Answer all the questions in the space provided after each question (70 Marks)

1. Under which of the following light microscope magnification would one see a larger part of the specimen; X40 and 400? Give reasons. (2 Marks)

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.....

2. Name two end products of lipid breakdown. (2 Marks)

.....

.....

3. Name the process which occurs in mammalian liver that leads to formation of urea. (1 Mark)

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4. Explain how humidity lowers the rate of transpiration. (2 Marks)

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.....

5. What is the importance of bile in human digestive system. (2 Marks)

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6. (a) Name the type of circulatory system in arthropods. (1 Mark)

.....

(b) Give one disadvantage of the type of circulatory system named in (a) above. (1 Mark)

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7. (a) State two ways by which herbivores are adapted for their mode of feeding. (2 Marks)

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(b) Name two teeth diseases. (1 Mark)

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8. A farmer was advised to reduce the member of leaves per crop during dry seasons. Explain one disadvantage of the practice. (1 Mark)

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9. In a class practical session, a certain tissue was found to have numerous mitochondria. What could one deduce from the observation as regards to the process taking place in the tissue? (1 Mark)

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10. Explain how you would find out whether a seed contains starch. (3 Marks)

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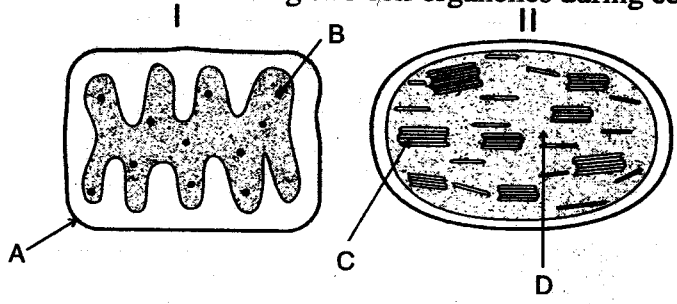
11. A student observed and sketched the following two cell organelles during cell study.



a) Identify the parts labelled A,B,C and D. (2 Marks)

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.....

b) (i) Name the organelles I and II. (2 Marks)

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.....

(ii) State the biological importance of folding of the part labelled B. (2 Marks)

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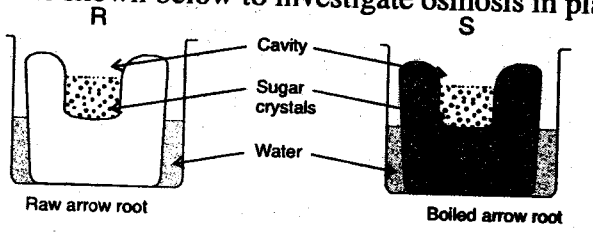
12. Some students set the apparatus shown below to investigate osmosis in plant tissue.



Results after 2 hours.
Set up R – Liquid overflows in cavity
Set up S – No observable change

a) Define osmosis (2 Marks)

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b) Account for the results obtained in set ups R and S after two hours. (5 Marks)

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c) Which of the set-up was a control experiment? (1 Mark)

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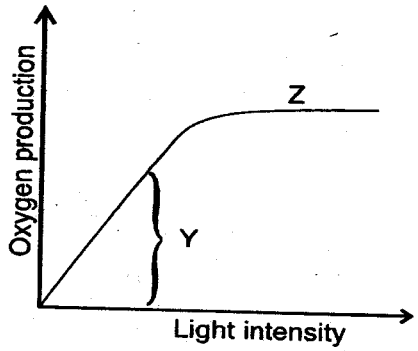
13. The graph below shows how the rate of photosynthesis is affected by light intensity. Oxygen production and light intensity are the variables.



a) (i) How does light intensity affect the rate of photosynthesis? (2 Marks)

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(ii) Mention two factors that could be limiting the rate of photosynthesis when the rate is constant at Z. (1 Mark)

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b) (i) What factor is limiting photosynthesis at Y? (1 Mark)

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(ii) How can one completely stop photosynthesis process in green plants. (2 Marks)

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14. A victim of excessive blood loss can recover by blood transfusion in which blood from one person, the donor is transferred into the patient's blood stream. The table below shows how the exercise can be carried out. Capital letters represent blood groups or antigens; small letters antibodies, minus sign compatibility and plus sign agglutination.

DONOR

RECEPEINT	Ab	Ba	AB nil	Oab
Ab	-	+	I	-
Ba	+	II	+	-
AB nil	III	-	-	-
Oab	+	+	+	IV

a) Give the respective signs left out to complete the table. (4 Marks)

I -
II -
II -
IV -

b) i) State the advantages and disadvantages of having blood group O. (2 Marks)

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.....

ii) What advantage does a person with blood group AB have? (2 Marks)

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.....

c) A woman of Rhesus negative marries a man with rhesus positive blood. The mother bears a first born child with rhesus positive blood successfully but a similar second born child developed complications and died immediately after birth.

i) Name the conditions described caused by rhesus +ve and –ve interaction. (1 Mark)

.....

.....

ii) How did the complication arise in the second born? (2 Marks)

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iii) Give one solution you would offer to the above problem. (1 Mark)

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15. List the five kingdoms under which living things are classified and for each give one example.

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16. (a) What is the main difference between fats and oils? (1 Mark)

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(b) State four important functions of liquids in mammals (4 Marks)

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17. Blood has two broad functions, namely protective and transport function. Explain how blood is involved in transport stating the constituent of blood involved. (5 marks)

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BIOLOGY MARKING SCHEME FORM 2

1. X40. smaller magnification gives a wider field of view hence a larger part seen.
2. – Glycerol
- Fatty acids
3. Deamination
4. – High humidity results to low saturation deficit in the atmosphere hence how rate of water evaporation into the atmosphere. This level transpiration rate
5. – Neutralizes acidic chime in the stomach
- Provide alkaline medium for pancreatic and intestinal enzymes
- Emulsify lipids-bile salts.
6. (a) Open circulatory system
(b) – Fluid propelled at lower pressure hence slower, sluggish circulation
- Fluids rich in oxygen can easily mix with that rich in carbon (IV) oxide
7. (a) – Molars and pre-molars broad with cusps/ridges for chewing and grinding
- Incisors chisel like, wedge shaped for cutting and holding vegetation
(b) – Dental caries
- Periodontal disease
8. Reduce loss of water by transpiration
9. Intense inspiration taking place in the tissue
10. – Crush the seed
- Add iodine solution
- Colour changes to blue-black in presence of starch
11. (a) A – Outer membrane
B – Cristae/Infolding
C – Grana
D – Stoma
(b) (i) I – Mitochondria
II – Chloroplast
(ii) To increase the surface area for attachment of respiratory enzymes.
12. (a) – Movement of a solvent from dilute solution to a more Concentrated/hypertonic solution through a semi-permeable membrane
- Movement of water/solvent molecules from a region of high concentration of water molecules to a region of low concentration of water molecules
(b) R – Sugar solution in arrow root cavity is hypertonic to the water in the beaker. Water is drawn into the cavity by osmosis hence the overflow.
Cells in living arrow root act as semi-permeable.
S – Boiling destroy the semi-permeable membrane in arrow root cells which is protein in nature hence osmosis does not occur.
(c) S
13. (a) (i) Rate of photosynthesis increases as light intensity increases, energy is made available when stomata open to allow more carbon (IV) oxide to enter leaves/to be used in photosynthesis.
(i) – Low temperature
(ii) – Low carbon (IV) oxide concentration
(b) (i) - Low light intensity
(ii) – Placing the plant in the dark
- Cut off carbon (IV) oxide supply
- Exposing the plant to very high / low temperatures
14.(a) +
-
-
-
-
(b) (i) – Adv – Universal donor can donate blood to all groups without agglutination
- Disad – Cannot receive blood from other blood group apart from blood group O.
(ii) Can receive blood from all other blood groups without agglutination
(d) (i) Haemolytic diseases of the new born / Erythroblastis foetalis
(ii) Recipient body produces antibodies which react and destroy blood tissue in the child during birth
(iii) Anti-rhesus factor injection
15. 1). Monera – bacteria
2.) Fungi - Yeast / mushroom / rhizopus
3.) Plantae – maize
4.) Animalia – man
5.) Protoctista / Protista – Amoeba, Spirogyra

16.(a) Fat is solid and oil is liquid at room temperature
(b) – Shock absorbers - Preservation of heat
- Energy production
- Metabolic Coaters
17. - Red blood cell – transport oxygen from lungs to body tissues inform of haemoglobin.
Transport carbon dioxide from body tissues too the lungs inform of carbonate
- Blood plasma
– Transport dissolved food nutrients like glucose, amino acids,
Fatty acids and glycerol from small intestines to the liver and other body tissues
Transport hormones, enzymes from secretory glands to tissues where they are required.
– Transport carbon dioxide to lungs, urea from tissues to the kidney
- Transport heat from more active organs like the liver to the other tissues of the
body