## Biology Paper 2 (231/2)

1.	<ul> <li>(a)</li> <li><i>F</i>:- Oestrogen.</li> <li><i>G</i>:- Progesterone. (2 marks)</li> </ul>						
	(b) •	<ul> <li><i>F</i> :- Promotes healing and repair of the uterus.</li> <li><i>G</i> :- Causes thickening of the uterine lining.</li> <li><i>marks</i>)</li> </ul>					
	(c)	<ul> <li>(i) Leutinizing hormones.</li> <li>(ii) Causes ovulation.</li> </ul>					
		<ul> <li>Induces graafian follicle to become corpus luteum.</li> <li><i>mark</i>)</li> </ul>	(3				
mark)	(d)	12 <sup>th</sup> to 16 <sup>th</sup> day	(1				
2.	(a)	<ul> <li>Parental genotypes</li> <li>Round seed plants – Rr.</li> <li>Wrinkled seed plants – rr. (2 marks)</li> </ul>					
	(b)	Gametes from P1 i Rr P2 ii rr (2 marks) $R$ and r r and r					
	(c)	$\begin{array}{cccc} Rr & rr \\ Genotype & Rr & rr \\ Phenotype & Round seeds & Wrinkled seeds. \end{array}$					
		Rr Rr rr rr rr (3 marks)					
	(d)	Test across whether an individual showing a character for a dominant gene is homozygous or heterozygous. <i>mark</i> )	(1				

(1

3. (a) Photosynthesis.

mark)

- (b)
- Light energy.

			Chlorophyll.	(2	
	(c)	(i)	<i>marks)</i> Oxygen:- Used in respiration. Released into the atmosphere. (2)	marks)	
		(ii)	<i>Glucose</i> :- Used in respiration. Converted to sucrose/starch for st Used in formation of structures such as cellulose/cytoplasm <i>marks</i> )	torage. (3	
4.	(a)	(i)	<i>Plants</i> : Exposing the surface area of leaf to sunlight for photosynt Ensure flowers are exposed to pollination agents. Expose fruits ar agents of dispersal. To resist breakage due to their own weight an other organisms. (3 marks)	thesis. 1d seeds to 1d that of	
		(ii)	<i>Animals</i> : For attachment of other body organs. To protect delicate To maintain body shape. To enable movement and locomotion.	e organs.	
			(3 marks)		
	(b)	<ul> <li>E</li> <li>E</li> <li>E</li> <li>E</li> <li>m</li> </ul>	nable animals to search for food. nable animals to search for shelter. nable animals to search for water. nable animals to escape predators and harmful conditions. <i>parks</i> )	(2	
5. (a) In L1: Inner cells gain becoming turgid: Leadi because they are covered by a waterp In L2: Inner cells lost v The epidermal cells did marks)		In L1: becom becaus are co In L2: The ep <i>marks</i>	<ul> <li>Inner cells gained water by osmosis; Increased in length; ining turgid: Leading to curvature; the epidermal cells did not gain was they vered by a waterproof cuticle.</li> <li>Inner cells lost water; (by osmosis) leading to flaccidity; hence the pidermal cells did not gain water due to waterproof cuticle.</li> </ul>	gained water by osmosis; Increased in length; hence adding to curvature; the epidermal cells did not gain water terproof cuticle. est water; (by osmosis) leading to flaccidity; hence the curvature. did not gain water due to waterproof cuticle. (6	
	(b)	■ Si ■ A m	upport in herbaceous plant. bsorption of water. parks)	(2	
6.	(a)				



7. During thunderstorm nitrogen gas combines with oxygen to form nitrogen oxides. Nitrogen oxides dissolve in water to form nitric acid. Acid is deposited in the soil by rain; nitric acid combines with chemical substance to form nitrates which are absorbed by plants. In the soil, symbiotic bacteria such as Rhizobium which are found in root nodules of leguminous plants fix free nitrogen to nitrates free living bacteria such as clostridium and Azotobacter fix nitrogen to nitrates. Nostoc algae and Anabaena fix nitrogen to nitrates. Plants use nitrates to form plant proteins from nitrates. Animals feed on plants and covert plant proteins into animal proteins. Plants and animals die and are decomposed by bacteria and fungi. Decomposing plants and animals release ammonia which is converted to nitrites by nitrosomonas bacteria nitrites are converted to nitrates by nitrobacter bacteria. Nitrates in the soil can be converted to free nitrogen/denitrification by some fungi/pseudomonas/ thiobacillus bacteria.

## (20 marks)

- 8. (a)
- Highly vascularized/network of blood capillaries.
- Large surface area for gaseous exchange.
- Thin membrane.
- Moist lining.
   marks)

(4

(b) **Breathing in :-**External intecostal muscles contract internal intercostals muscles relax lifting the ribcage upwards and outwards. Muscles of diaphragm contract hence, it flattens the volume of the thoracic cavity increases, while the pressure decreases. Higher air pressure in the atmosphere forces air into lungs through nose.

**Breathing out:**- External intercostals muscle relax while intercostals muscles contract moving the ribcage downwards and inwards. The muscles of diaphragm relax hence, the diaphragm assumes dome shape, the volume of thoracic cavity decreases while pressure increases forcing air out of the lungs through the nose. (16 marks)

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