S. N. KANSAGRA SCHOOL
BIOLOGY (THEORY)
STD11 **Terminal examination 2013-2014** (***Three hours***)

Answer all questions in Part I and six questions in Part II, choosing two questions from each of the three sections A, B and C.
All working including rough work, should be done on the same sheet as, and adjacent to, the rest of the answer.
The intended marks for questions or parts of questions are given in brackets [ ].
Part II each point carries half mark.

Part I
Answer **all** questions

Question 1

A. Mention one significant difference between each of the following: **[5]**

1. Conglobate gland and collateral gland
2. Glottis and gullet
3. Amylose and amylopectin
4. Peroxisome and glycoxysome
5. Mastocytes and macrophages

B. What would happen if **[3]**

1. There are no fibroblast cells
2. Gall bladder is removed
3. No pits are present on the cell wall

C. Choose the correct option (copy and write the answer with the alphabet): **[4]**

1. Which feature distinguishes starch from glycogen?

   A. Starch contains α-glucose.

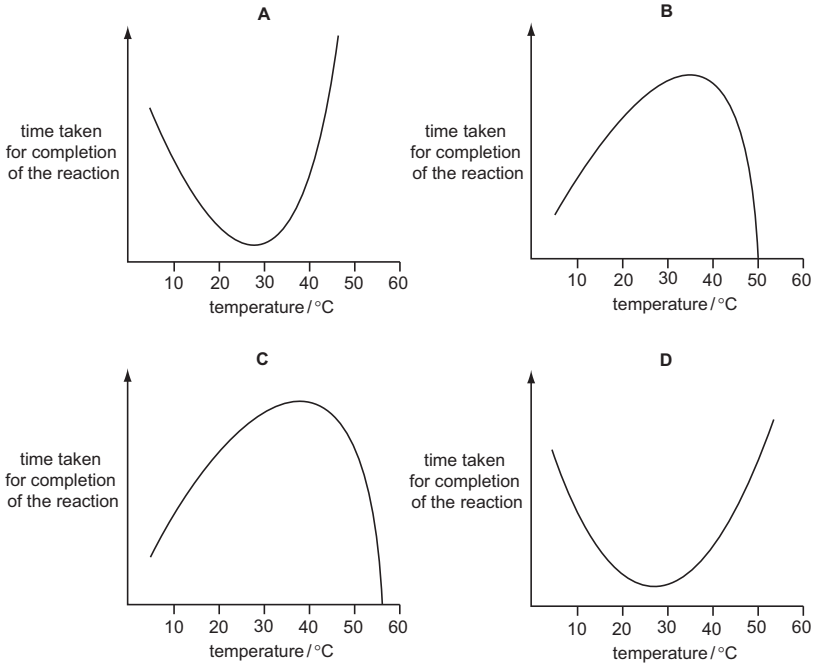
   B. Starch contains 1,6 glycosidic bonds.

   C. Starch has an unbranched component.

   D. Starch is a polysaccharide

2. An enzyme is completely denatured at 50 °C. A fixed concentration of this enzyme is added to a fixed concentration of its substrate. The time taken for completion of the reaction is measured at different temperatures.

Which graph shows the results?



3. What occurs in anaphase of mitosis?

A. chromatids line up on the equator of the cell

B. chromatids reach the poles of the spindle

C. chromatids separate and move to opposite poles

D. chromatids start to coil up and become visible

4. Cancer cells divide out of control, forming tumours. Which statement describes the difference between a cancer cell and a normal cell?

A. Cancer cells do not undergo cytokinesis.

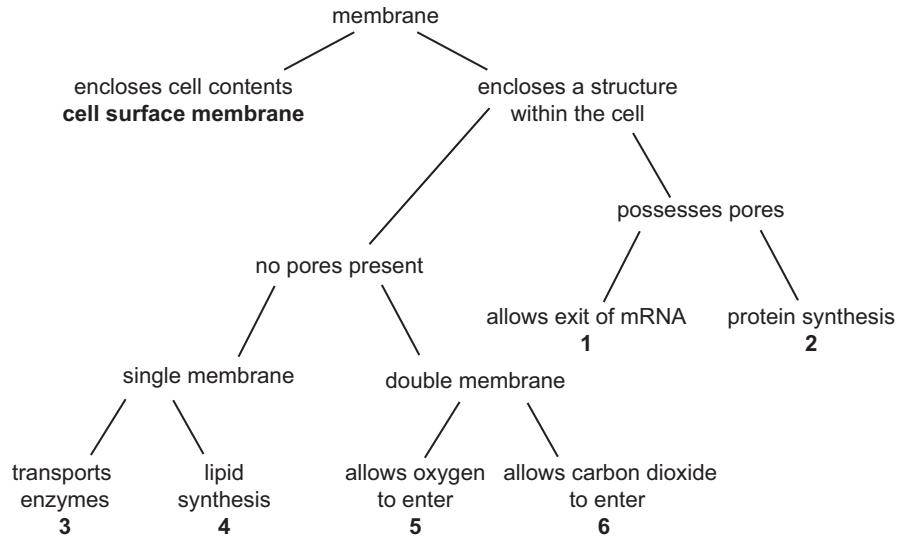
B. Cancer cells have a shorter interphase.

C. Cancer cells do not have metaphase.

D. Only cancer cells have mutated DNA.

5. Membranes within and at the surface of cells have different roles.

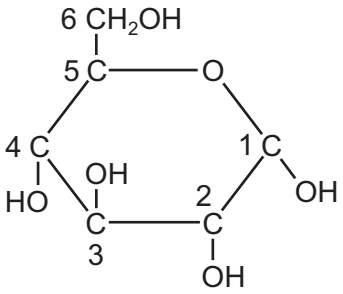
The diagram allows the identification of the various organelles within the cell, by describing the membrane structure and function.



Which of the outcomes shown below correctly identifies the organelles that possess the membrane and function concerned?

	1	2	3	4	5	6
A	chloroplast	vesicle	smooth ER	rough ER	nucleolus	mitochondrion
B	nucleolus	rough ER	vesicle	smooth ER	nucleus	mitochondrion
C	nucleus	rough ER	vesicle	smooth ER	mitochondrion	chloroplast
D	nucleus	smooth ER	mitochondrion	rough ER	vesicle	chloroplast

6. The hexose sugar molecule in the diagram has its six carbon atoms numbered.



Which carbon atoms join by glycosidic bonds to form amylose and amylopectin?

	amylose	amylopectin
A	1 to 4	1 to 4 and 1 to 6
B	1 to 6	1 to 4 and 1 to 6
C	1 to 4 and 1 to 6	1 to 4
D	1 to 4 and 1 to 6	1 to 6

7. Which of the organisms A–D, identified by the key below, represents an Annelid?

1. Shows bilateral symmetry	go to 2
Does not show bilateral symmetry	Cnidaria
2. Has a segmented body	go to 3
Does not have a segmented body	go to 4
3. Has jointed legs	A
Does not have jointed legs	B
4. Has a shell	C
Does not have a shell	D

8. Which of the following parts of the digestive system secrete proteases?

	Stomach	Small Intestine	Large Intestine
A.	Yes	Yes	No
B.	Yes	No	Yes
C.	Yes	No	No
D.	No	No	No

D. Give the contribution of the following scientists. **[2]**

1. Christian De duve
2. Walter Flemming
3. Howard Ricketts
4. R. Franklin and M.H.F. Wilkins

E. Elaborate the following: **[2]**

1. CDK
2. CDP
3. FAD
4. DHU

F. Give the most significant function of- **[4]**

1. Gizzard
2. Periodontal membrane
3. Mesosomes
4. Extrinsic proteins

Part II
Section A
Answer any **two** *questions*

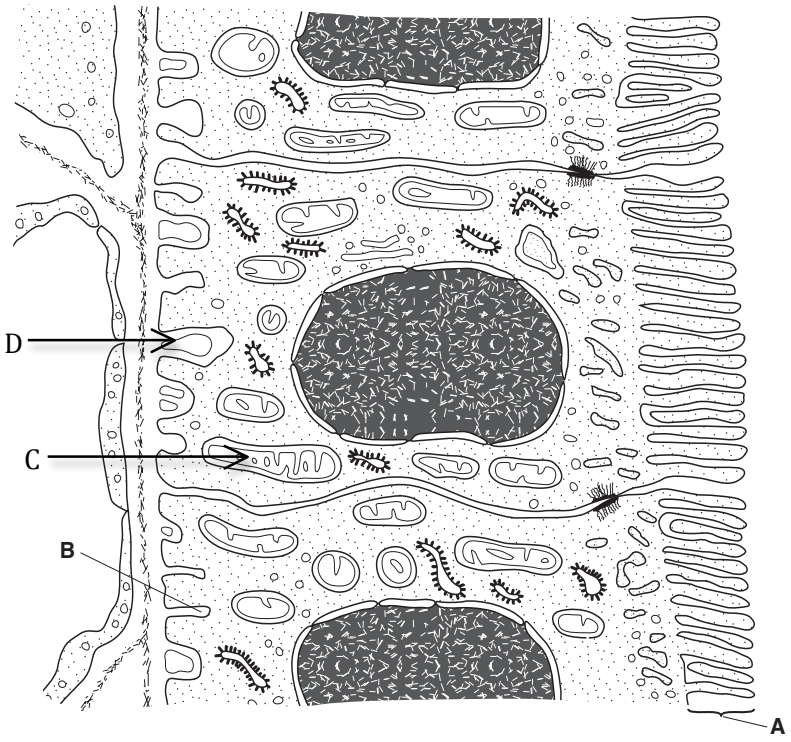
Question 2

a. Consider that a person has only rice for lunch. Discuss the physiology of digestion. [3]

b. With the help of diagram show the type of simple epithelial tissue in follicles of thyroid and sweat glands. Give another location for each. [2]

Question 3

a. The given structure shows lining of a part of the alimentary canal. [2.5]



1. Identify the part of the alimentary canal.
2. What is the importance of structure A and how is its structure adapted for its function.
3. What does the presence of large number of structure C indicates?
4. What is the process happening in D?

b. Certain cells in the lining of the above figure release secretions. Based on the type of secretion describe the cells present. Which cell will be present in the part mentioned in Q3a? [2.5]

Question 4

a. Duodenum is the ideal location for complete digestion. With the help of a diagram show the path of the secretions that are released to aid in complete digestion. [3]

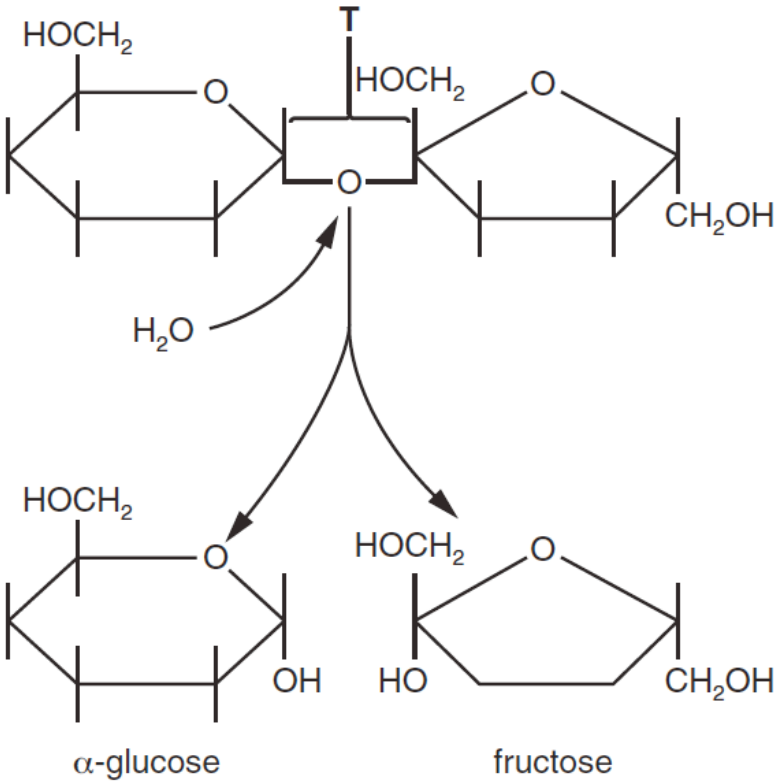
b. List the secretions of pancreas. [2]

SECTION B

Answer any **two** *questions*

Question 5

a. Given figure shows the breakdown of sucrose. [4]



i. Identify T in the diagram.

ii. What type of reaction is this? Define it.

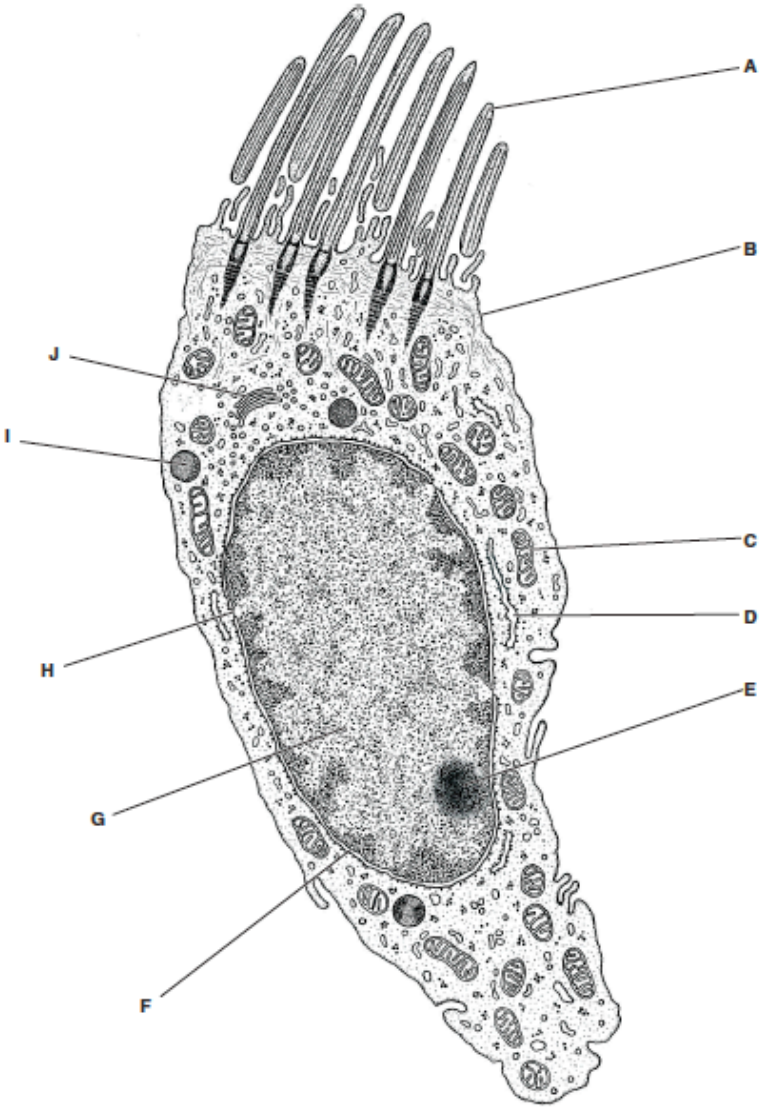
iii. What is the reverse of this reaction? Show it with a diagram for Lactose molecule.

b. Name the enzyme that catalyzes the reaction in Q5a. Explain the mode of action of this enzyme. [3]

c. Sucrose is a large polar molecule that cannot cross the cell membrane directly. Explain the way it can cross the cell membrane. Draw the diagram of cell membrane and mark the region that helps in passing sucrose. [4]

Question 6

Given below is a cell from the ciliated epithelium of bronchus.



a. Observe the structure and answer the following. [3]

   i. Label the parts C, D, J and I.

   ii. What are the structures present in A? Describe its structure.

   iii. Draw a labeled diagram of structure G.

b. Consider that the structure G has 4 chromosomes. Draw the stages of cell division that can occur in this cell. [4]

c. Draw the representation of the genetic material in structure G with three base pairs. Who proposed this model? State four features of this model. [4]

Question 7

a. What are higher nucleotides? Why are they called so? Explain the structure of one ribonucleotide and its bonds. [4]

b. Explain allosteric modulation and give four differences between allosteric inhibition and competitive inhibition. [3]

c. Give differences between cytokinesis in plant cell and animal cell. [2]

d. Discuss the special property of phospholipid. [2]

SECTION C

Answer any **two** *questions*

Question 8

a. *Ornithorynchus* is an aquatic egg-laying mammal. Classify this organism from phylum to its sub class. [4]

b. Discuss the role of bacteria in energy production and in medicines. [4]

c. With the help of diagram show a mode of sexual reproduction in bacteria. [3]

Question 9

a. Reptiles are the first true land vertebrates. Justify the statement. [1]

b. Describe the mouthparts of cockroach. [2]

c. Classify protistan algae giving examples. [3]

d. Identify the class and Phylum of any four given organism [4]

I. Icthyopis
II. Myxine
III. Aurelia
IV. Leech
V. Snail

Question 10

a. Amphibians exhibit four different life styles. Explain the four different lifestyles that they exhibit. [2]

b. Discuss the types of digestive glands in cockroach and their significance. [3]

c. Compare the water vascular system and the canal system. [2]

d. With the help of diagram bring out the difference between sarcodines and ciliates. [2]

e. What is the significance of pseudoplasmodia? [1]