SAMPEL PERCUMA

Trial STPM 2022 Biologi Semester 1 (Set 2)

Set penuh: Kertas Percubaan STPM

Sem 1 · Biologi

Sampel ini: 8 muka surat. Set penuh ada:

- 3 fail PDF
- Semester 1: kertas percubaan (trial) negeri, subjek yang dipilih + skema
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Sampel bermula di muka surat sebelah

Nombor kad pengenalan……..Nombor pusat/angka giliran……....

964/1 **TRIAL STPM 2022**

BIOLOGY (BIOLOGI) SET 2
PAPER 1 (KERTAS 1)
One and a half hours(1 jam 30 minit)
SIJIL TINGGI PERSEKOLAHAN MALAYSIA
(MALAYSIA HIGHER SCHOOL CERTIFICATE)

For Examiner usage	
Section A	
15 questions	
Section B	
16	
17	
Section C	
Total	

Instructions to candidates:

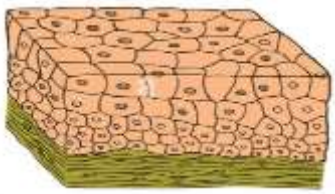
DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE ALLOWED TO DO SO
Answer all questions in Section A.
Answer all questions in Section B.
Answer two questions only in Section C.
All working should be shown. For numerical answers, unit should be quoted wherever appropriate.
Answer may be written in English or Malay.

This question paper consists of 9 printed pages.

4 When a student examined a cell under a microscope, he observed the presence of cell wall and the cell does not contain membrane-bound organelles. What conclusion can be made from the observation?

A It is a plant cell
B It is a bacteria cell
C It is an animal cell
D It is either a plant cell or an animal cell

5 Which of the following is the important function of the epithelium below?

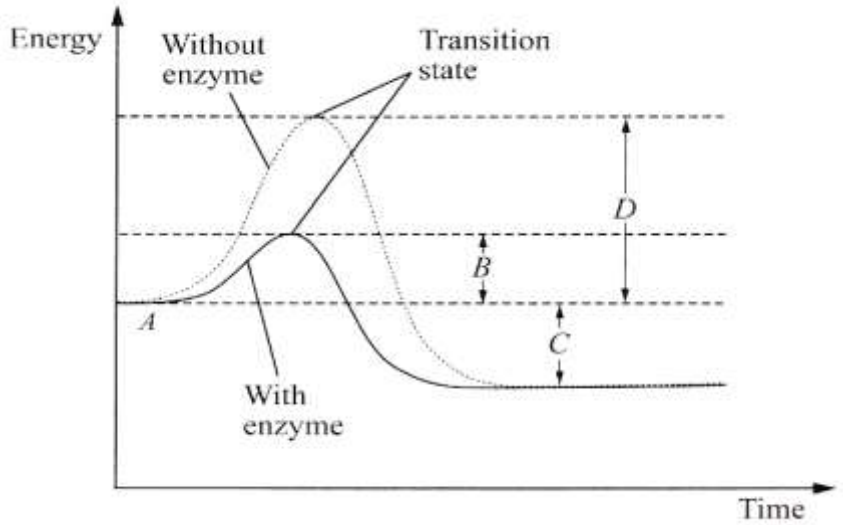


A Mucous secretion
B Glomerular filtration
C Water reabsorption
D Elasticity of urinary bladder

6 Which of the function of proteins embedded in the phospholipid bilayer of plasma membrane?

A Acts as enzymes
B Maintains membrane fluidity
C Produces ATP for active transport
D Transports carbon dioxide and oxygen

7 The graph below shows the reaction rate with and without an enzyme. Which of the following is the activation energy of the enzyme-catalysed reaction?



8 The table below shows classes of enzymes and examples of enzymes involved in the reactions that they catalysed.

Class of enzyme	*Example of enzyme in reaction*
I Oxydoreductase II Hydrolase III Lyase IV Isomerase	(a) Glucose-1-phosphate $\xrightarrow{\text{phosphoglucomutase}}$ glucose-6-phosphate (b) Pyruvic acid $\xrightarrow{\text{pyruvate decarboxylase}}$ ethanol + carbon dioxide (c) Sucrose $\xrightarrow{\text{sucrase}}$ fructose + glucose (d) Ethanal + NADH $\xrightarrow{\text{alcohol dehydrogenase}}$ ethanol + NAD^+

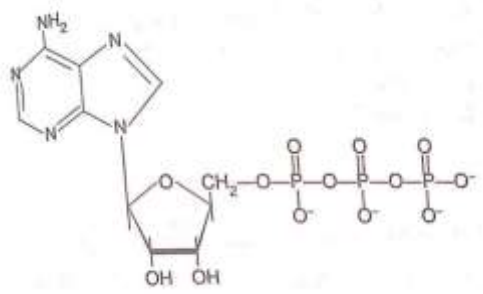
Which of the following is correct for the classes of enzymes and the examples of enzymes?

	I	II	III	IV
A	(a)	(c)	(d)	(b)
B	(b)	(a)	(c)	(d)
C	(c)	(d)	(b)	(a)
D	(d)	(c)	(b)	(a)

9 The following are the applications of enzyme immobilisation, **except**

A production of insulin for diabetic patients.
B production of lactose free milk.
C a biosensor to detect urea in blood or urine sample.
D a dipstick biosensor to monitor blood glucose level.

10 The diagram shows the structure of ATP.



Which of the following are true about ATP?

I It is a nucleotide molecule.
II It has a purine base.
III It acts as an intermediate energy carrier.
IV Synthesis of the molecule is an endergonic process.

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

11 What are the products of anaerobic respiration in animal cells?

I ATP
II Carbon dioxide
III Ethanol
IV Lactic acid

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

12 Which of the following are the characteristics of bacteria *Nitrosomonas* and *Nitrobacter*?

I They are chemoautotrophs.
II They use carbon dioxide as an inorganic carbon source.
III Energy needed for synthesis of organic compounds is obtained by oxidation of inorganic chemicals.
IV They use hydrogen sulphide as a source of hydrogen.

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

13 Which of these statements is correct about the light-dependent reactions of photosynthesis?

A ATP is needed to convert carbon dioxide to triose phosphate sugar.
B ATP and NADPH are used to convert triose phosphate to hexose sugar.
C Water molecule is oxidized to oxygen and $NADP^+$ is reduced to NADPH.
D Water molecule is needed to produce oxygen and to reduce carbon dioxide.

14 In the cytoplasm of a leaf cell for CAM plant, carbon dioxide is fixed at night to form a substance. This substance must be stored in the cell vacuole until day time because it

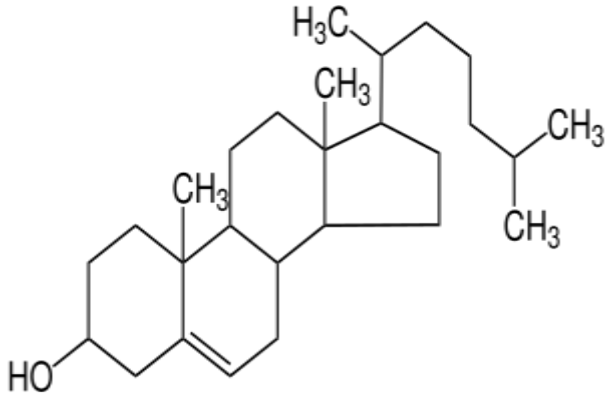
A dissolves quickly and will diffuse out from the cell.
B will affect the pH of the cell cytoplasm.
C must be activated by enzymes in the cell vacuole.
D is osmotically active and must be separated.

Section B [15 marks]

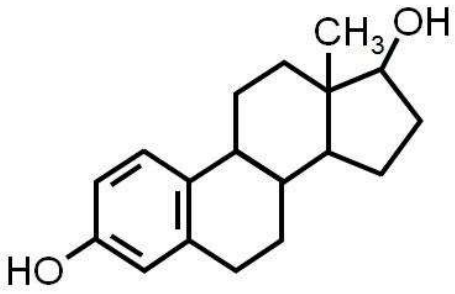
Answer **all** *questions in this section.*

Write the answers in the spaces provided.

16 The diagram below shows the structure of lipids.



X



Y

(a) Name the type of lipids shown in the diagram. [1 mark]

……

(b) Name ***X*** and ***Y*** [2 marks]

X:……

Y:……

(c) Draw a circle that shows hydrophilic end at structure ***X***. [1 mark]

(d) State a characteristic of this lipids based on its polarity.Explain your answer.

[2 marks]

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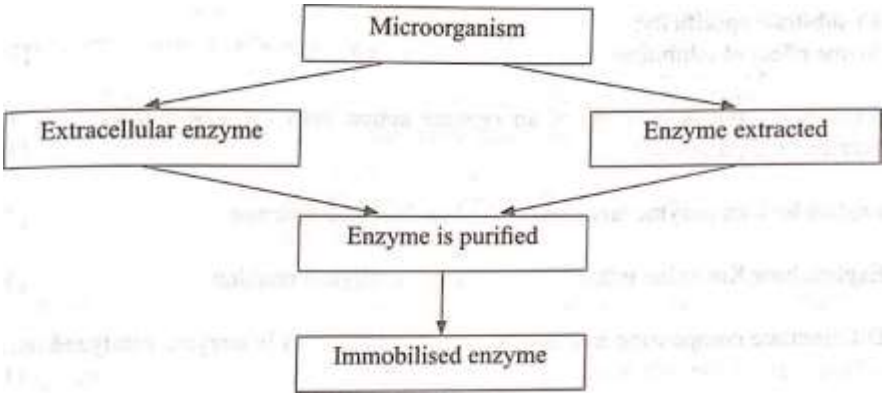
……

(e) State a function of ***X*** in the plasma membrane. [1 mark]

……

……

17 The diagram below shows two methods in which enzymes can be produced for industrial processes.



(a) What is meant by 'enzyme immobilisation'? [2 marks]

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(b) Explain briefly three ways in which enzymes can be immobilized. [3 marks]

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(c) State three advantages of using immobilized enzymes. [3 marks]

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Section C [30 *marks*]
Answer **two** questions only in this section.

18 (a) Describe five factors which would affect the rate of diffusion of molecules across a cell's plasma membrane. [10 marks]

(b) Describe the relationship between water potential with solute potential and pressure potential in plants. [5 marks]

19 According to the International Union of Biochemistry (IUB), enzymes are divided into several classes.

(a) Define enzyme and state the different classes of enzymes. [6 marks]

(b) Choose three classes of the enzyme and describe their functions by referring to an examples. [9 marks]

20 (a) Explain the effect of light intensity on the reactions which occur in photosynthesis. [5 marks]

(b) Explain the limiting factor which affect the rate of photosynthesis. [10 marks]

Scheme for Trial STPM Biology Term 1 2022 Set 2

Section A

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

Section B

16. (a) Steroids **[1 mark]**

(b) ***X***: Cholesterol

Y: Oestrogen **[2 marks]**

TAMAT SAMPEL

Suka sampel ini?

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