AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX

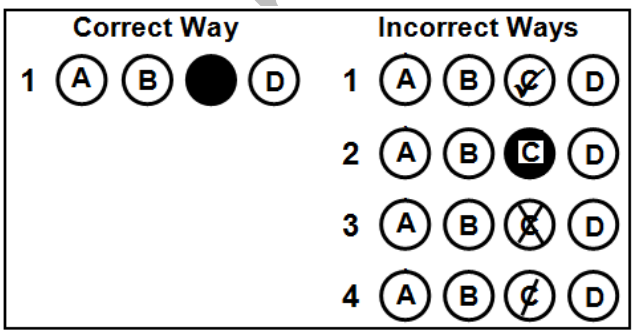
MODEL EXAMINATION PAPER 2018

Biology Paper I

Time: 45 minutes Marks: 30

INSTRUCTIONS

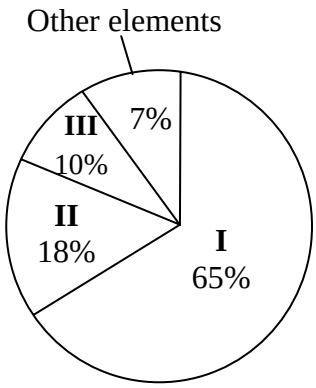
1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 30 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.



Candidate's Signature

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.

1. The given pie chart shows the distribution of bio-elements in the human body.



The elements represented by **I**, **II** and **III** are

	I	II	III
A	Oxygen	Carbon	Hydrogen
B	Carbon	Oxygen	Hydrogen
C	Hydrogen	Carbon	Oxygen
D	Carbon	Hydrogen	Oxygen

2. Four different levels of biological organisation are represented in the given diagrams.

I II III IV

The CORRECT sequence of biological organisation in the descending order is

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

3. A student extracts saliva (pH 7) from the mouth of a mammal, mixes it with some fine pieces of bread and keeps the mixture at 32°C. After three hours, a positive result is obtained, i.e. the pieces of bread disappear from the mixture.

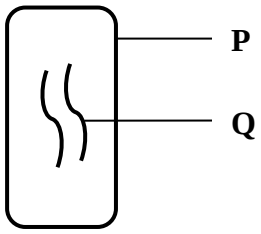
A positive result can also be obtained by

A. repeating the procedure at 36°C.
B. conducting the experiment at pH 2.
C. using distilled water instead of saliva.
D. repeating the experiment with boiled saliva.

4. According to the two-kingdom classification system of living organisms, algae were placed in kingdom plantae because of their

   A. eukaryotic cell.
   B. unicellular body.
   C. mode of nutrition.
   D. mode of reproduction.

5. The given diagram shows the structure of a virus.



Which of the following CORRECTLY identifies **P** and **Q**?

	P	**Q**
A	Lipid bilayer	Nucleic acid
B	Protein coat	Nucleic acid
C	Protein coat	Glycolipid
D	Lipid bilayer	Glycolipid

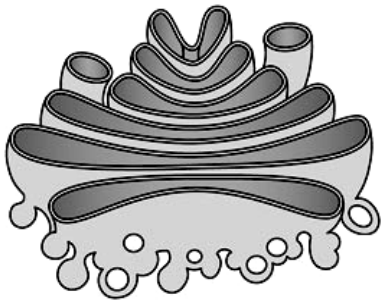
6. The scientific classification of a plant is as follows.

Order: Asparagales
Genus: Allium
Division: Angiosperm
Family: Amaryllidaceae

Following the rules of binomial nomenclature, the species of the plant would be

   A. Allium cepa.
   B. Angiosperm cepa.
   C. Asparagales cepa.
   D. Amaryllidaceae cepa.

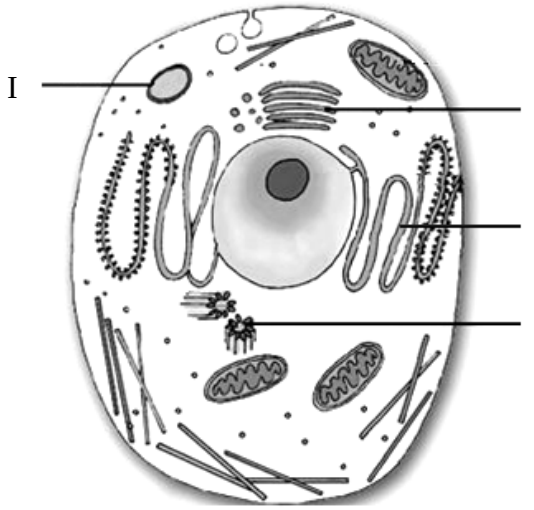
7.



Which organelle is shown in the given diagram?

A. Centrioles
B. Golgi bodies
C. Rough endoplasmic reticulum
D. Smooth endoplasmic reticulum

8. Which of the labelled organelles in the given animal cell is made up of microtubules?



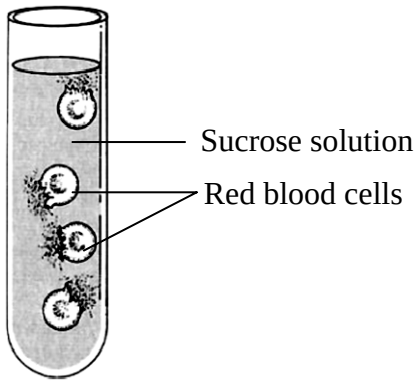
A. I
B. II
C. III
D. IV

9. The function of smooth endoplasmic reticulum in an animal cell is the

A. storage of enzymes.
B. metabolism of lipids.
C. synthesis of proteins.
D. formation of glucose.

10. The given diagram shows the condition of human red blood cells when kept in a sucrose solution.

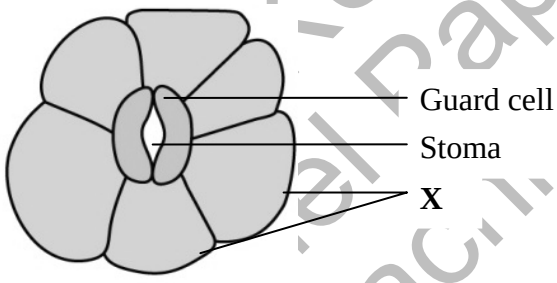
(**Note:** The internal concentration of human red blood cells is 0.9%.)



The concentration of sucrose solution in the given situation would be

A. 3%
B. 5%
C. 0.9%
D. 0.1%

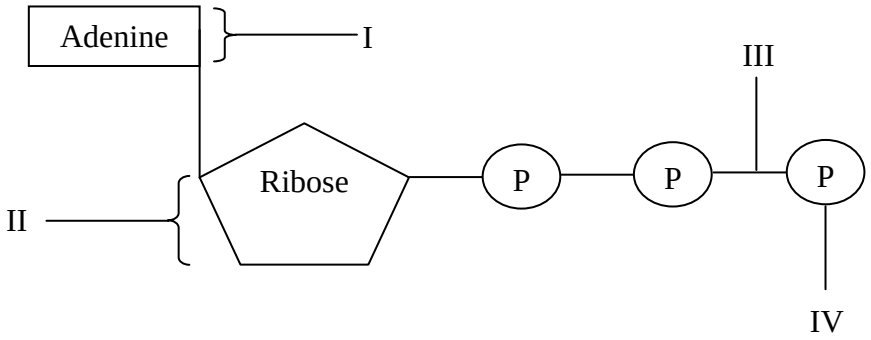
11. The given diagram shows the transverse section of a leaf.



The cells represented by **X** are

A. phloem cells.
B. epidermal cells.
C. collenchymal cells.
D. sclerenchymal cells.

12. The given diagram illustrates the chemical structure of adenosine tri phosphate (ATP).



(**Note**: P = Phosphate)

Which labelled part of ATP provides energy when broken?

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

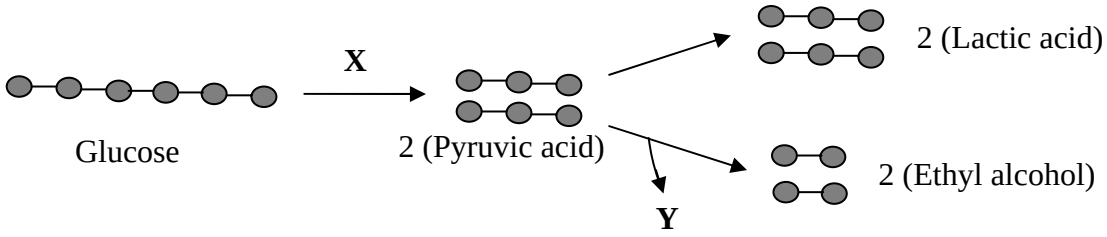
13. The reduction of nicotinamide adenine dinucleotide phosphate ($NADP^+$) takes place during the light reactions of photosynthesis by

A. gaining two electrons and one hydrogen ion.
B. gaining one electron and two hydrogen ions.
C. removing two electrons and one hydrogen ion.
D. removing one electron and two hydrogen ions.

14. How many water molecule(s) are involved in light dependent reactions to produce TWO oxygen molecules by the end of photosynthesis?

A. 1
B. 2
C. 3
D. 4

15. The given diagram shows some events of anaerobic respiration.



Which process and by-product formation occurs at **X** and **Y** respectively?

	X	Y
A	Glycolysis	Carbon dioxide
B	Glycolysis	Adenosine triphosphate
C	Alcoholic fermentation	Carbon dioxide
D	Alcoholic fermentation	Adenosine triphosphate

16. The similarity between aerobic and anaerobic respiration is the

A. complete oxidation of glucose.
B. production of equal amount of energy.
C. involvement of mitochondria in reactions.
D. occurrence of oxidation reduction reactions.

17. Respiration is different from gaseous exchange because respiration

A. consists of a series of chemical reactions.
B. requires a concentration gradient to occur.
C. involves lungs and its associated structures.
D. takes place in higher multicellular organisms.

18. The structures of the respiratory system of human beings between which exchange of carbon dioxide and oxygen gas takes place are

A. alveoli and capillaries.
B. trachea and capillaries.
C. alveoli and bronchioles.
D. trachea and bronchioles.

19. Breathlessness is one of the major symptoms of emphysema. Breathlessness occurs because the

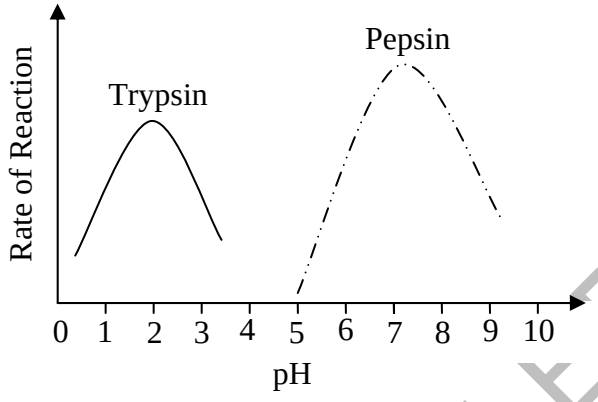
A. patient suffers from cough.
B. air spaces of alveoli are enlarged.
C. walls of bronchioles become thin.
D. heart cannot pump enough oxygenated blood.

20. Asif goes for a morning walk where the temperature of the surrounding is 13°C.

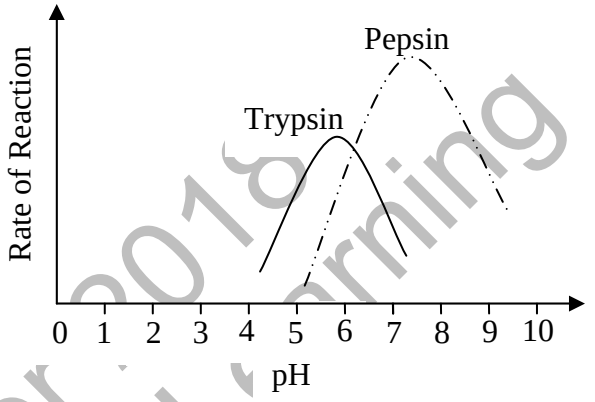
In this situation, enzymes in Asif's body would work best at a body temperature of

A. 13°C
B. 23°C
C. 30°C
D. 37°C

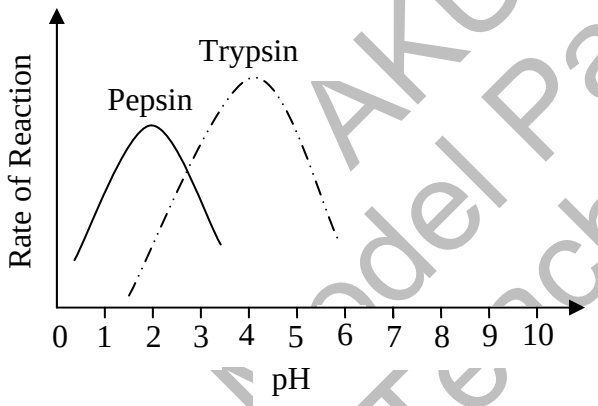
21. Which of the given graphs CORRECTLY represents the activity of pepsin and trypsin at their respective pH?



A



B



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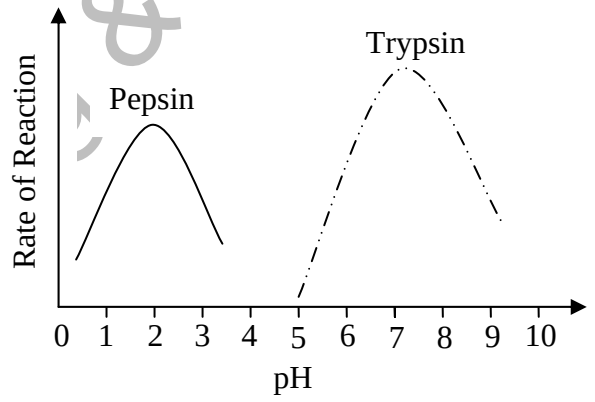


D

22. The function of vitamin K in human body is

A. clotting of blood.
B. oxidation of glucose.
C. absorption of calcium.
D. synthesis of eye pigments.

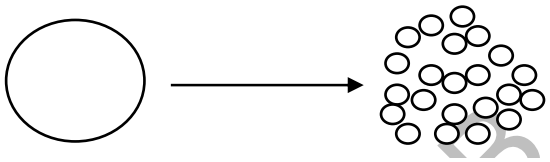
23. The given table shows the daily diet of Sania.

Breakfast	Lunch	Dinner
A fried egg and 2 slices of bread	Boiled rice, chicken curry and fruit salad	Vegetables pasta

This diet could be considered balanced because it includes

A. less fats.
B. three meals.
C. variety of food.
D. more carbohydrates.

24. The given diagram illustrates a process occurring in the digestive system of human beings.



Fat drop Fat droplets

This process is called

A. assimilation.
B. deamination.
C. emulsification.
D. chemical digestion.

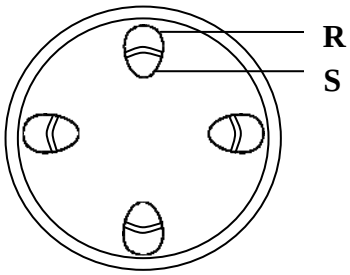
25. A patient has the following symptoms.

- Pain in abdominal region
- Difficulty in expelling faeces
- Infrequent bowel movements

The patient is MOST likely to be suffering from

A. ulcer.
B. typhoid.
C. diarrhoea.
D. constipation.

26. The given diagram shows a cross section of a plant stem.



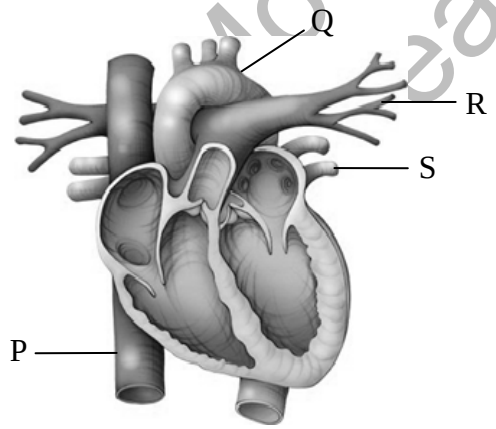
The structures labelled as **R** and **S** are

	R	**S**
A	Cambium	Phloem
B	Xylem	Pith
C	Phloem	Xylem
D	Cambium	Pith

27. Which of the following is CORRECT about thrombocytes?

	Nucleus	**Pigment**	**Life Span**
A	Absent	Absent	7-8 days
B	Present	Absent	120 days
C	Absent	Present	7-8 days
D	Present	Present	120 days

28. The given diagram represents the human heart.



The blood vessel that receives the oxygenated blood from lungs is

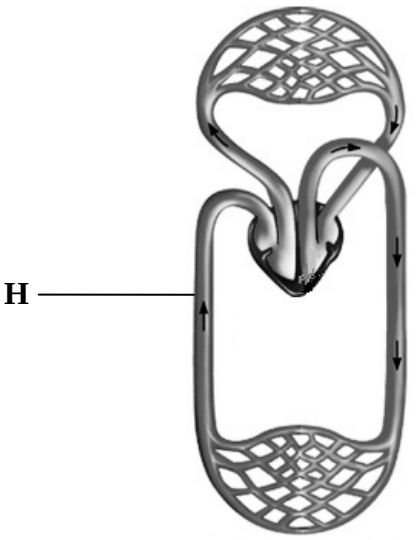
A. P
B. Q
C. R
D. S

29. Saima has blood group **B**. She needs blood.

People with which of the following blood groups can donate blood to Saima?

	Blood group A	**Blood group B**	**Blood group AB**	**Blood group O**
A	Yes	No	Yes	No
B	Yes	No	No	Yes
C	No	Yes	Yes	No
D	No	Yes	No	Yes

30. The given diagram shows double circulation of blood in a mammal.



The blood vessel **H** represents

A. vena cava.
B. dorsal aorta.
C. femoral artery.
D. pulmonary vein.

END OF PAPER

Please use this page for rough work