AGA KHAN UNIVERSITY EXAMINATION BOARD

HIGHER SECONDARY SCHOOL CERTIFICATE

CLASS XI

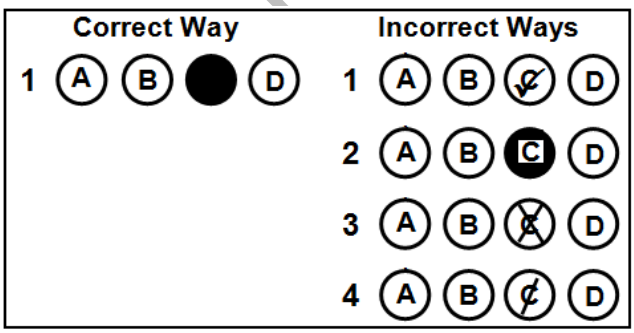
MODEL EXAMINATION PAPER 2018

Biology Paper I

Time: 50 minutes Marks: 35

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 35 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 jelly fish found in the Pacific Ocean have specialised stinging cells in their ectodermal layer called cnidocytes which contain a bristle like structure called cnidocil. This structure triggers cnidocytes to respond in danger situation.

   The CORRECT representation of the hierarchy of biological levels of organisation in ascending order in the given scenario is

   A. Pacific Ocean, jelly fish, ectodermal layer, cnidocytes, cnidocil.
   B. Pacific Ocean, jelly fish, ectodermal layer, cnidocil, cnidocytes.
   C. cnidocil, cnidocytes, ectodermal layer, jelly fish, Pacific Ocean.
   D. cnidocytes, cnidocil, ectodermal layer, jelly fish, Pacific Ocean.

2. An example of inductive reasoning is

   A. all plants are autotrophs and moss is a plant, so moss is an autotroph.
   B. all noble gases are stable and helium is a noble gas, so helium is stable.
   C. all numbers ending in 0 or 5 are divisible by 5, so the number 35 is divisible by 5.
   D. all snakes in the zoo have scales on their body, so all snakes in the world have scales.

3. Zoha burns her finger by touching the side of an iron pot on the stove even though the water in the pot is still lukewarm.

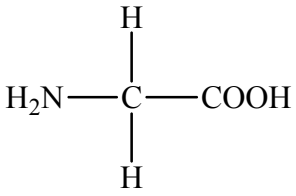
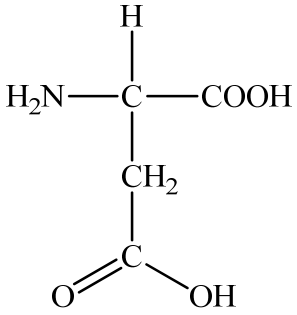
   The property due to which there is a difference between the temperature of water and iron pot is

   A. density.
   B. specific heat.
   C. boiling point.
   D. heat of vaporisation.

4. All of the following properties of water are correct EXCEPT that

   A. it has the ability to absorb heat.
   B. it reduces friction between body parts.
   C. it is less dense in liquid form than as a solid.
   D. its molecules dissociate into H^+ and OH^- ions.

5. An example of an acidic amino acid is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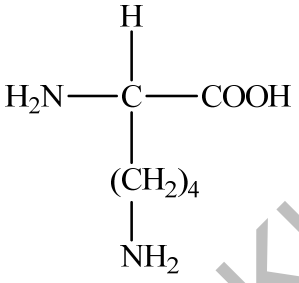
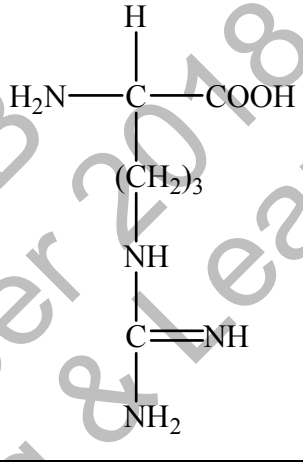
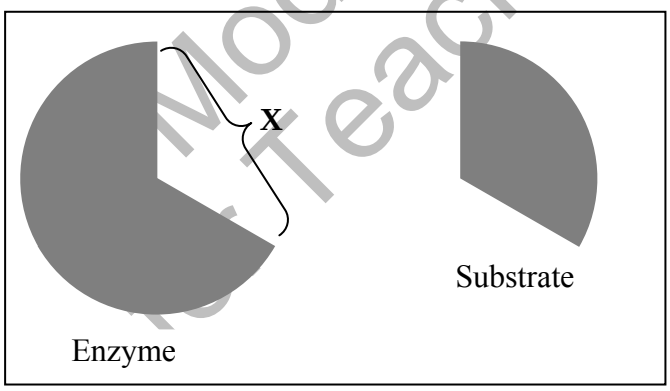
	
C	D

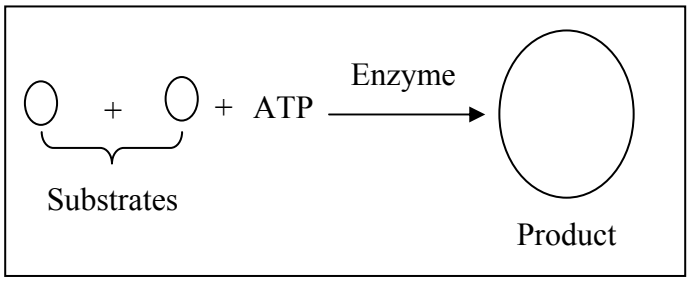
6. The given diagram shows an enzyme and a substrate.



The substrate can fit at site **X** of the enzyme because enzyme and substrate have similar

A. types of amino acids.
B. chemical composition.
C. number of amino acids.
D. geometric configuration.

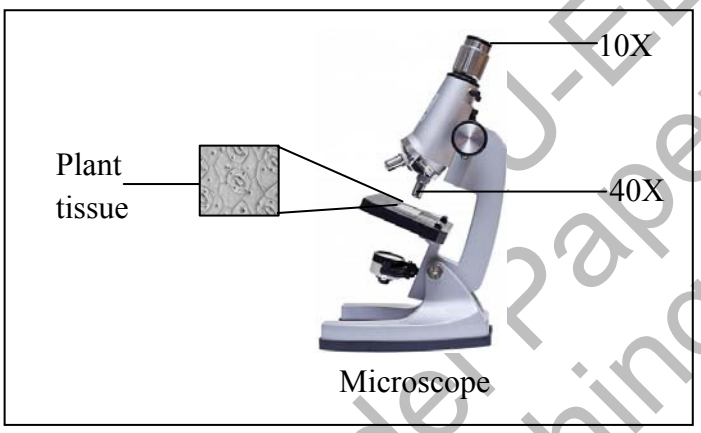
7. The given diagram illustrates the type of reaction catalysed by a specific group of enzymes.



The group of enzymes that catalyses the given type of reaction is

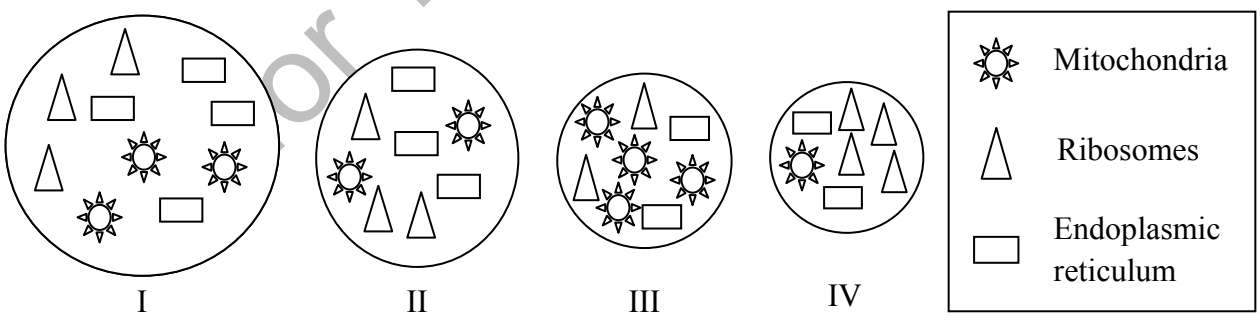
A. lyase.
B. ligase.
C. hydrolase.
D. isomerase.

8. The magnification used to view a plant tissue under the microscope as shown in the given diagram is



A. 10X
B. 40X
C. 50X
D. 400X

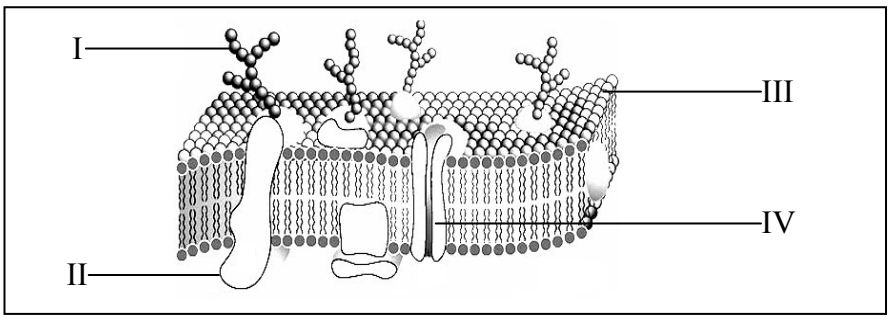
9. The following diagrams represent the relative quantity of three organelles in animal cells.



Which of the given cells would have the HIGHEST energy demand for metabolic activities?

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

10. The given diagram shows plasma membrane at the molecular level.



The component of the given plasma membrane that distinguishes one type of cell from the other type of cell in the human body is

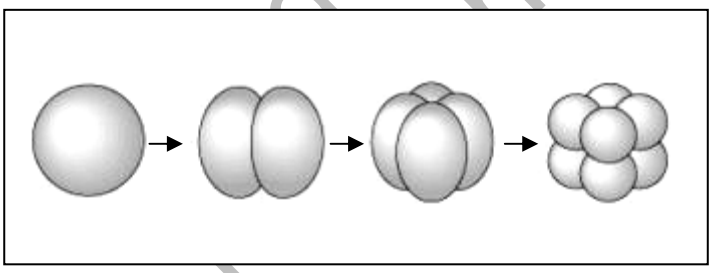
A. I
B. II
C. III
D. IV

11. Human ovaries and testes produce steroid hormones.

The organelle that would be abundant in human ovaries and testes to facilitate the production of steroid hormones is

A. lysosomes.
B. Golgi bodies.
C. rough endoplasmic reticulum.
D. smooth endoplasmic reticulum.

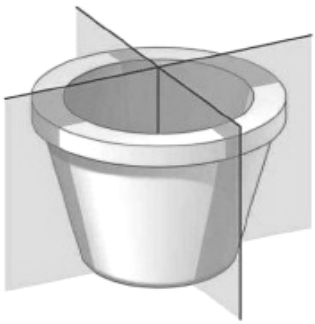
12. The diagram represents a pattern of cleavage in animals.



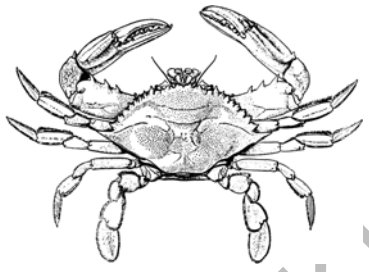
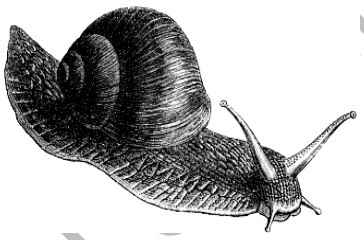
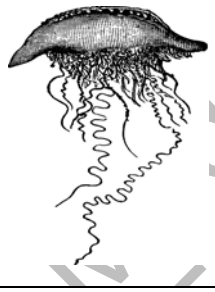
The organisms that follow the given pattern of cleavage belong to the phylum

A. Annelida.
B. Mollusca.
C. Nematoda.
D. Echinodermata.

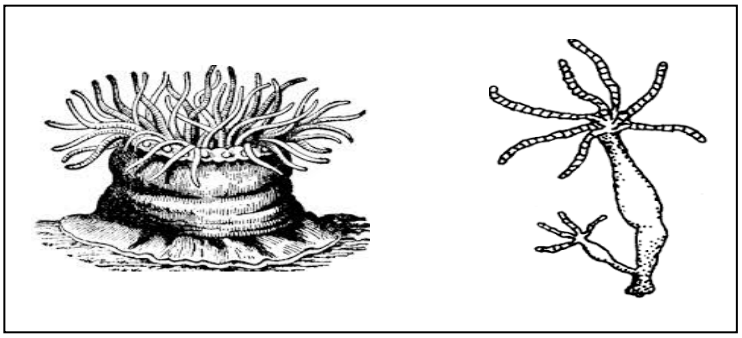
13. The given diagram represents a type of body symmetry.



The animal which has the type of body symmetry as shown in the given diagram is

	
A	B
	
C	D

14. The given diagrams represent polyp cnidarians.



The reason due to which the given cnidarians are called polyp, is their body

A. size.
B. wall.
C. form.
D. symmetry.

15. Cephalochordates are different from urochordates because in cephalochordates

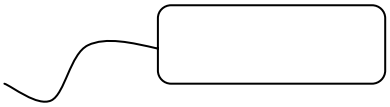
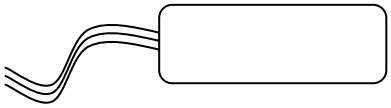
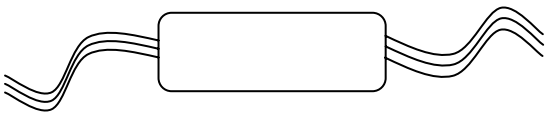
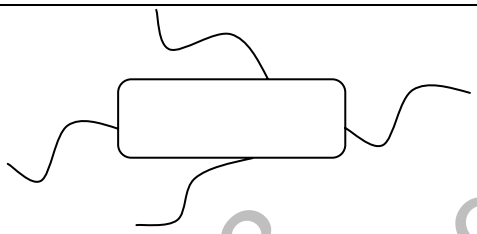
A. notochord is enclosed in a covering called tunic.
B. notochord develops into vertebral column in adults.
C. notochord and nerve chord persist throughout their life.
D. notochord and nerve chord are found in larval stage only.

16. Lion, tiger and cat belong to the family Felidae. The scientific name of lion, tiger and cat are *Panthera leo, Panthera tigris* and *Felis catus* respectively.

The scientific names of lion, tiger and cat show that the cat in contrast to lion and tiger, belongs to a different

A. class.
B. order.
C. genus.
D. phylum.

17. The diagram that represents the amphitrichous condition of bacteria is

	
A	B
	
C	D

18. An example of pathogenic apicomplexans is

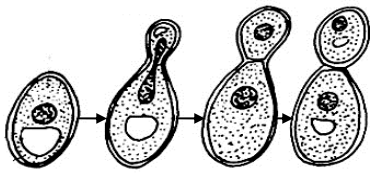
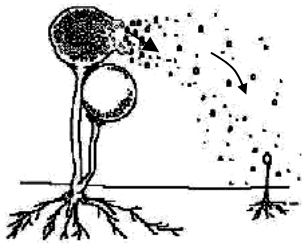
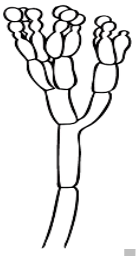
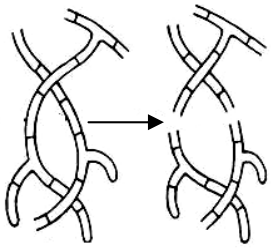
A. Entamoeba.
B. Plasmodium.
C. Trypanosoma.
D. Trichonympha.

19. Many of the fungi-like protists are not TRUE fungi because they

A. are made up of hyphae.
B. are non-photosynthetic.
C. lack centrioles for division.
D. contain cellulose in their cell walls.

20. The given diagrams show different methods of asexual reproduction in fungi.

The diagram which shows reproduction through conidia is

	
A	B
	
C	D

21. The given characteristics are present in a sporophyte.

- Waxy cuticle
- Meristematic tissues
- Stomata and chloroplast

The subdivision of bryophytes that exhibits the given sporophytic characteristics is

A. Psilopsida.
B. Bryopsida.
C. Hepaticopsida.
D. Anthoceropsida.

22. Megaphylls are leaves present in advanced groups of plants that

A. lack floral structures.
B. lack veins and veinlets.
C. are found in dicots only.
D. have an expanded lamina.

23. In the life cycle of a sun flower, which of the following structures are included in gametophyte generation with haploid number of chromosomes?

I. Endosperm
II. Embryo
III. Egg cells
IV. Pollen grain

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

24. Which of the following is CORRECT for glycolysis?

(**Note:** ATP = Adenosine triphosphate and NADH = Nicotinamide adenine dinucleotide)

	Utilisation of ATP	**Production of NADH**
A	Yes	Yes
B	No	Yes
C	Yes	No
D	No	No

25. When one molecule of acetyl CoA completes the Krebs cycle it yields

A. 1 NADH, 2 $FADH_2$ and 1 ATP.
B. 2 NADH, 1 $FADH_2$ and 2 ATP.
C. 3 NADH, 1 $FADH_2$ and 1 ATP.
D. 6 NADH, 2 $FADH_2$ and 2 ATP.

26. Plants showing stunted growth and strong chlorosis should be supplied with

A. iron.
B. calcium.
C. nitrogen.
D. magnesium.

27. The part present in the gastrointestinal tract that prevents the entry of stomach content back into the oesophagus when contracted is

A. mucosal layer.
B. pyloric sphincter.
C. cardiac sphincter.
D. longitudinal muscle layer.

28. Hina is very conscious about her body shape. She overeats and then forces herself to vomit in order to avoid gaining weight.

What condition does Hina have?

A. Botulism
B. Dyspepsia
C. Bulimia nervosa
D. Anorexia nervosa

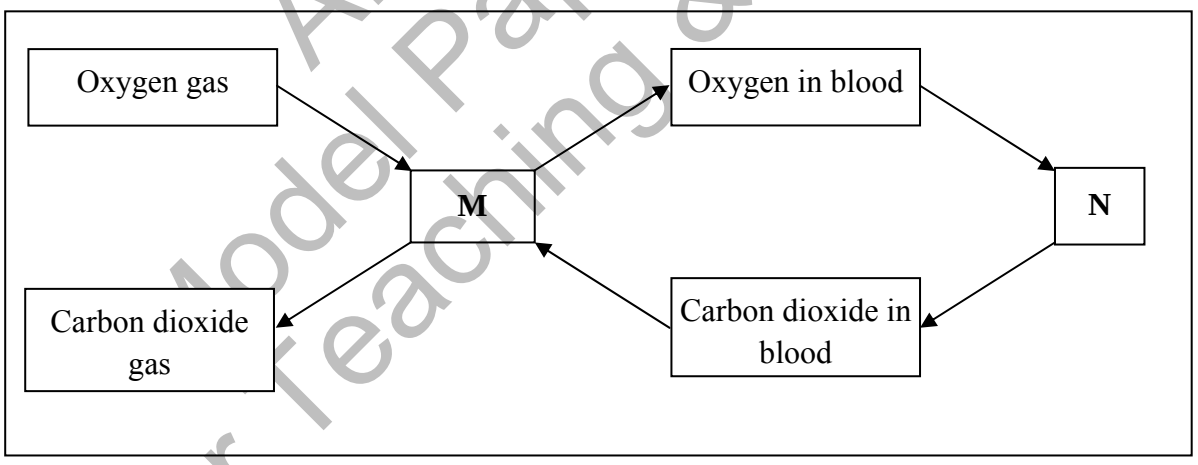
29. The end products formed in the process of photorespiration is

A. oxygen gas and glycolate.
B. carbon dioxide gas and serine.
C. adenosine triphosphate (ATP) and ribulose biphosphate.
D. nicotinamide adenine dinucleotide phosphate (NADPH) and glycine.

30. In fish, the surface area of the gills for gaseous exchange is increased due to the presence of

A. alveoli.
B. gill arch.
C. lamellae.
D. opercula.

31.



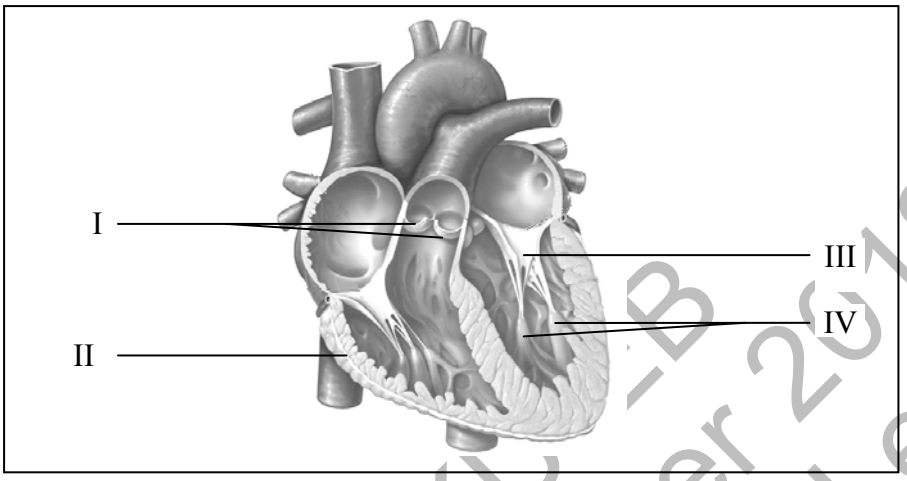
What is represented by **M** and **N** in the given diagram?

	M	**N**
A	Alveoli	Atmosphere
B	Alveoli	Body cells
C	Body cells	Atmosphere
D	Body cells	Alveoli

32. A plasmolysed cell will change into a deplasmolysed cell when it is kept in the solution with

A. same solute potential as that of plasmolysed cell.
B. lower water potential than that of plasmolysed cell.
C. higher water potential than that of plasmolysed cell.
D. higher solute potential than that of plasmolysed cell.

33. Which of the labelled structures in the given diagram of the human heart indicates papillary muscles?



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

34. A new born baby is diagnosed with a condition in which ductus arteriosus fails to close which results in blueness of his skin. The skin of the baby appears blue because of the mixing of blood between

A. pulmonary artery and aorta.
B. left atrium and left ventricle.
C. right atrium and right ventricle.
D. pulmonary artery and pulmonary vein.

35. If the systolic pressure of an individual is 110 mm Hg and diastolic pressure is 70 mm Hg, then his/ her pulse pressure would be

A. 40 mm Hg.
B. 70 mm Hg.
C. 110 mm Hg.
D. 180 mm Hg.

END OF PAPER

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