



केवल मूल्यांकनकर्ता के उपयोग हेतु!

माध्यमिक शिक्षा मण्डल, मध्यप्रदेश, भोपाल 32 पृष्ठीय

केवल प... भरा जावे। प्रश्न क्रमांक के सम्मुख प्राप्तांकों की प्र...

| प्रश्न क्रमांक | पृष्ठ क्रमांक | (अंकों में) | प्रश्न क्रमांक | पृष्ठ क्रमांक | (अंकों में) |
|----------------|---------------|-------------|----------------|---------------|-------------|
| 1 | | | 17 | | |
| 2 | | | 18 | | |
| 3 | | | 19 | | |
| 4 | | | 20 | | |
| 5 | | | 21 | | |
| 6 | | | 22 | | |
| 7 | | | 23 | | |
| 8 | | | 24 | | |
| 9 | | | 25 | | |
| 10 | | | 26 | | |
| 11 | | | 27 | | |
| 12 | | | 28 | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |
| 16 | | | | | |

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे ↓

→ प्रमाणित किया जाता है कि 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।

परीक्षक एवं उपमुख्य परीक्षक द्वारा भरा जावे

| | |
|---|---|
| उप मुख्य परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा | परीक्षक के हस्ताक्षर एवं निर्धारित मुद्रा |
| SEEMA SABLOK (UMS) G.H.S.S. GHAMAPUR V71231090 MOB.-9756741413 | RUCHI CHOUDHARY GBHSS KATANGI, PATAN V71231015 MOB.-9479531176 |

2

योग पूर्व पृष्ठ

पृष्ठ 2 के अंक

कुल अंक



प्रश्न क्र.

Answer of Que. no. 01.

Choose the correct options :-

qs-(i) (c) Haemozoin ✓

qs-(ii) (b) size only ✓

qs-(iii) (c) Mutualism ✓

qs-(iv) (c) $3n$ (Triploid) ✓

qs-(v) (d) Perisperm ✓

qs-(vi) (d) GUG ✓

MOB. 9822211110
GHS S. GHANAPUR
VISHNUPUR
SEMA SATELOR (M.P.)

MOB. 9822211110
VISHNUPUR
GHS S. GHANAPUR
SEMA SATELOR (M.P.)



प्रश्न क्र.

Answer of Que no. 02

Fill in the blanks :-

Ans- word.

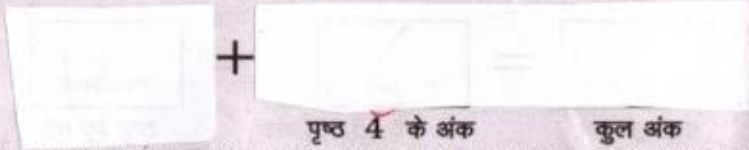
Ans- C-peptide.

B
S
E
Ans- SCID (Severe Combined Immuno-Deficiency).

Ans- producers.

Ans- ulation.

Ans- satellite DNA.



प्रश्न क्र.

Answer of Que. no. 03.

True / False :-

Ans-(i) True.

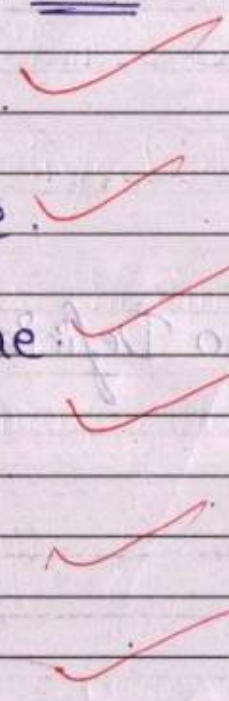
Ans-(ii) True.

Ans-(iii) True.

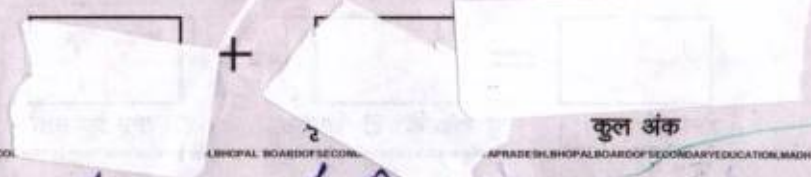
Ans-(iv) False.

Ans-(v) True.

Ans-(vi) False.



Faint handwritten notes in blue ink, including words like 'सत्य' (True) and 'असत्य' (False).



Answer of Que. no. 04.

Match the correct pair :-

Column 'A'

'Answers'

Lymphocytes

(e) Bone marrow

Competition

(c) detrimental interaction

BR 322

(a) vectors

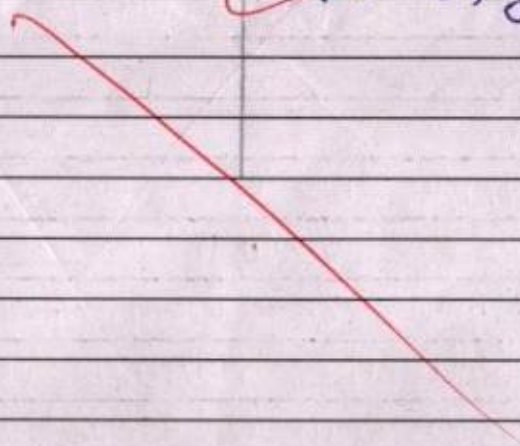
Amoeba radiata

(b) ovum

Structural genes

(d) z, y and a.

B
S
E





प्रश्न क्र.

Answer of Que. no. 05.

Write answer in one word :-

Ans-(i) Methane, ammonia, hydrogen and water vapours.

Ans-(ii) Virus infected cells produce Interferons.

Ans-(iii) Bacillus thuringiensis produces Bt toxin.

Ans-(iv) The Amazon rain forest is called 'lungs' of the earth.

Ans-(v) Full form of ZIFT :- Zygote Intra Fallopian Transfer.

**B
S
E**

ST-16A4



प्रश्न क्र.

Answer of Que no 06 (OR)

Golden Rice :- The golden rice is a Genetically Modified Crop which is highly pest resistant and is highly rich in Vitamin A content. It is golden-yellow in colour, due to the presence of carotene.

Answer of Que no 07

Population Density :-

Population density is defined as the total number of organisms ^{of particular species} in a population per unit ^{geographical} area.

If N is the population living in area A, then,

$$\text{Population Density} = \frac{\text{Total no. of organism}}{\text{Area}}$$

प्रश्न क्र.

कुल अंक

Answer of Que. no. 08 (OR)

Following are the three important components of bio-diversity:-

- Ecosystem dive
1. Genetic diversity.
 2. Species diversity.
 3. Ecosystem diversity.

B
S
E

Answer of Que. no. 09

Amniocentesis :-

Amniocentesis is the process of foetal sex and gene genetic disorder determination test based on the chromosomal pattern of the cells in the amniotic fluid which surrounds the developing embryos.

Significance :-

Amniocentesis is a very useful technique for determining presence of any genetic disorders in the foetus but this technique is widely used to determine the sex of the child and kill the normal female foetus. To stop killing of female foetus, a ban on this technique is necessary.

Answer of Que. no. 10.

Point Mutation :-

A point mutation is defined as the change in single base pair of DNA sequence.

Example :- Sickle cell anaemia is an example of point mutation in which Glutamic acid at sixth position of the beta-globin chain of haemoglobin molecule is replaced by Valine i.e., ~~GAG~~ GAG codon changes to GUG resulting in the change of shape of RBCs from biconcave discs to sickle like shape.

B
S
E

Answer of Que. no. 11.

Adaptive Radiation :-

The process of evolution of different species in given geographical area starting from a point and literally radiating to other areas of the geography (habitat) is called adaptive radiation.

in Galapagos island.

Example :- Darwin finches and Australian Marsupials are examples of adaptive radiations.

प्रश्न क्र.

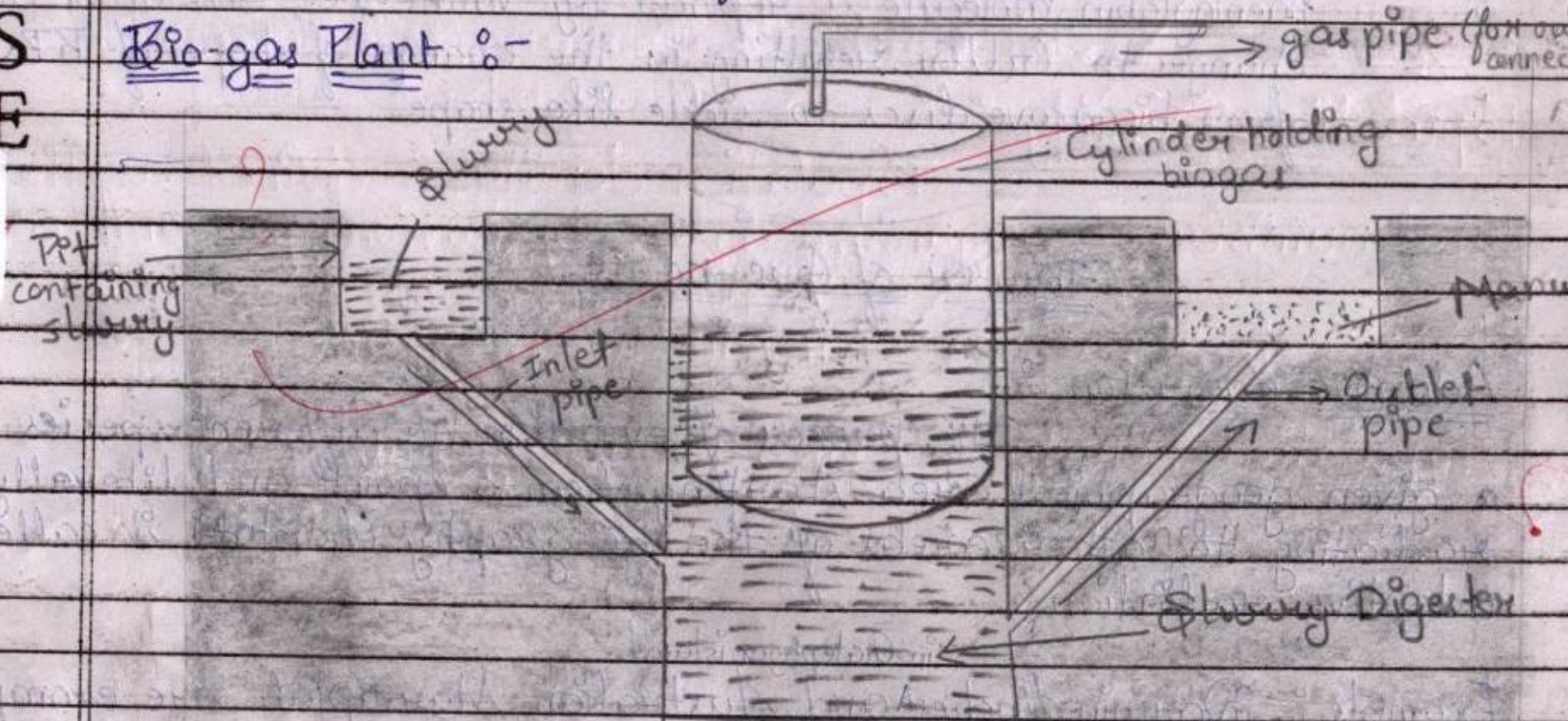
Answer of Que. no. 12. (OR)

Swiss cheese have big holes because of the production of excess carbon dioxide gas produced by the bacterium ~~the~~ *Propionibacterium shermanii*.

B
S
E

Answer of Que. no. 13. (OR)

Bio-gas Plant :-





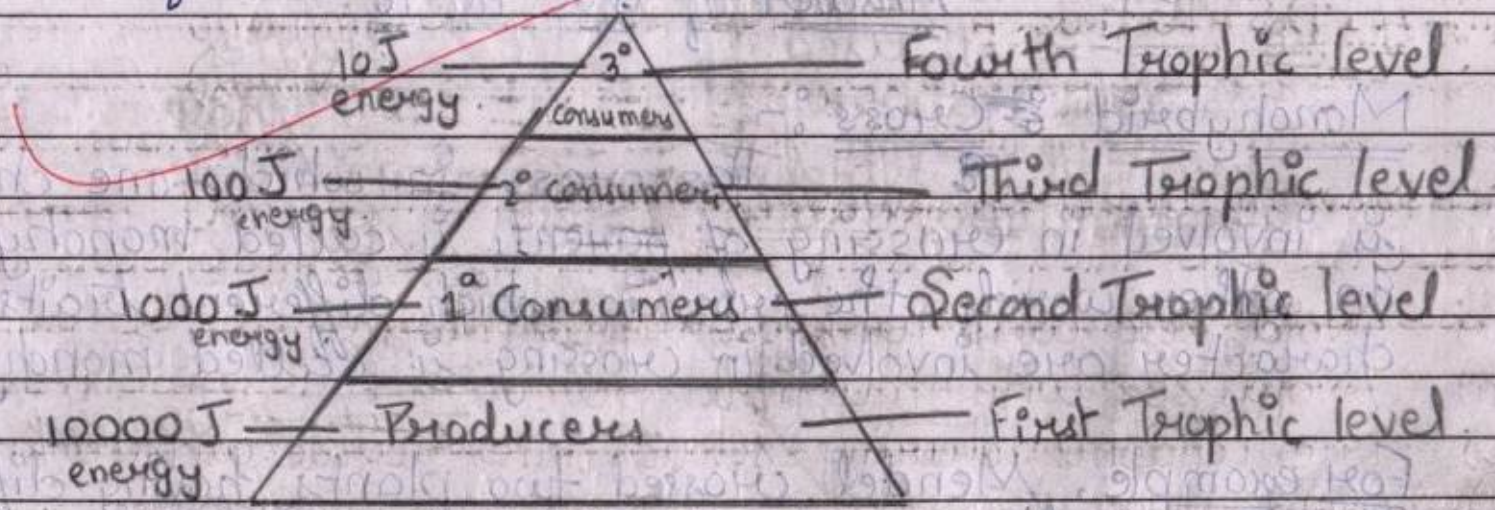
प्रश्न क्र.

Answer of Que. no. 14.

B
S
E

Pyramid of energy is always upright because when energy is transferred from one trophic level to other trophic level, some part of energy is always lost in the form of heat.

In a pyramid, producers are at the bottom. Since they trap energy from sun to produce food, they have highest energy and so they get a broad base. From producers, energy is transferred to consumers. Only 10% energy is transferred from one trophic level to other trophic level and 90% energy is lost at each trophic level. As a result, the pyramid of energy is always upright.





प्रश्न क्र.

Answer of Que. no. 15.

Human testis are located outside the abdominal cavity to ~~because~~ maintain the temperature 2° - 2.5° less than the internal body temperature, which is suitable for the process of spermatogenesis, i.e., the process of formation of male gametes sperms.

B
S
E

Human testis are located outside the abdominal cavity within a pouch called scrotum.

Answer of Que. no. 16.

Monohybrid \times Cross :-

The cross in which one character is involved in crossing of parents is called monohybrid cross. In other words, the cross in which different traits of a single character are involved in crossing is called monohybrid cross.

For example, Mendel crossed two plants having different heights. He crossed a tall plant (TT) with dwarf plant (tt).

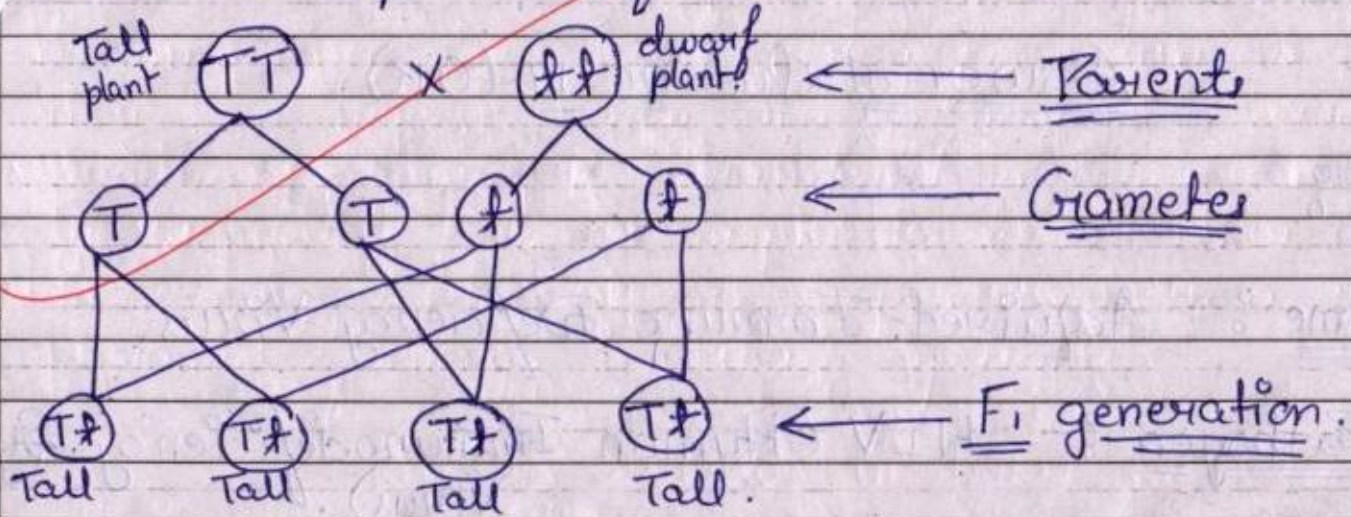


प्रश्न क्र.

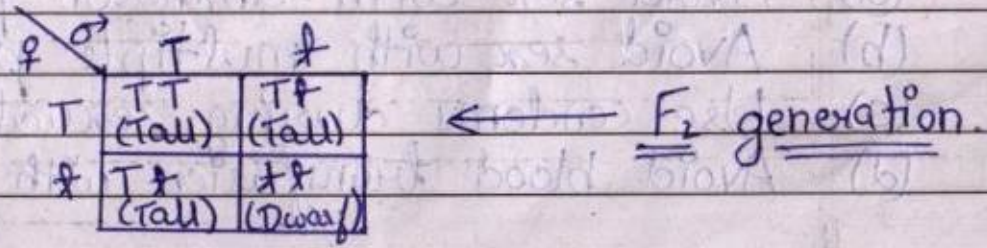
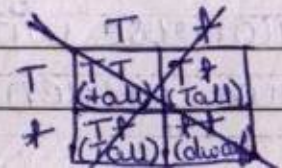
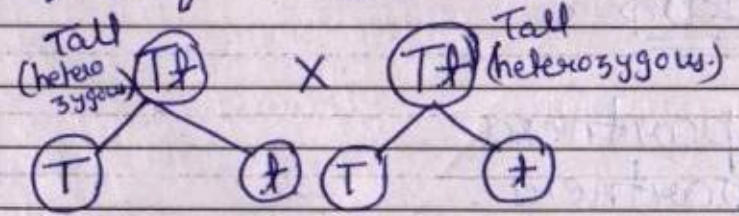
in which he got all tall plants in the F_1 generation. But after self pollination of F_1 generation, he saw that tall and dwarf plants were obtained in the ratio 3:1 in F_2 generation.

Using monohybrid cross, he proposed his law of dominance according to which, in a pair of heterozygous allele, the dominant allele will express itself while the recessive allele is suppressed.

B
S
E



Selfing of F_1 generation :-





प्रश्न क्र.

In F₂ generation,

Genotypic ratio = 1 : 2 : 1

Phenotypic ratio = 3 : 1.

Answer of Que no. 17 (OR)

AIDS :-

Full name :- Acquired Immuno Deficiency Virus.

(ii) AIDS Pathogen :- HIV (Human Immunodeficiency Syndrome Virus).

(iii) Four measures to prevent AIDS :-

- (a) Avoid sex with unknown partners.
- (b) Avoid sex with multiple partners.
- (c) Use condoms during sexual intercourse with unknown partners.
- (d) Avoid blood transfusion with unknown person.



प्रश्न क्र.

(e) Avoid sharing needles while taking drugs.

Answer of Que. no. 18.

* Polymerase chain reaction :-

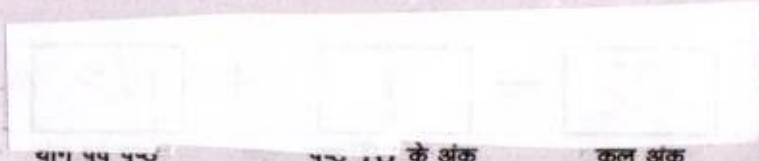
B
S
E This process involves denaturation of DNA at high temperatures ~~to~~ and making various copies of the desired DNA. It is accomplished with the help of high temperature resistant and thermostable Taq polymerase.

* Requirements of PCR :-

1. Required DNA
2. Taq Polymerase
3. DNA primers

* Steps of Denaturation PCR :- It involves the following three steps :-

1. Denaturation :- In this ~~place~~ step, the DNA molecule is subjected to high temperature (about 90°C) and becomes denatured. The two strands of DNA unwind and separate from



प्रश्न क्र.

each other in this step.

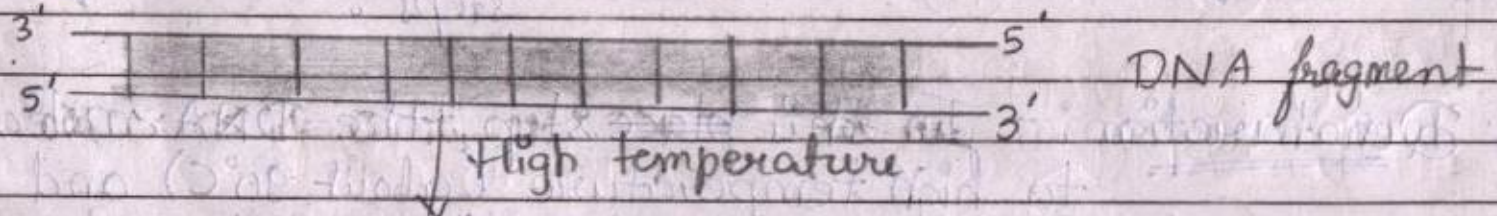
2. Annealing :- In this step, Taq polymerase is added to the denatured DNA strands along with primers which starts making the complementary strands of the two strands. This process takes place at about 72°C - 75°C.

B
S
E

3. Extension :- In this process, again the ~~the~~ temperature is raised to high extend and the copies of DNA are formed. Taq polymerase is active at even high temperature.

* Use :- 1. It is used in forensic studies.
2. It is also used in DNA fingerprinting.

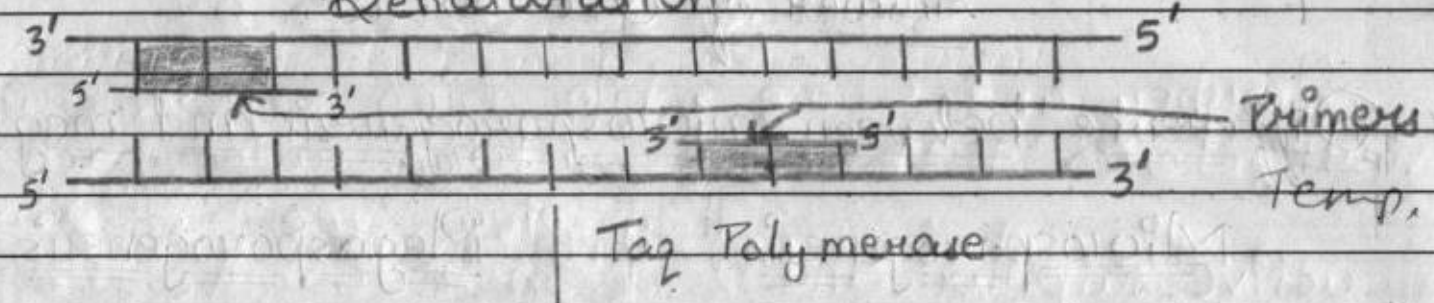
* Diagram :-



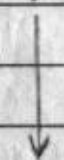


प्रश्न क्र.

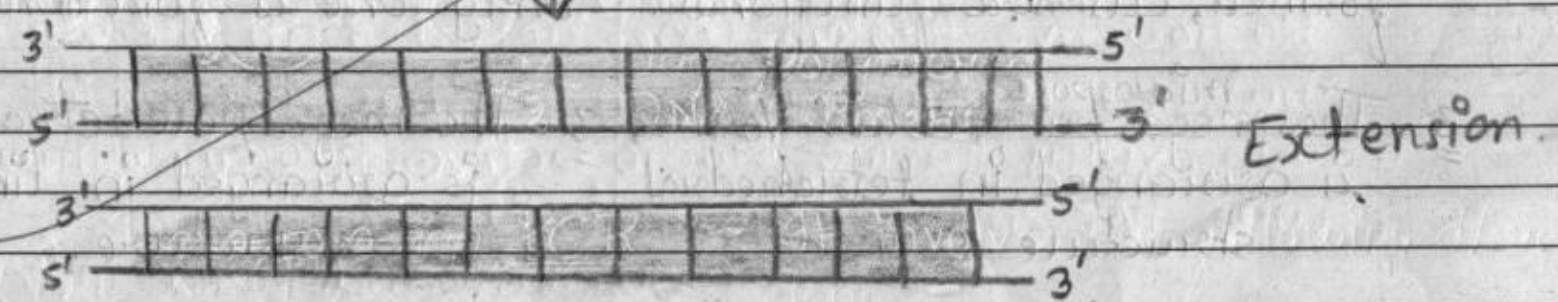
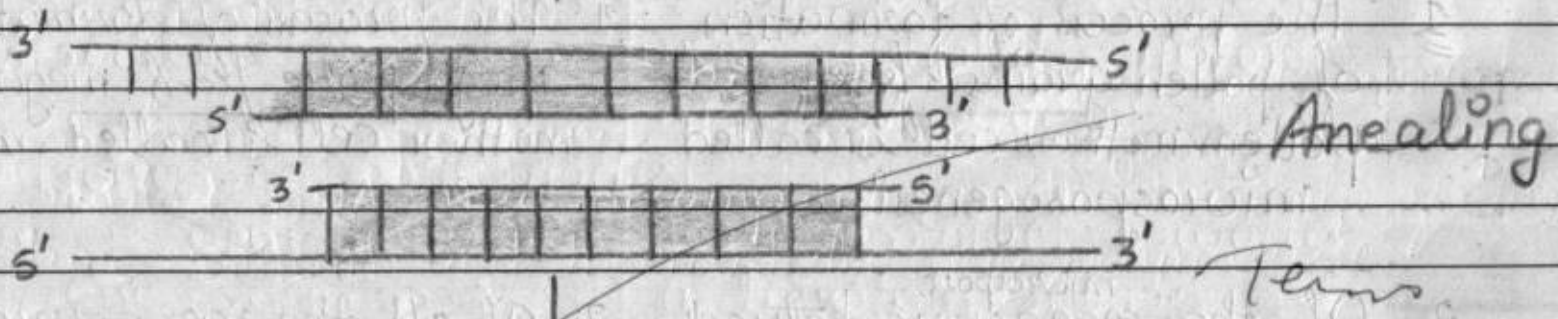
Denaturation



Taq Polymerase



B
S
E



can be repeated a billion times



प्रश्न क्र.

Answer of Que. no. 19

★ Difference between microsporogenesis and megasporogenesis

Microsporogenesis

Megasporogenesis

1. The process of formation of pollen grains from pollen mother cell is called microsporogenesis.

1. The process of formation of megaspore from megaspore mother cell is called megasporogenesis.

2. Of the ^{microspore} megaspore tetrad formed, all are functional.

2. Of all the megaspore tetrad, only one is functional.

3. The ^{microspore} megaspore tetrad formed is arranged in tetrahedral structure.

3. The megaspore tetrad formed is arranged in linear structure.

4. This process occurs in pollen sacs of anther.

4. This process occurs in the ~~ovary~~ megasporangium.

B
S
E



प्रश्न क्र.

* During both Microsporogenesis and Megasporesogenesis, meiosis occurs.

* In microsporogenesis, the microspores or pollen grains are formed.

B * In megasporesogenesis, the ^{embryosacs} megaspores are formed.

S
E

प्रश्न क्र.

Answer of Que. no. 20

Hershey and Chase while doing experiments, used ~~virus bacteria~~ that infects bacteria called bacteriophages.

They grew some ~~bacteria~~^{virus} in radioactive sulphur and some on radioactive phosphorus.

The virus grown in radioactive sulphur had radioactive protein while the virus grown on radioactive phosphorus had radioactive DNA.

B
S
E

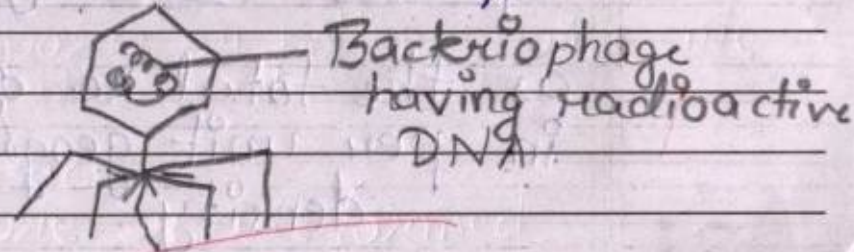
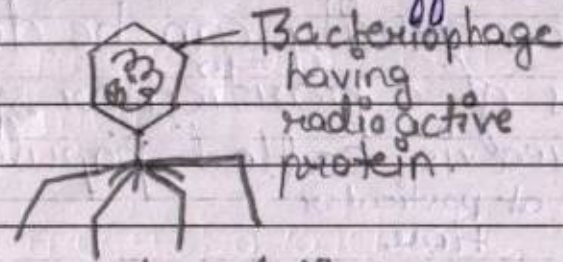
When these bacteriophages were allowed to infect *E. coli* bacteria, they released their ~~DA~~ genetic material in the *E. coli* bacteria. When the infected bacteria *E. coli* was subjected to centrifugation, the radioactive protein was detected in the supernatant but no radioactivity in the bacteria which was infected with virus having radioactive protein. Thus protein was not the genetic material.

But in the bacteria infected with bacteriophage having radioactive DNA, radioactivity was detected in the bacterial cell but no radioactivity was detected in the supernatant. Thus, DNA was the genetic material transferred from virus to *E. coli* bacteria.

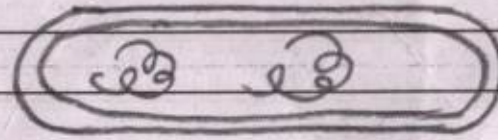
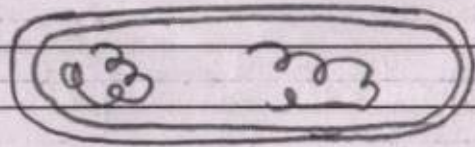
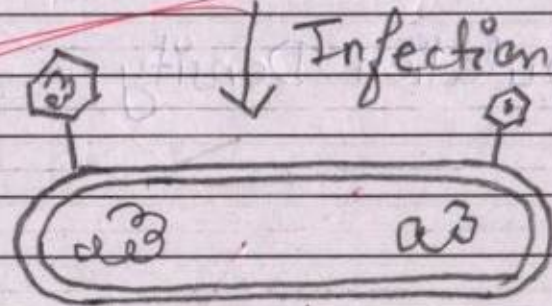
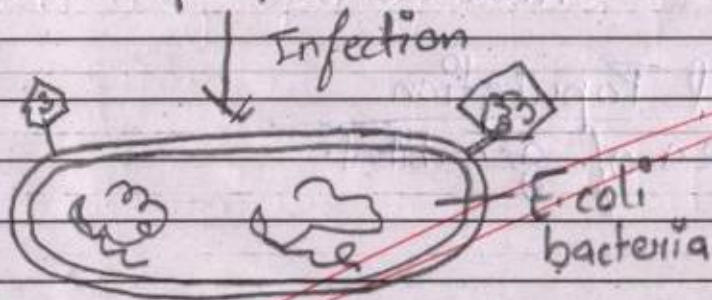


प्रश्न क्र.

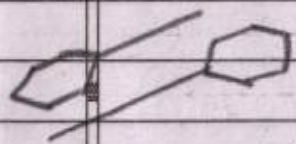
In this way, they proved that DNA was the genetic material and differentiated between DNA and protein.



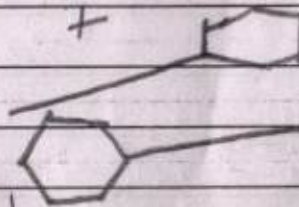
B
S
E



Centrifuga-
-tion.



Radioactivity detected
in supernatant



Radioactivity detected in E. coli



प्रश्न क्र.

Answer of Que. no. 07.

Population Density :-

Population density can be defined as the total no. of organisms of a particular species in per unit geographical area ^{at particular time} is called population density.

$$\text{Population Density} = \frac{\text{Total Population}}{\text{Area of habitat}}$$

B
S
E