which event during gamete formation?	Cytokinesis	Crossing over	DNA repair	Budding	○●○○
10. Different chromosome combinations in gametes are formed by	binary fission	independent assortment	cytokinesis	replication only	○●○○
11. Fusion of one of countless sperms with an egg during fertilization is a source of	vestigial organs	variation	fossils	homology	○●○○
12. A mutation in germ cells that form gametes is a source of	fossil records	artificial selection	only dead cells	inherited variation	○○○●
13. Transfer of genes from one population of a species to another is called	gene pool	speciation	gene flow	crossing over	○○●○
14. The Earth is considered by scientists to be more than how old?	Four million years	Four thousand years	Four hundred years	Four billion years	○○○●

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Questions	A	B	C	D	A B C D
15. New life forms developed from which type of early organisms?	Large mammals	Flowering plants	Multicellular fish	Unicellular organisms	○○○●
16. Evolution is the gradual change in traits of a population in response to	individual wishes	use and disuse only	environmental conditions	cell size	○○●○
17. Evolutionary changes can always be passed on to the	next generations	same generation only	environment	fossil record	●○○○
18. Why do individuals with advantageous variations become more common in a population?	They live forever	They never compete	They leave more progeny	They avoid mutations	○○●○
19. An inherited trait that increases survival chances in specific conditions is called	variation only	adaptation	speciation	homology	○●○○
20. Members of a species' population compete with one another for	fossils	resources	mutations	genes only	○●○○
21. When food or water is scarce, individuals have little room for	competition	sharing	dying	moving	○●○○
22. Natural selection is the process in which organisms with helpful traits	produce fewer offspring	stop reproducing	never vary	produce more offspring	○○○●
23. Which is the first basis of the theory of natural selection?	Competition	Fossilization	Hybridization	Overproduction	○○○●
24. Overproduction means living organisms are very	aggressive	small	rare	fertile	○○○●
25. Population sizes stay almost constant despite overproduction because	organisms stop breeding	mutations are absent	resources are scarce	there are no predators	○○●○
26. Scarcity of food and other resources leads to	speciation	overproduction	competition	fossilization	○○●○
27. In natural selection, a large portion of variation is	non-genetic	harmful	heritable	absent	○○●○
28. Heritable qualities are passed from parents through	genes	food	fossils	environment	●○○○
29. Which organisms survive to reproductive age in natural selection?	Those with harmful variations	The largest ones only	Those with desirable variations	The oldest ones only	○○●○
30. Natural selection is essentially a process of	elimination	addition	hybridization	mutation	●○○○
31. Which organisms survive according to natural selection?	The fittest	The oldest	The slowest	The largest only	●○○○

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Questions	A	B	C	D	A B C D
32. Who put forth the Theory of Natural Selection?	Charles Darwin	Gregor Mendel	Louis Pasteur	Robert Hooke	●○○○
33. Darwin sailed around the world on the ship	HMS Beagle	Titanic	Mayflower	Santa Maria	●○○○
34. The voyage of HMS Beagle lasted about	five months	fifteen years	fifty days	five years	○○○●
35. In which year did Darwin put forth the Theory of Natural Selection (as per the book)?	1838	1738	1938	1638	●○○○
36. Darwin published 'On the Origin of Species by Natural Selection' in	1738	1909	1859	1809	○○●○
37. Darwin's famous book recorded his	fossil collection only	laboratory experiments	observations	genetic crosses	○○●○
38. Darwin developed his theory after visiting the	Hawaiian Islands	Canary Islands	Galapagos Islands	British Isles	○○●○
39. On the Galapagos Islands, Darwin found several species of	tortoises only	moths	finches	horses	○○●○
40. Differences in finch beak shape were related to the	colour of eggs	kind of food eaten	length of tail	size of nests	○●○○
41. Finches vary from island to island in the Galapagos in	number of wings	number of legs	body temperature	beak form	○○○●
42. How many finch species live on the Galapagos Islands, per the exercise?	14	1	4	40	●○○○
43. How many finch species live on the South American mainland, per the exercise?	Fourteen	One	Four	Forty	○●○○
44. Darwin linked adaptation with	pollution	speciation	hybridization	cloning	○●○○
45. Geographic barriers isolating groups can eventually lead to a new	gene	species	cell	organ	○●○○
46. How many basic patterns of biological diversity did Darwin identify?	Two	Three	Five	Seven	○●○○
47. Natural selection causes population-wide changes in	gene frequencies	chromosome number	cell structure	body temperature	●○○○
48. Which example is a strong indicator of natural selection in Britain?	Honeybee	Housefly	Peppered moth	Garden snail	○○●○

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Questions	A	B	C	D	A B C D
49. The scientific name of the peppered moth is	Homo sapiens	Zea mays	Canis lupus	Biston betularia	○○○●
50. Before 1848, peppered moths in the UK were mostly	completely black	bright red	green	light with dark patches	○○○●
51. When was a dark-coloured peppered moth first discovered?	1738	1848	1895	1950	○●○○
52. By 1895, dark moths made up about what percent of the population?	5%	50%	95%	10%	○○●○
53. The dark colour of the peppered moth resulted from	dyeing	pollution directly	a fungus	a mutation	○○○●
54. Peppered moths rest on tree trunks during the	day	night	winter only	monsoon only	●○○○
55. Peppered moths fly at	noon	night	dawn only	never	○●○○
56. Light-coloured lichens on tree trunks camouflaged the	dark-coloured moth	birds	caterpillars	light-coloured moth	○○○●
57. Which pollutant killed lichens on trees in industrial areas?	Carbon dioxide	Sulphur dioxide	Oxygen	Nitrogen	○●○○
58. Sulphur dioxide pollution came mainly from	coal burning	solar panels	wind energy	farming	●○○○
59. After lichens died, tree bark became	white	green	pink	dark	○○○●
60. On dark trunks, birds easily found the	dark-coloured moths	caterpillars	lichens	light-coloured moths	○○○●
61. In the peppered moth case, the predator birds acted as	selecting agents	parasites	pollinators	decomposers	●○○○
62. The adaptive variable giving a selection advantage to moths was	large wings	long antennae	dark colour	night flying	○○●○
63. The phenomenon of dark moths dominating polluted areas is called	industrial mutation	artificial selection	industrial melanism	gene flow	○○●○
64. About what percent of England's peppered moths were black in the polluted era (per the book)?	10%	90%	50%	20%	○●○○
65. After the 1950s, pollution reduced in England, so	light moths increased	dark moths increased	moths became extinct	birds disappeared	●○○○

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Questions	A	B	C	D	A B C D
66. The peppered moth case shows that environmental change can cause change in a population by	artificial selection	hybridization	cloning	natural selection	○○○●
67. The peppered moth case shows evolution operates through	individual effort	genetic change in a population	use of organs	blending of traits	○●○○
68. In the moth example, change in bark colour is an example of	artificial selection	speciation	vestigial change	variation under selection	○○○●
69. Palaeontology is the study of	fossils	genes	cells	hormones	●○○○
70. Fossils show that ancient species were	identical to modern ones	all extinct	different from modern ones	all plants	○○●○
71. Scientists determine the age of fossils to know	what they ate only	how long ago organisms lived	their colour	their voice	○●○○
72. The resulting set of fossils from around the world is called the	gene pool	food chain	life cycle	fossil record	○○○●
73. The fossil record shows evolution of form over	millions of years	a few days	a few weeks	one lifetime	●○○○
74. Extremely comprehensive fossil records exist for the evolution of humans and	frogs	horses	bees	sharks	○●○○
75. Evolution of the modern horse is a good example of evidence from	selective breeding	speciation	gene flow	palaeontology	○○○●
76. Which discipline studies similar structures in different organisms as evidence?	Palaeontology	Cytology	Comparative anatomy	Ecology	○○●○
77. Bones in the limbs of human, dog, bird and whale have the same	function	general structure	size	shape	○●○○
78. Structures with similar fundamental shape due to a common ancestor are called	analogous structures	homologous structures	vestigial structures	hybrid structures	○●○○
79. Limbs of human, dog, bird and whale originated from appendages of a	human	common ancestor	fish only	bird	○●○○
80. Homologous structures differ in shape and size but keep the same	function	colour	general structure	weight	○○●○
81. Which pair is likely homologous?	Bird wing and insect wing	Fish fin and bee wing	Bat wing and human forelimb	Eye of octopus and ant	○○●○
82. Which pair is least likely to represent homology?	Bat wing and human arm	Cat brain and dog brain	Bird wing and insect wing	Baboon and gorilla haemoglobin	○○●○

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Questions	A	B	C	D	A B C D
83. Haemoglobin of a baboon and that of a gorilla are likely to be	homologous	analogous only	vestigial	unrelated	●○○○
84. Non-functional structures remaining from a common ancestor are	homologous organs	adaptive organs	new organs	vestigial organs	○○○●
85. Which of the following is a vestigial organ in humans?	Appendix	Heart	Liver	Kidney	●○○○
86. Wings of flightless birds are examples of	vestigial organs	homologous organs	sense organs	excretory organs	●○○○
87. Leaves of some cacti (reduced to spines) are cited as examples of	vestigial organs	fossils	hybrids	adaptive leaves	●○○○
88. Vestigial organs have lost their	use over time	genes completely	ancestors	cells	●○○○
89. Another name for artificial selection is	selective breeding	natural selection	speciation	gene flow	●○○○
90. Artificial selection involves breeding domesticated plants and animals for	random features	harmful features	unfit traits	desired genetic features	○○○●
91. Which two techniques are used to develop desired features in plants and animals?	Selective breeding and hybridization	Mutation and fossilization	Cloning and fossils	Migration and isolation	●○○○
92. Selection in artificial selection is made by	nature	predators	climate	man	○○○●
93. Farmers have been using selection to create plants with desired features for	ages	only the last decade	only 10 years	a day	●○○○
94. Farmers select plant varieties that are	drought-sensitive	slow-growing	smaller	drought-resistant	○○○●
95. Which crop's evolution from teosinte is shown in the chapter?	Wheat	Maize (corn)	Rice	Sugarcane	○●○○
96. Modern maize was developed by artificial selection from	wild rice	barley	teosinte	millet	○○●○
97. In plant selection, seeds for the next generation are chosen from	weakest plants	individuals with most desirable traits	random plants	dead plants	○●○○
98. Repeating selection for several generations causes crop yield to	increase	decrease	stay fixed	vanish	●○○○
99. Artificial selection in crops produces	lower yields	higher yields	fossils	new planets	○●○○

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Questions	A	B	C	D	A B C D
100. Cows that give high milk and quality meat are chosen for	natural selection	speciation	selective breeding	mutation	○○●○
101. Selected cows serve as parents of the	previous generation	next generation	wild population	fossils	○●○○
102. Which animals were produced from wolves by artificial selection?	Dog breeds	Cat breeds	Horse breeds	Cow breeds	●○○○
103. Which statement about natural selection is correct?	It is done by man	It is rapid	It is immediate	It operates in natural populations	○○○●
104. Artificial selection operates in	domesticated populations	wild populations	fossils only	only the sea	●○○○
105. Natural selection is a	slow process	fast process	instant process	one-day process	●○○○
106. Artificial selection gives results	in the next generation	after millions of years	never	after thousands of years	●○○○
107. Natural selection takes thousands to	millions of years	a few days	a few weeks	one year	●○○○
108. Varieties in natural selection are produced by	selective breeding	man	mutations	hybridization only	○○●○
109. Varieties in artificial selection are produced by	mutations only	selective breeding	predators	climate	○●○○
110. Which is responsible for the great biological diversity?	Natural selection	Artificial selection	Selective breeding	Hybridization	●○○○
111. Artificial selection gives rise to varieties different from the	fossil record	environment	starting generation	moths	○○●○
112. The process by which new biological species arise is	speciation	adaptation	variation	extinction	●○○○
113. Speciation starts when a species gets split into	two cells	two nuclei	two geographical regions	two genes	○○●○
114. After separation, each group adapts to its own	chromosomes	seeds	environmental conditions	fossils	○○●○
115. In speciation, individuals of one group eventually can no longer	feed	grow	reproduce with the other group	move	○○●○
116. The barrier that finally forms between two new species is called	gene flow	crossing over	reproductive isolation	artificial selection	○○●○

Questions	A	B	C	D	A B C D
117. Ultimately in speciation, two new species evolve from	two species	one species	three species	no species	○●○○
118. The smallest biological unit that can evolve over time is	an individual	an ecosystem	a population	a species	○○●○
119. Natural selection operates to produce changes in	populations	individuals only	single cells	organs only	●○○○
120. Natural selection measures fitness mainly by	mutation rate	food obtained	fertile offspring produced	body size	○○●○
121. Mutation produces variation, and what produces adaptation to the environment?	Genetic drift only	Sexual recombination only	Mitosis	Natural selection	○○○●
122. Offspring most likely to survive are those	born first	largest and aggressive	best adapted to the environment	without predators	○○●○
123. Which change is a mutation?	A change in behaviour	A change in the environment	A change in DNA	A change in diet	○○●○
124. Buffalo bred for higher milk yield illustrate	natural selection	selective breeding	adaptation	genetic engineering	○●○○
125. Which process results from selection and adaptation over time?	Reproduction	Respiration	Evolution	Digestion	○○●○
126. Different beak shapes in Galapagos finches are examples of	vestigial organs	adaptation	artificial selection	cloning	○●○○
127. Isolation of finches on different islands promoted	speciation	extinction	cloning	fossilization	●○○○
128. Why are there more finch species on Galapagos than on the mainland?	Mainland has no food	Mainland has no birds	Islands are larger	Islands isolated and varied habitats	○○○●
129. Which is NOT a source of variation?	Crossing over	Mitosis	Mutation	Gene flow	○●○○
130. Crossing over occurs during	mitosis	binary fission	meiosis	cytokinesis	○○●○
131. The theory of natural selection explains	how cells divide	how food is digested	how blood circulates	how species change over time	○○○●
132. Fossils are usually found in which type of rock?	Igneous	Metamorphic	Volcanic only	Sedimentary	○○○●
133. The evidence of evolution from bones across vertebrates comes from	selective breeding	speciation	pollution	comparative anatomy	○○○●

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Questions	A	B	C	D	A B C D
134. An organ which is functional in an ancestor but reduced in a descendant is	vestigial	homologous	analogous	vital	●○○○
135. Dog breeds show that humans can change a species through	natural selection	speciation only	mutation only	artificial selection	○○○●
136. Which factor is NOT part of Darwin's natural selection bases?	Overproduction	Competition	Variation	Use and disuse of organs	○○○●
137. The industrial revolution darkened tree bark in England due to	fire	paint	fungi	soot and pollution	○○○●
138. Birds acted as snoopers by eating moths that were	hidden	dead	conspicuous	tiny	○○●○
139. Evolution of the modern horse shown in fossils is an example of	sudden creation	gradual change	no change	reversal	○●○○
140. Which is an example of analogous rather than homologous structures?	Wings of bird and insect	Human arm and whale flipper	Bat wing and cat leg	Dog leg and bird wing	●○○○
141. Which is a feature of artificial selection?	Environment chooses	Man chooses parents	Predators choose	Disease chooses	○●○○
142. Natural selection increases the frequency of	harmful traits	neutral traits only	no traits	advantageous traits	○○○●
143. A population's genetic diversity is expanded through	isolation only	variation	extinction	cloning	○●○○
144. The study of past life using fossils is helpful for understanding	digestion	cell division	evolution over time	blood groups	○○●○
145. Darwin believed new species arise from ancestral forms through accumulated	adaptations	fossils	diseases	mutations only	●○○○
146. The darker moth had an advantage in	unpolluted forests	caves	water	polluted areas	○○○●
147. In unpolluted areas, which moths survived better?	Dark-coloured	Red	Striped	Light-coloured	○○○●
148. Which is likely a harmful variation?	Drought resistance	Genetic defect	Better camouflage	Faster running	○●○○
149. Which statement about evolution is correct?	It acts on populations	It acts within one lifetime	It is always sudden	It needs no variation	●○○○
150. In speciation diagram, Species A gives rise to species B and C after	mitosis	cell death	reproductive isolation	photosynthesis	○○●○