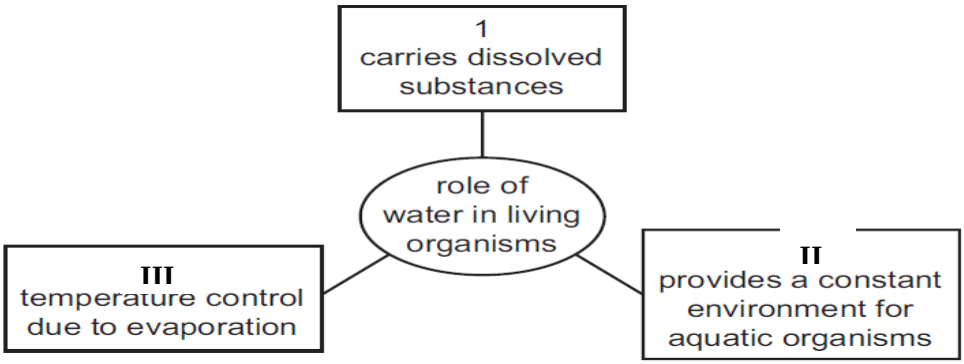
Nama : …… Kelas :……..

Peperiksaan Percubaan STPM Penggal I 2021
SMK BINTULU

BIOLOGY
Kertas 1
Masa : 1jam 30 minit

Section A [15 marks]
Answer all the questions

1. The diagram represents roles of water in living organisms.



Which roles are dependent upon hydrogen bonds between water molecules?

A 1, II and III
B 1 and II only
C 1 and III only
D II and III only

2. Which statements about phospholipids and triglycerides are correct?
I. They both contain ester bonds.
II. They both have three fatty acid chains per molecule.
III. They both may have saturated and unsaturated fatty acid chains.
IV. They are both used only as storage molecules.

A. I, II and III
B. I and III only
C. II, III and IV
D. II and IV only

3. Which protein has the highest tensile strength (ability to resist breaking when stretched)?

A. Cellulose
B. Actin
C. Spider silk
D. Albumin

4. Which cell structures can form vesicles?

	cell structure		
	cell surface membrane	endoplasmic reticulum	Golgi body
A	✓	✓	✓
B	✓	✓	✗
C	✓	✗	✓
D	✗	✓	✓

key
✓ = can form vesicles
✗ = cannot form vesicles

5. Which structures are found in typical eukaryotic cells?

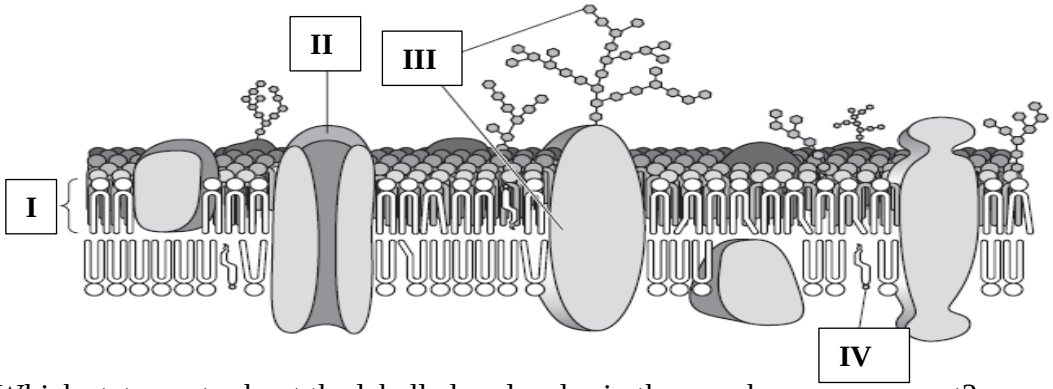
I. 70S ribosomes
II. 80S ribosomes
III. linear DNA (chromosomes)
IV. circular DNA

A. I, II, III and IV
B. I, II and III only
C. I and IV only
D. II and III only

6. Which definition of the magnification of a drawing of a leaf is correct?

A the actual size of the leaf multiplied by the magnification of the microscope
B the measured difference in size between the leaf and a drawing of the leaf
C the increase in size of the leaf when observed using a microscope
D the size of the drawing of the leaf divided by the actual size of the leaf

7. The diagram shows a cell surface membrane.



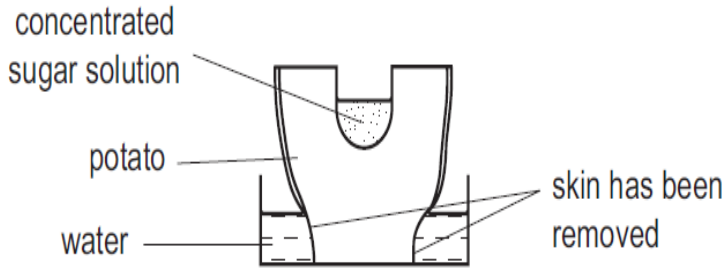
Which statements about the labelled molecules in the membrane are correct?

I. is involved in the diffusion of ions.
II. is involved in facilitated diffusion.
III. is involved in the recognition of antigens.
IV. is involved in membrane fluidity.

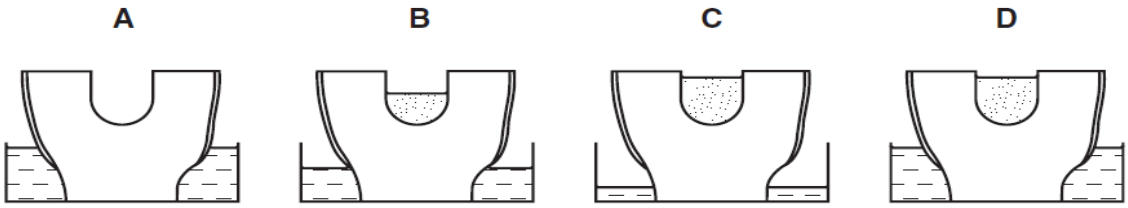
A. I, II and III
B. I and III only

C. I and IV **D.** II and IV only

8. The diagram shows an experiment using an uncooked potato. The skin of the potato was removed as shown.



Which diagram shows the result of the experiment after 24 hours?



9. The diagram shows the water potential of three adjacent plant cells, P, Q and R.



Which shows the net movement of water between cells P, Q and R?

A P → Q and P → R and R → Q
B P → Q and P → R
C Q → P and Q → R and R → P
D Q → P and R → P

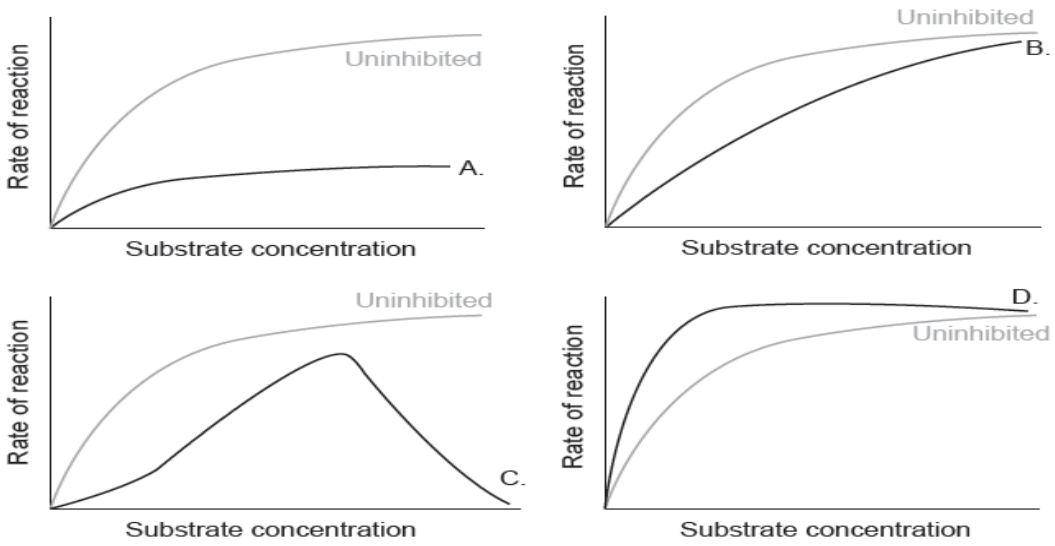
10. An enzyme is modified for industrial use. It has a lower Michaelis-Menten constant (Km) than the unmodified enzyme.

What is true of the modified enzyme?

A It is more specific.
B It has a higher affinity for its substrate.
C It has a lower maximum rate of reaction (Vmax).
D It needs more substrate to become saturated.

11. The grey line in each of the graphs below represents the rate of reaction catalysed by an uninhibited enzyme as substrate concentration is increased.

Which graph shows expected results if a competitive inhibitor was added to the reaction?



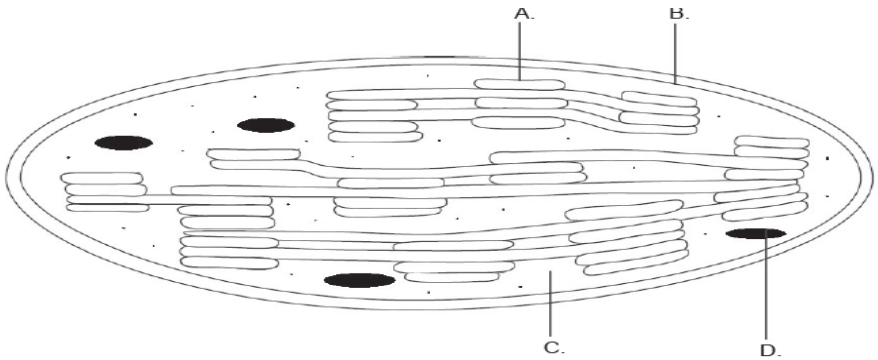
12. The following processes occur in aerobic cell respiration.

I. Decarboxylation of pyruvate
II. Diffusion of protons through ATP synthase
III. Phosphorylation of glucose

Which is the correct sequence for these processes?

A. I. II. III.
B. I. III. II.
C. II. III. I.
D. III. I. II.

13. Which structure in the chloroplast diagram is adapted to carry out chemiosmosis?



14. The statements refer to photorespiration in C3 crops growing in greenhouses.

Which statements are correct?

I. Increasing light intensity in the greenhouse will increase photorespiration as there is an increase in oxygen production from non-cyclic photophosphorylation.
II. If the temperature in the greenhouse increases, photorespiration is favoured over photosynthesis, which results in the production of a greater quantity of ATP.
III. Keeping the temperature of the greenhouse below 30 °C will prevent photorespiration from occurring, as oxygen cannot bind to the active site of rubisco.
IV. Photorespiration can be decreased by increasing the concentration of carbon dioxide inthe atmosphere in the greenhouse.

A. I and IV only
B. II and III only
C. II and IV only
D. I, II and III only

15. In alcoholic fermentation, NAD+ is produced during the

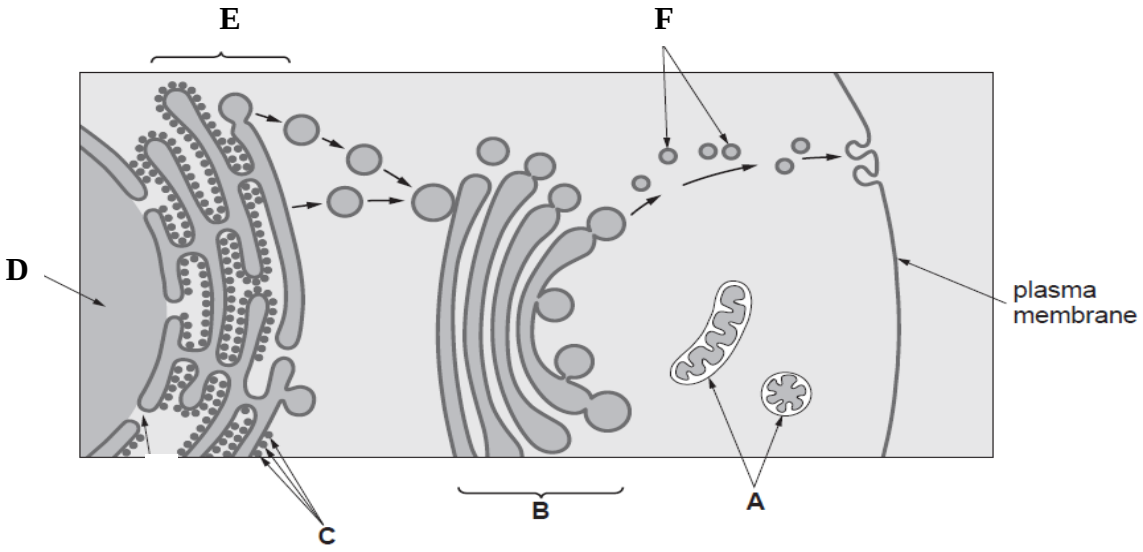
A. Oxidation of pyruvate to acetyl CoA
B. Reduction of pyruvate to lactic acid
C. Reduction of acetaldehyde to ethanol
D. Hydrolysis of ATP to ADP

Answer

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
11	**12**	**13**	**14**	**15**					

Section B [15 marks]

16. The diagram below shows part of a cell taken from the pancreas, which is involved in the production of digestive enzymes.



(a) Identify the structures labelled A, B, C, D. [2]

A: ..... B: ..... …

C: ..... D: .....

(b) Based on the diagram above, state one main function of **D** [1]

……

……

(c) With reference to the structures **B**, **E** and **F**, describe the sequence of events that lead to the secretion of digestive enzymes from this cell. [3]

……

……..

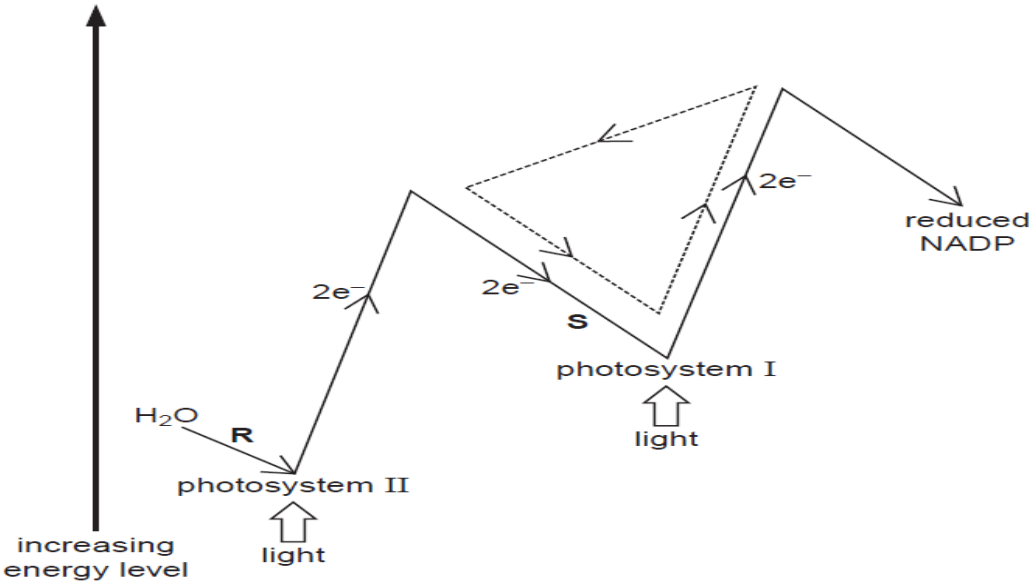
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(d) Explain the role of organelle **A** in the production and secretion of digestive enzymes.[2]

……..

……

17. The diagram below shows the light-dependent reactions of photosynthesis.



a) State the location of the light-dependent reactions take place [1]

…….

b) Name two types of light-dependent reactions shown in the diagram above [1]

…….

c) Explain the role of light in light- dependent reactions shown above [2]

……...

……..

……...

d)Explain what happens to water at R [2]

……

……..

……

e)) Differentiate photosystem I from photosystem II. [2]

……...

……...

Trial Exam P1 2021 Answer Scheme

Section A

1 D	**2 B**	**3 C**	**4 A**	**5 A**	**6 D**	**7 D**	**8 C**	**9 A**	**10 B**
11 B	**12 D**	**13 A**	**14 A**	**15 C**					

Section B

16a) A: Mitochondrion/mitochondria
B: Golgi body/complex/apparatus
C: Ribosome(s)
D: Nucleus (2 or 3 correct for 1 mark . All correct for 2 marks)

b) contains DNA which codes for the production of proteins/polypeptides/sequence of amino acids in a polypeptide
/ transcription
/ synthesis of mRNA via transcription

c) E (rough ER) : transport protein to Golgi body via package proteins into transport vesicles
B(Golgi body) : Modification of protein (such as hydrolytic enzyme) & package it into secretory vesicles
F(transport/ secretory vesicles) : transports proteins/enzymes to the cell membrane/ plasma membrane

d) Provide ATP for transcription / translation / protein synthesis
provide ATP for exocytosis

Suka sampel ini?

Kertas Percubaan STPM

Sem 1 · Biologi

- Semester 1: kertas percubaan (trial) negeri, subjek yang dipilih + skema
- Blueprint 30 hari Semester 1 (setiap subjek)
- Semester 3: percubaan 2024, 10 subjek, banyak negeri, soalan + skema dalam satu fail

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