

BCM SCHOOL BASANT AVENUE, DUGRI LUDHIANA
XI BIOLOGY
HOLIDAYS HOMEWORK (2024-25)
ASSIGNMENT

1	<p>i. For completion of respiration process, write the given steps in sequential manner</p> <p>a. Diffusion of gases (O_2 and CO_2) across alveolar membrane.</p> <p>b. Transport of gases by blood.</p> <p>c. Utilisation of O_2 by the cells for catabolic reactions and resultant release of CO_2.</p> <p>d. Pulmonary ventilation by which atmospheric air is drawn in and CO_2 rich alveolar air is released out.</p> <p>e. Diffusion of O_2 and CO_2 between blood and tissues.</p> <p>ii. What is the amount of O_2 supplied to tissues through every 100 ml. of oxygenated blood under normal physiological conditions?</p>																				
2	<p>a. Explain the mechanism of breathing with neat labelled sketches.</p> <p>b. Explain the role of neural system in regulation of respiration.</p>																				
3	<p>Mitosis results in producing two cells which are similar to each other. What would be the consequence if each of the following irregularities occur during mitosis?</p> <p>a. Nuclear membrane fails to disintegrate b. Duplication of DNA does not occur</p> <p>c. Centromeres do not divide d. Cytokinesis does not occur.</p>																				
4	<p>What are the various stages of meiotic prophase-I? Enumerate the chromosomal events during each stage?</p>																				
5	<p>a. A cell has 32 chromosomes. It undergoes mitotic division. What will be the chromosome number (N) during metaphase? What would be the DNA content (C) during anaphase?</p> <p>b. While examining the mitotic stage in a tissue, one finds some cells with 16 chromosomes and some with 32 chromosomes. What possible reasons could you assign to this difference in chromosome number. Do you think cells with 16 chromosomes could have arisen from cells with 32 chromosomes or vice versa?</p>																				
6	<p>Fill up the blank spaces appropriately</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Phylum/Class</th> <th style="width: 25%;">Excretory Organ</th> <th style="width: 25%;">Circulatory Organ</th> <th style="width: 25%;">Respiratory Organ</th> </tr> </thead> <tbody> <tr> <td>Arthropoda</td> <td></td> <td></td> <td>Lungs/ Gills/ Tracheal System</td> </tr> <tr> <td></td> <td>Nephridia</td> <td>Closed</td> <td>Skin/parapodia</td> </tr> <tr> <td></td> <td>Metanephridia</td> <td>Open</td> <td></td> </tr> <tr> <td>Amphibia</td> <td></td> <td>Closed</td> <td>Lung</td> </tr> </tbody> </table>	Phylum/Class	Excretory Organ	Circulatory Organ	Respiratory Organ	Arthropoda			Lungs/ Gills/ Tracheal System		Nephridia	Closed	Skin/parapodia		Metanephridia	Open		Amphibia		Closed	Lung
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7	<p>Give an example for each of the following</p> <p>a. A viviparous animal b. A fish possessing a poison sting c. A fish possessing an electric organ d. An organ, which regulates buoyancy e. Animal, which exhibits alternation of generation</p>																				
8	<p>Give the characteristic features of the following citing one example of each</p> <p>a. Chondrichthyes and ostichthyes b. Urochordata and cephalochordata</p>																				
9	<p>Are the different types of plastids interchangeable? If yes, give examples where they are getting converted from one type to another.</p>																				
10	<p>The genomic content of the nucleus is constant for a given species whereas the extra chromosomal DNA is found to be variable among the members of a population. Explain.</p>																				
11	<p>a. Eukaryotic cells have organelles which may</p> <p>i. not be bound by a membrane</p> <p>ii. bound by a single membrane</p> <p>iii. bound by a double membrane</p>																				

	b. Group the various sub-cellular organelles into these three categories.				
12	a. Give the biochemical composition of plasma membrane. How are lipid molecules arranged in the membrane? b. What are plasmids? Describe their role in bacteria?				
13	Define and understand the following terms: (i) Phylum (ii) Class (iii) Family (iv) Order (v) Genus				
14	a. Roots in some gymnosperms have fungal or algal association. Give examples, their names and role in the plants. b. Which group of plants is regarded as first terrestrial plants? Why?				
15	Provide a technical term for the following: <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">a. Blood filled cavity in arthropods</td> <td style="width: 50%;">b. A stinging organ of jellyfish</td> </tr> <tr> <td>c. Free-floating form of Cnidaria</td> <td>d. Lateral appendages in aquatic annelids</td> </tr> </table>	a. Blood filled cavity in arthropods	b. A stinging organ of jellyfish	c. Free-floating form of Cnidaria	d. Lateral appendages in aquatic annelids
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