



# माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

24 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

|                                     |          |   |   |                   |
|-------------------------------------|----------|---|---|-------------------|
| परीक्षा का विषय                     | विषय कोड |   |   | परीक्षा का माध्यम |
| BIOLOGY                             | 2        | 3 | 1 | ENGLISH.          |
| स्टीकर तीर के निशान से मिलाकर लगाएँ |          |   |   |                   |
| परीक्षार्थी का रोल नम्बर            |          |   |   |                   |
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| एक एक दो चार तीन नौ पाच छः आठ       |          |   |   |                   |

| केवल परीक्षक द्वारा भरा जावे। |               |            |            |
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| प्रश्न क्रमांक                | पृष्ठ क्रमांक | प्राप्तांक | श्री करें। |
| 1                             | ✓             |            | ✓          |
| 2                             | ✓             |            | ✓          |
| 3                             | ✓             |            | ✓          |
| 4                             | ✓             |            | ✓          |
| 5                             | ✓             |            | ✓          |
| 6                             | ✓             |            | ✓          |
| 7                             | ✓             |            | ✓          |
| 8                             | ✓             |            | ✓          |
| 9                             | ✓             |            | ✓          |
| 10                            | ✓             |            | ✓          |
| 11                            | ✓             |            | ✓          |
| 12                            | ✓             |            | ✓          |
| 13                            | ✓             |            | ✓          |
| 14                            | ✓             |            | ✓          |
| 15                            | ✓             |            | ✓          |
| 16                            | ✓             |            | ✓          |
| 17                            | ✓             |            | ✓          |
| 18                            | ✓             |            | ✓          |
| 19                            | ✓             |            | ✓          |
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| क - पूरक उत्तर पुस्तिकाओं की संख्या अंकों में        | 02   | शब्दों में                     | Two |
| ख - परीक्षार्थी का कक्ष क्रमांक                      | HALL-A   |                                |     |
| ग - परीक्षा का दिनांक                                | 16 03 2017                                       |                                |     |
| परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा |  | केन्द्राध्यक्ष केन्द्र क्रमांक |     |
| <b>हायर सेकेण्डरी परीक्षा</b>                        |  |                                |     |
| पर्यवेक्षक का नाम एवं हस्ताक्षर                      | केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर |                                |     |
| S. S Kourav<br><i>[Signature]</i>                    | <i>[Signature]</i>                               |                                |     |

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे ↓

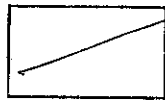
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| प्रमाणित किया जाता है कि मूल्यांकन के समय पूरक उत्तर पुस्तिकाओं की संख्या उपरोक्तानुसार सही पाई होलो क्राफ्ट स्टीकर क्षतिग्रस्त नहीं पाया गया तथा अन्दर के पृष्ठों के अनुरूप मुख्य पृष्ठ पर अंकों की प्रविष्टि एवं अंकों का योग सही है। |  |
| निर्धारित मुद्रा : नाम, पदनाम, मोबाईल नम्बर, परीक्षक क्रमांक एवं पदांकित संस्था के नाम की मुद्रा लगाएं।   |  |
| उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा  | परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा      |
| <i>[Signature]</i>  | <i>[Signature]</i><br>BABITA TAURAKAR<br>14820 |

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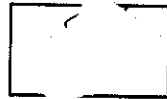
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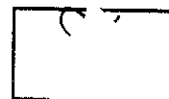
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SECTION - A

Question - 1

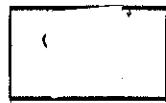
- (1) Bile juice.
  - (2) Active absorption.
  - (3) Exine
  - (4) Symbiosis.
- Malthus

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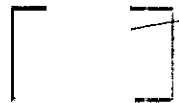
Question - 2

- (a) (1) Plasmolysis.
- (b) (1) Spleen.
- (c) (2) Florigen
- (d) (2) Couical
- (e) (2) ELISA.

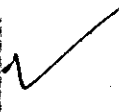
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### Question-3

- (1) Photosynthetic pigment i.e. <sup>grain</sup> chloroplast are found in the thylakoid membrane of grana in chloroplast.
- (2) Glenoid cavity is the cavity found in the scapula of pectoral girdle & leads to formation of Ball & socket joint with humerus.
- (3) Rafflesia and woolfia are total root parasitic plant.
- (4) Coccoloba nucifera
- (5) Demography is scientific study of human population.

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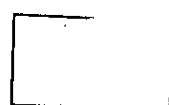
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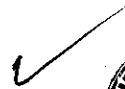


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### Question - 4

- |     |            |   |                        |
|-----|------------|---|------------------------|
| (a) | Hg, As     | - | (3) Poisonous elements |
| (b) | Vitamin C  | - | (4) Scurvy.            |
| (c) | Insulin    | - | (5) Diabetes           |
| (d) | Decomposer | - | (1) Actinomyetes       |
| (e) | Antibiotic | - | (2) Alexander Fleming  |

### SECTION - B

#### Question - 5

OR

Two diseases related to bone are:-

- (1) Osteomalacia
- (2) Rickets

- (1) Osteomalacia occurs in adults due to decrease in  $Ca^{2+}$  deposition on bones & dec. in bone density.
- (2) Rickets occurs in children due to deficiency of Vitamin D.

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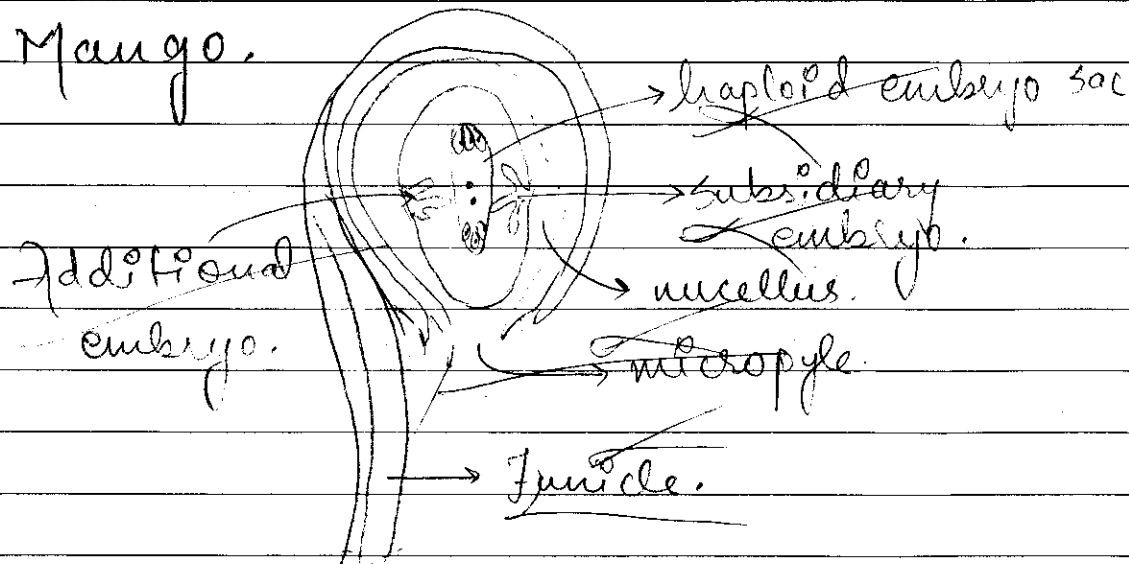
## Question 6

Ans Apomixis :-

Apomixis is a term used to define a phenomenon in which development of subsidiary or additional embryo takes place along with the main embryonal sac.

**B** These embryos are developed from  
**S** the somatic cells of nucellus.

**E** Eg :- Mango.



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## Question - 7

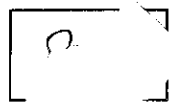
### Advantages of self pollination:-

- (1) In case of self pollination fertilisation is sure.
- (2) In self pollination no medium is required for pollination.

### Disadvantages:-

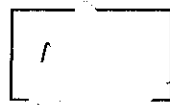
- (1) Very less or no variation is seen in offsprings produced by self pollination.
- (2) They have less adaptability with respect to changing external conditions.

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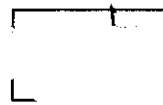
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Question - 8

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Ques 4 green house gases :-

- (1) Carbon-di-oxide ( $CO_2$ )
- (2) Methane ( $CH_4$ )
- (3) Chloro-floro-carbon (CFC).
- (4) Water vapour

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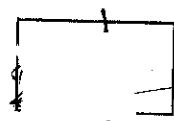
Question - 9

Define :-

(1) Osmotic pressure :-

Osmotic pressure is the external hydrostatic pressure applied on the solution so as to stop the further flow of solvent through semi-permeable membrane.

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## (2) Suction pressure

→ Suction pressure is the value of diffusion pressure or the difference between the diffusion pressure of solvent and diffusion pressure of solution.

It can also be said as Diffusion Pressure Deficit or D.P.D.

→ Suction pressure helps in the uptake & suction of water to higher level of plant from roots.

→ It is created by transpirational pull.

## (3) Root Pressure :-

It is the positive pressure created by roots by absorption of water from soil.

Root pressure is helpful in sending the water upto 3 feet height or height.



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Question - 10

OR

Ans. Difference between aerobic and anaerobic respiration.

Aerobic Respiration.

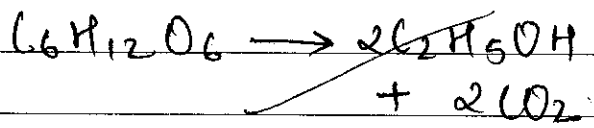
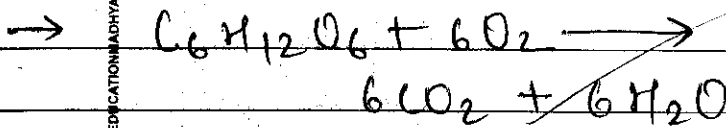
Anaerobic Respiration.

→ Here the breakdown of carbohydrate like glucose takes place in the presence of oxygen.

Here the breakdown of carbohydrate like glucose takes place in absence of oxygen.

→ Complete oxidation of glucose takes place.

Partial or incomplete oxidation of glucose takes place.



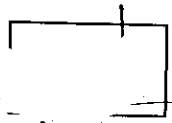
→ 38 ATP i.e. 673 kcal energy is liberated.

→ 2 ATP i.e. 21 kcal of energy is liberated.

→  $CO_2$  &  $H_2O$  are obtained as end product.

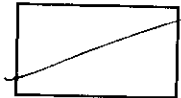
→ Alcohol and  $CO_2$  are obtained as end products.

(11)

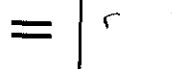


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→ Harmful end products are not formed. End product formed may be harmful.

## Question - 11

(1) Population :-

Population is defined as the no. of individual living in a particular area or region of same species and interbreed among themselves to produce a fertile progeny.

Eg  
Population of human.  
Population of cows etc.

(2) Mortality :-

Mortality is defined as the no. of people died per thousand of people.

→ Mortality of current population is 0.081.

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### (3) Natality :-

Natality is defined as the no. of new born individuals per one thousand of pre-existing population.

→ Current natality rate of India = 0.28

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### Question-12

#### Ans Biopesticides :-

Biopesticides are the micro-organism or other organism used for the purpose to eradicate the development and propagation of pest from the crop field.

It is a natural method to save crop from the attack of harmful insects and pest which harm the plants.

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## Examples of Biopesticides:-

- (1) Bacillus thuringiensis.
- (2) Bacillus popillia.

## Advantages of Biopesticides:

- (1) Biopesticides do not have any harmful effects on environment and are eco friendly.
- (2) By use of biopesticides there is no chance of development of resistance by pest.
- (3) Biopesticides do not attack the non targeted organism.

## Disadvantages of Biopesticides:-

- (1) Sometimes biopesticide are also known to harm the crop field in certain circumstances. Except this there is no such harmful effect of biopesticide known as they are eco friendly.

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### Question - 13

Ans Difference between artery and vein.

| Arteries   | Veins.   |
|--|--|
| (1) Arteries are responsible to carry blood from heart to all body organs and parts. | Veins are responsible to carry blood from all organs to heart except the portal veins. |
| (2) Arteries carry oxygenated blood except pulmonary artery.                         | Veins carry deoxygenated blood except pulmonary vein.                                  |
| (3) Arteries do not carry valves.  | Veins carry valves.  |
| (4) Lumen of artery is small.  | Whereas veins have large lumen.  |
| (5) Arteries have thick and non collapsible walls.                                   | Veins have comparatively thin and collapsible wall.                                    |

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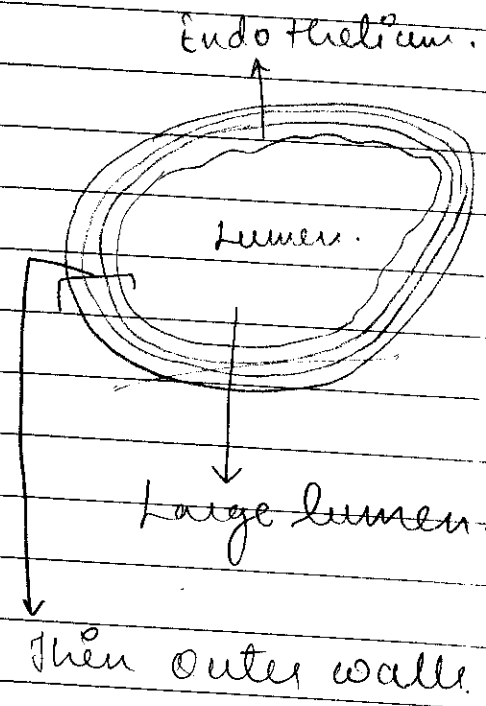
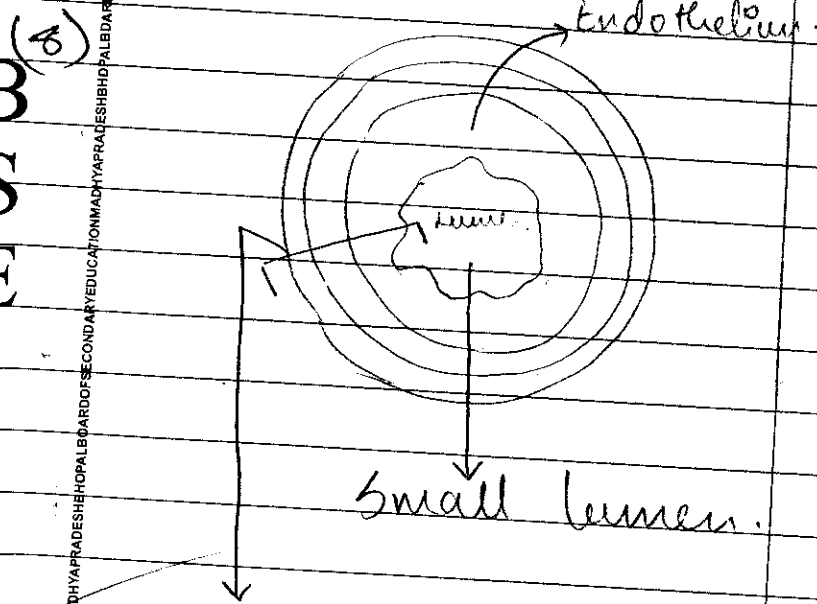


(6) Arteries when isolated regain their original shape.

Veins when isolated become flaccid.

(7) Blood flows with high pressure in arteries.

Blood flows with lower pressure in veins.

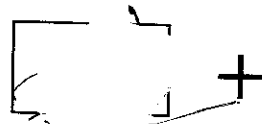


T.S. Section of Artery.

T.S. Section of Vein.



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→ Neurons are the cells responsible for the conduction of nervous impulses from throughout the body.

→ Conduction of nerve impulse through a neuron is physio-chemical and electrical process which depends on the exchange of  $\text{Na}$  &  $\text{K}$  ions and exchange of charges of axolemma.

### Components of Neuron

(1) Cell Body / Cyton → It is part of neuron which contains receptors for impulses called dendrites.

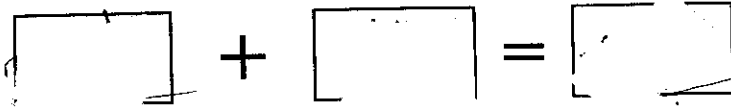
It also contains Nissle's granules and a nucleus.

### Axon

:- It further conducts the nerve impulse received by cyton towards the nerve endings from where it is transferred to the next neuron through synapse.



(18)

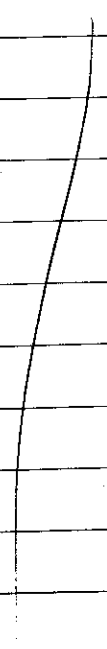


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→ Axon of neuron may be myelinated or non myelinated depending on its location in the body.

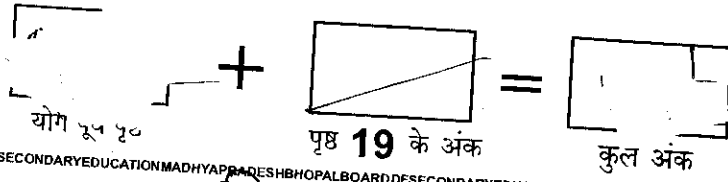
The cytoplasm of axon is called axoplasm and the cell membrane is called axolemma. It also consists of nodes of Ranvier.

**B** → The nerve impulses are further conducted by the synapse formed between nerve ending and the dendrite of next neuron.

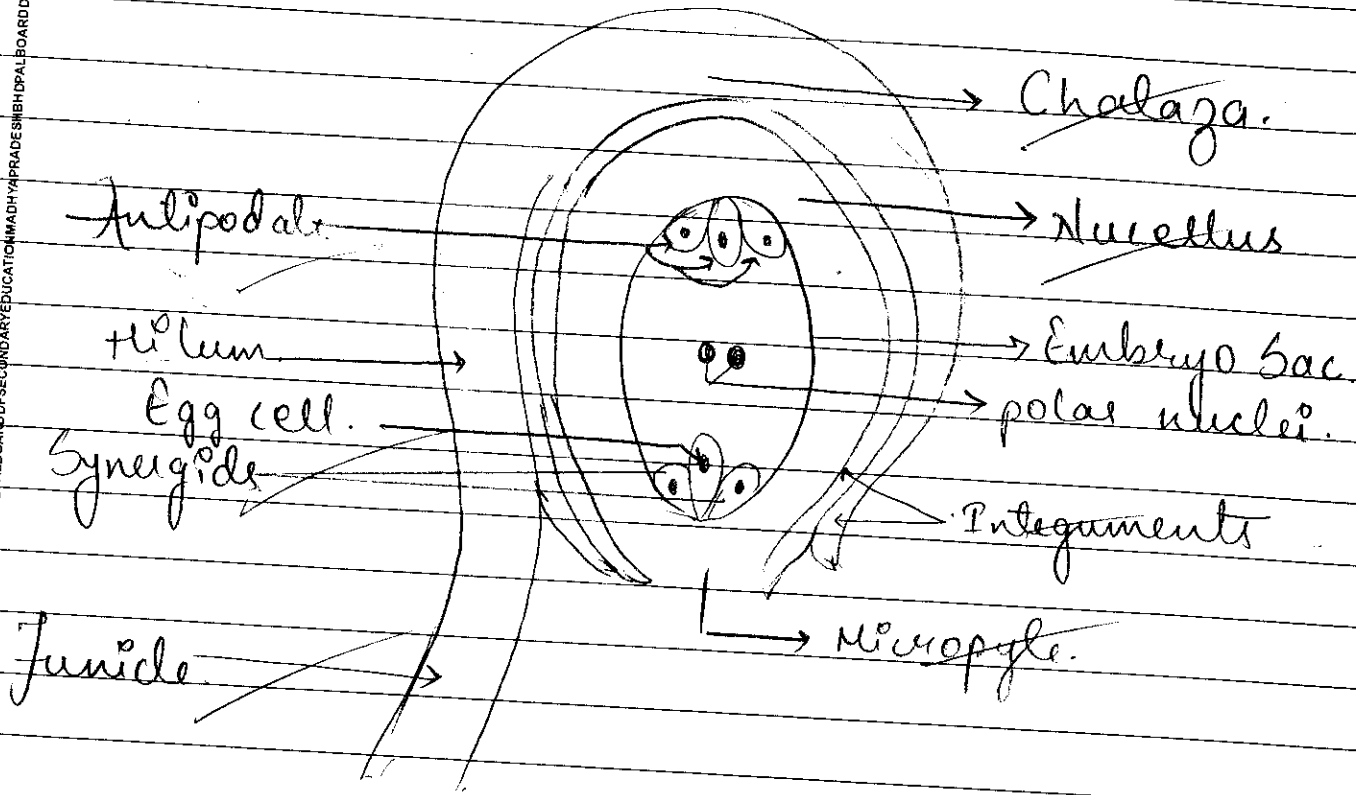


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## Question - 15



### T.S. Section Of Ovule.

Ovule consist of a stalk like Funicle and Hilum on which ovule body is attached.

The embryo sac present inside is protected by 2 outer coverings called Integuments.

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→ Integuments have an opening called micropyle from where the pollen grain enters.

→ Between the Integuments and embryo sac there exist a diploid cluster of cells called nucellus which provide nutrition to developing embryo.

→ Embryo sac consist of :-

- ① 3 Antipodal cells
- ② 2 Synergids
- ③ 1 egg cell.
- ④ 2 polar nuclei.

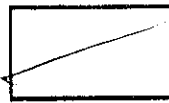
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Question - 16

OR

Ans Biodiversity :-

Biodiversity is a word consisting of Bios means life and diversity means variation.

So, Biodiversity can be define as the variation in number and types of living organism existing.

Biodiversity is very important to maintain ecological balance in the environment.

It is essential for existence of human race and sustainable development. Also Biodiversity helps in maintainance of food chain or food web.

Biodiversity have many values :-

- (1) Economic value.
- (2) Scientific value.
- (3) Recreational value.
- (4) Ecological values.

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Efforts made to conserve Biodiversity:-

### I In-situ Conservation:-

It includes the conservation of flora and fauna on the site of their habitat. It includes:-

- (a) Establishment of National Parks
- (b) Establishments of Sanctuaries
- (c) Establishments of Biosphere Reserves.

### Ex-situ Conservation-

It includes the off site conservation of Biodiversity. It includes:-

- (1) Establishment of Zoo.
- (2) Rehabilitation camps.

### III Other efforts to conserve biodiversity

Includes cryopreservation in which the seeds of rare plants are stored and conserved to retain biodiversity.

### IV

Many governmental campaigns are also organised so as to

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create awareness in people about conservation of biodiversity. Celebration of Environment day and Biodiversity day are among these efforts.

iv Punishments and laws are decided by government for people who harm the Biodiversity.

## Question - 17

### Adolescent

:- It is a phase of human life between age of 12 to 18. It is stage between childhood and adulthood.

There are many problems of adolescence.

(i) Acne → Occurrence of acne is the most common problem in adolescents. It occurs due to clogging of pores in skin or sudden influence of sex hormone.

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(2) Neurosthenia :- It is inability to enjoy or interact properly with everyone else.

(3) Post traumatic stress :- This is the common problem faces by the adolescents who have faced or witnessed any crime like rape or robbery or accident. They are always in stress, depression and anxiety.

(4) Phobia :- Adolescents also face this problem of fear. It can be fear from height, dark or anything which leads to their separation from society.

(5) Aggressiveness is yet another problem. In this stage they do not listen to their parents and feel attracted towards the wrong doers. It is like a trap for people in adolescent age.

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परीक्षार्थी द्वारा भरा जाये ↓

परीक्षा का विषय

विषय कोड

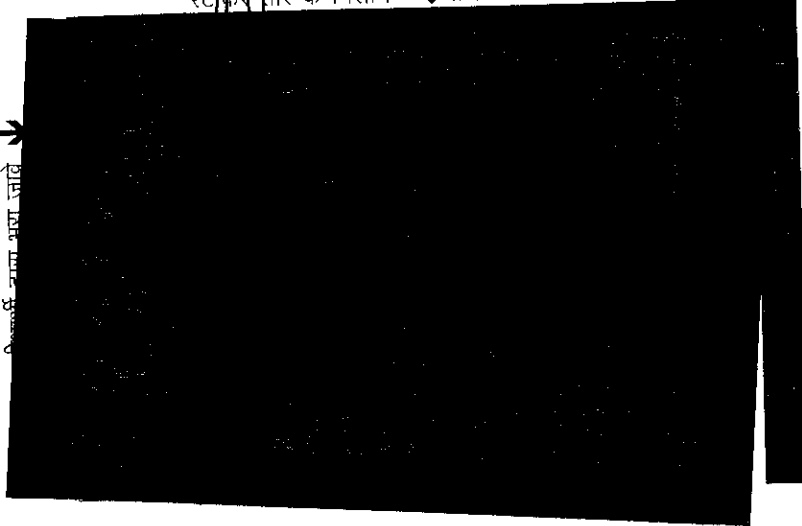
परीक्षा का माध्यम

परीक्षा का दिनांक

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Biology 2 3 1 English

स्टीकर नीचे के निशान ↓ से मिलाकर लगायें



परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

**हायर सेकेण्डरी परीक्षा**  
केन्द्र क्र. 671054

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पर्यवेक्षक का नाम एवं हस्ताक्षर

S.S. Koushik  
*[Signature]*

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केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

*[Signature]*

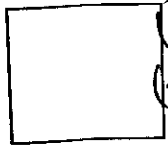
मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक..... ल प्राप्तांक  +  =

Question - 18

OR

Ans There are many factors which affect water absorption by plant :-

- (1) Transpiration pull.
- (2) Root pressure
- (3) Adhesion.
- (4) Cohesion.
- (5) Availability of capillary water.
- (6) Sunlight.
- (7) Soil nature
- (8) Soil temperature.

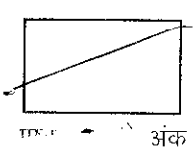
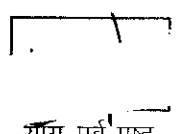


पृष्ठ के अंकों का योग

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(1) Transpiration pull

:- ~~बस~~ the loss of water by transpiration. A suction pressure is created in the plant which help the water absorption to a great height.

(2) Root pressure

Due to this the water absorption and transportation is maintain so continuous supply of water is made possible.

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(3) Cohesion and Adhesion :- These forces help in increasing the tensile strength of water and inc. the force of attraction between water molecules & its wall of plants.

These forces further help in uptake of water by plant.

(4) Availability of capillary water :-

Plants absorb only capillary water present in the soil therefore availability of capillary water is important for absorption of water.

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(5)

Soil nature and temperature :- It also plays an important role as  $30^{\circ}\text{C}$  is the optimum temperature for water absorption. Also loamy soil is best suited soil for cultivation as it include aeration and proper water ratio.

### Question - 19

OR

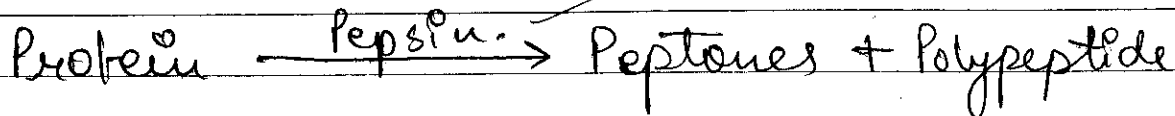
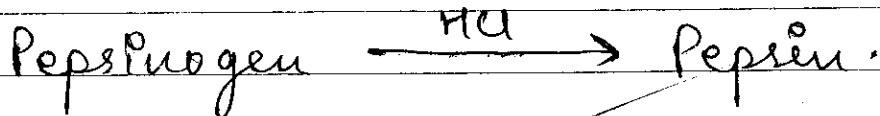
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Ans Digestion in stomach :-

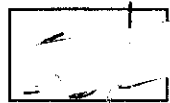
→ Stomach contain many enzymes for digestion.

(+) Pepsin

Pepsin is responsible for digestion of protein.

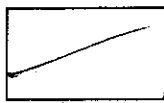


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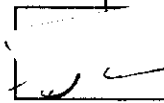
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पृष्ठ 4 के अंक

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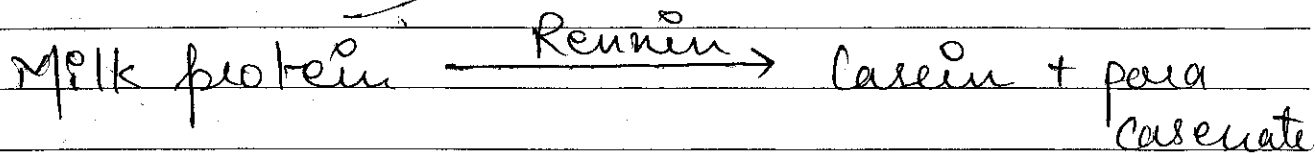
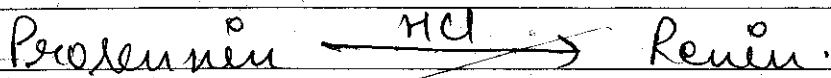


कुल अंक



## Rennin

It helps in digestion of milk protein.



## HCl

→ HCl is very important for digestion of food as it breaks the large molecules of food into small particles.

→ It activates inactive enzyme and also creates acidic environment in stomach necessary to activity of enzymes.

→ Stomach consist of HCl of pH 1.5 to 2

## Gastric lipase

→ It is a weak enzyme found in stomach which partially digest fats.

2017



माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल

4 पृष्ठीय

परीक्षार्थी द्वारा भरा जावे ↓

परीक्षा का विषय

विषय कोड

परीक्षा का माध्यम

परीक्षा का दिनांक

16 3 17

Biology 2 1 0 English

स्टीकर तीर के निशान ↓ से मिलाकर लगायें

परीक्षा का नाम एवं परीक्षा केन्द्र क्रमांक की मुद्रा

हायर सेकेण्डरी परीक्षा  
केन्द्र क्र. 671054

पर्यवेक्षक का नाम एवं हस्ताक्षर

*Shoukon*

केन्द्राध्यक्ष/सहायक केन्द्राध्यक्ष के हस्ताक्षर

*Sonakia*

→ परीक्षार्थी द्वारा भरा जावे

मुख्य उत्तर पुस्तिका के अंतिम पृष्ठ क्रमांक.....

तक कुल प्राप्तांक

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IV Mucilage :-

Stomach walls also secrete mucilage and have deposition of it to save wall of stomach from action of HCl and also helps in mixing of food.

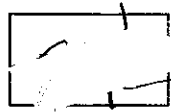
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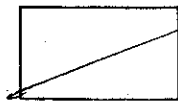
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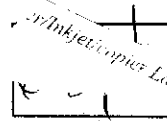
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Question 20

प्रश्न 20

OR

## Ans WATER POLLUTION

Addition of harmful and unnecessary elements, compounds or articles into water which makes it unfit for human use is called water pollution.

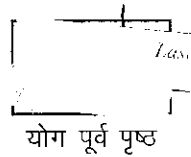
Water pollution is nowadays a major and rapidly growing problem of present world.

### Causes of Water Pollution :-

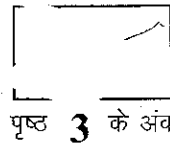
- (1) Discharge of industrial effluents directly into water streams without sewage treatment.

Industrial effluents may also contain harmful chemicals and poisonous elements like Hg and As. etc.

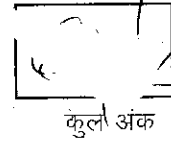
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(2) With the increase in pollution human wastes & household excreta is also increased & discharged in river which is causing water pollution.

(3) Use of chemical fertilizers and pesticides also increases water pollution.

### Effects of water pollution.

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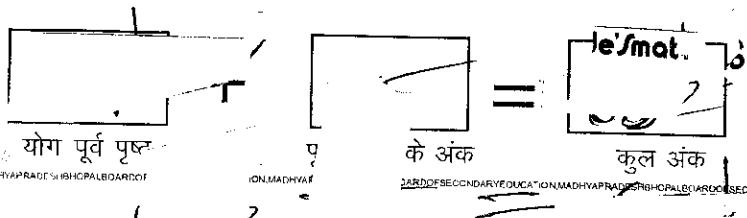
Effects of water pollution are drastic and devastating.

(1) Using & drinking polluted water is giving birth to many diseases like diarrhoea, dysentery and typhoid etc.

(2) The microorganism get better place for their survival and becoming more powerful day by day & causing more dangerous diseases.

(3) Discharge of poisonous polluted water is leading to death of aquatic animals and disturbing ecosystem.

4



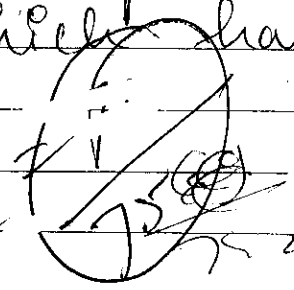
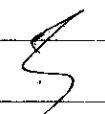
प्रश्न क्र.

## Control Measures :-

There are many ways in which we can control water pollution :-

- (1) Discharging wastes from industries and houses into river after complete sewage treatment.
- (2) Using manure and Biofertilisers in field inspite of using chemical fertilisers.
- (3) Creating awareness among people about not to pollute rivers and streams by discharging harmful effluents into rivers.
- (4) Using more nature & ecofriendly products like detergents etc inspite of poisonous compounds which harm aquatic life.

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