
SECTION-A

Q.1 Filiform apparatus is found in: [1]
(a) Antipodals (b) Central cell (c) Secondary Nucleus (d) Synergids

Ans. (d) Synergids

Q.2 How many contrasting characters studied by Mendel in pea plant? [1]
(a) 9 (b) 7 (c) 10 (d) 14

Ans. (b) 7

Q.3 The technique by which age of the fossil can be calculated [1]
(a) Carbon dating (b) Orithology (c) Mycology (d) None of these

Ans. (a) Carbon dating

Q.4 N_2 fixing bacteria in nonlegume plants are [1]
(a) Frankia (b) Rhizobia (c) Plasmodium (d) Aspergillus

Ans. (a) Frankia

Q.5 energy transfer from one trophic level to another is [1]
(a) 100% (b) 5% (c) 10% (d) 50%

Ans. (c) 10%

SECTION-B

Q.6 Expand the following terms [1]
ZIFT, STD, AIH

Or

Write a short note on endosperm. $\left[1\frac{1}{2}\right]$

Ans. **ZIFT:** Zygote Intra Fallopian Transfer

STD: Sexual Transmitted Disease

AIH: Artificial Insemination Husband

Or

Endosperm: It is triploid ($3 \times$) tissue, it formed by triple fusion. It help in nourishing the developing embryo.

Q.7 Give three salient features of sexual reproduction. [1 $\frac{1}{2}$]

- Ans. (1) It is biparental.
(2) Produce genetically dissimilar offspring
(3) Help in evolution.

Q.8 What are the pathogens of following disease? [1 $\frac{1}{2}$]

- (a) Pneumonia
(b) Measles
(c) Elephantiasis

Ans. **(a) Pneumonia:** Bacteria Diplococcus Pneumoniae

(b) Measles: Virus Rubeola

(c) Elephantiasis: Nematode Wuchereria.

Q.9 Write a short note on DNA Finger printing. [1 $\frac{1}{2}$]

Ans. DNA finger printing was developed by Dr. Alec Jeffreys. In DNA finger we match VNTR/VARIABLE number tandem repeats.

Q.10 Define the following terms [1 $\frac{1}{2}$]

- (a) Symbiosis
(b) Pheromones
(c) Epiphytes

Ans. **(a) Symbiosis:** It is mutually beneficial relationship between two different organisms.

Er. Lichen, Mycorrhiza.

(b) Pheromones: These are ectohormones, which release from body surface into atmosphere.

Er. Pheromones in musk deer.

(c) Epiphytes: plant growing on other plant.

Er. Orchid growing on Mango Branch.

Q.11 Give three differences between replication and transcription. [1 $\frac{1}{2}$]

Ans. Replication is formation of DNA over DNA template transcription is formation of mRNA over DNA.

Q.12 Define missing links with example. [1 $\frac{1}{2}$]

Ans. Missing link are extinct animal. Which showed the characters of two different phylum. e.g., Archaeopteryx (between reptile & bird)

Q.13 Write a short note on Down's Syndrome. [1 $\frac{1}{2}$]

Ans. **Down's Syndrome:** Down's syndrome is due to trisomy in 21st pair of chromosome. It is also called as mongolism.

Q.14 What is Biochemical Oxygen Demand (BOD)? [1 $\frac{1}{2}$]

Ans. **Biochemical Oxygen Demand:** BOD is Biochemical oxygen demand. It is amount of O_2 /oxygen require to decompose organic matter in one litre of water by microbes.

Q.15 What are hot spots of Biodiversity? [1 $\frac{1}{2}$]

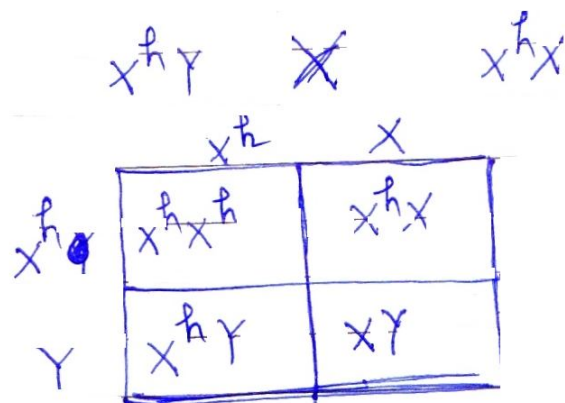
Ans. **Hot spots of Biodiversity :** Hot spot are biodiversity rich area, which show endemism.

Ex. Western Ghat & Eastern Himalaya.

SECTION-C

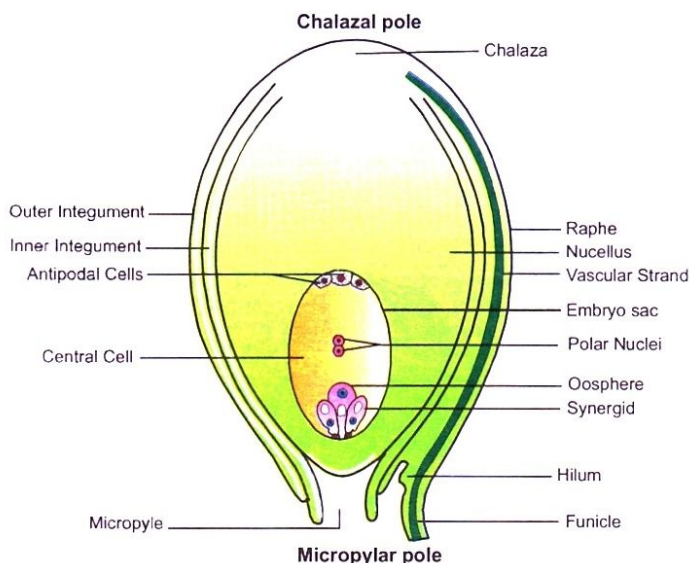
Q.16 What will be the phenotype of F_1 generation when a haemophiliac man (X^hY) marries a carrier woman (X^hX)? [2 $\frac{1}{2}$]

Ans.



Q.17 Draw a labelled diagram of Anatropous ovule. [2½]

Ans. **Anatropous ovule:**



Q.18 Describe incomplete dominance with suitable example. [2½]

Ans. When none of the alleles is dominant, then the expression of character will be intermediate/fine mixture of both character.

Ex. *Mirabilis Jalapa*.

Q.19 (a) Give four postures of Robert Koch about diseases

(b) Define incubation Period?

Or

What is Allergy? What are its symptoms? How it can be prevented? [2½]

Ans. (a) (i) Disease caused by small microbe.

(ii) Disease may transfer from diseased to healthy man.

(b) The time interval between infection and symptoms appearance called as incubation period.

Or

Allergy: The exaggerated response by our immune system to a stimulus is allergy.

Stimulus is Allergy:

Symptoms:

- Running Nose
- Lacrymation
- Congestion
- Difficulty in Breathing
- Allergy can be prevented by antihistamine drug.

Q.20 What is Manure? Describe its three types. [2½]

Ans. **Manure** : Manure are organic matter mixer in soil to increase soil fertility & productivity.

Q.21 What are Psychotropic drugs? Describe its various types briefly. [2½]

Ans. **Psychotropic drugs**: Psychotropic drug act on nerous system, there impire function o brain and result in hallucination. There are many type:

(1) Opiods

(2) Cannabinoids

(3) Coca Alkaloid

(4) Amphetamine

(5) Barbiturate

Q.22 What are Androgenic haploids? What are its uses? [2½]

Ans. Pollen grain is androgenic haploid. Culture of pollengrian may produce haploid plant and haploid plant help in mutation study.

Q.23 Describe Griffith's Experiment of transformation. [2½]

Ans. **Griffith's Experiment of transformation**: Griffith's Experiment of transformation experiment on mice with the help of streptococcus pneumuniae bacteria. He used two strain of bacteria.

R – Strain – Rough – It is non pathogenic

S – Strain – Smooth – It is Pathogenic.

Summary o Experiment:

| Sr. No | Bacteria Injected | Effect on Mice |
|--------|------------------------|----------------|
| 1. | Live R. Strain | Survived |
| 2. | Live S- Strain | Died |
| 3. | Heat killed –S- strain | Survived |

| | | |
|----|---|------|
| 4. | Heat – Killed 'S' Strain Live ⁺ _R strain | Died |
|----|---|------|

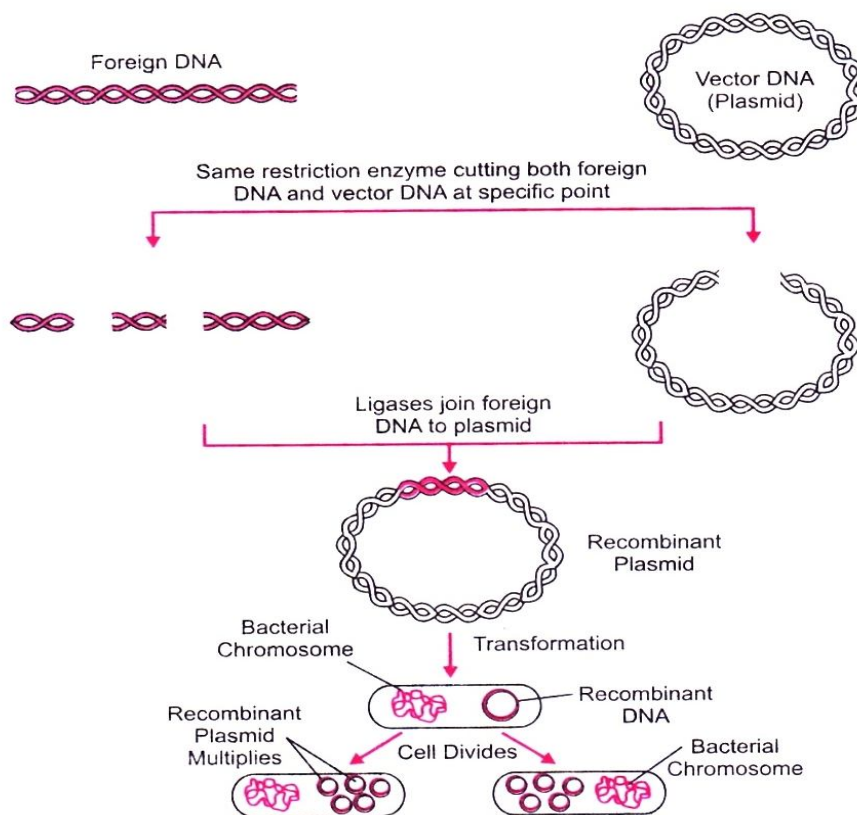
This experiment indicate that DNA is genetic material.

Q.24 What is recombinant DNA teachnology? What are its applications? [3]

Ans. **DNA teachnology:** rDNA technology is genetic engeering. It involve construction of rDNA, which is produced by joining of DNA of two different organism.

Appliction:

- (1) Stuy of molecular structure
- (2) Production of Humulin
- (3) Prodcution o protein rich cow milk.



Q.25 What are the advantages of erect posture and large brain humans over other primates? [3]

Ans. (1) Due to erect posture. The hand become free so arm of man can be used for other pursos.

(2) Due to large brain, man is most intelligent & use creature in world.

Human beings possess the following evolutionary advancements over the apes.

- (1) Bipedal Locomotion
- (2) Upright Posture
- (3) Neck
- (4) Free Grasping
- (5) Facial Profile
- (6) Brain
- (7) Speech
- (8) Memory
- (9) Prolonged Juvenile Training
- (10) Social Organisation

SECTION-D

Q.26 What is air pollution? How it can be controlled?

Or

Describe O_2 cycle in detail. [4]

Ans. Air pollution is the unwanted & harmful change in the physical, chemical properties of air, which impair human health.

Cause:

- (1) Automobile Exhaust
- (2) Industrial Smoke
- (3) Excess burning of fossil fuel.

Control:

- (1) Electrostatic Precipitator
- (2) Scrubber

Or

Q.27 (a) What are interferons? How they check viruses? [2]

(b) How hybridoma cells are produced? [2]

(c) Expand SCID. [1]

Ans. **(a) interferons:** Interferon is the protein, which is produced by virus infected cell. This interferon save other cell against virus infection.

(b) Hybridoma: Hybridoma cell are produced by injecting a specific antigen in mouse. The spleen cell, which produce antibody and join with cancer cell called myeloma. It help in production of antibody.

(c) SCID: Severe combined immuno deficiency Syndrom.

Q.28 (a) Draw a well labelled diagram of ovum. [2]

(b) Describe temporary methods of birth control in brief. [2]

(c) The shape of replication fork is [1]

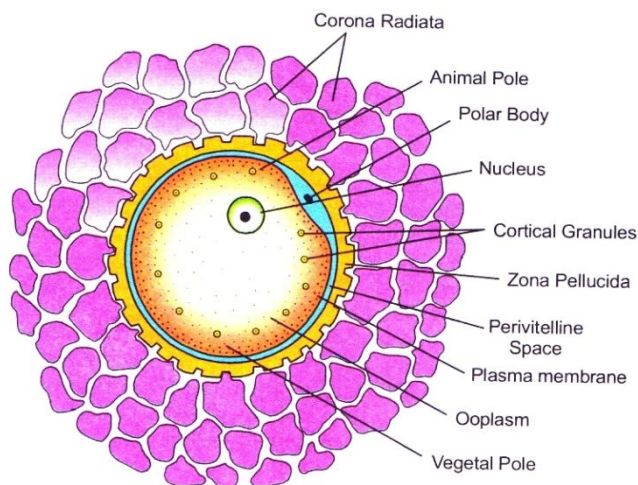
(i) Y-shaped

(ii) Z-shaped

(iii) A-shaped

(iv) B-shaped

Ans. (a)



(b) (1) Periodic Abstinence

(2) IUDS/Oral

(3) Pills

(4) Implant.

(c) Y-shaped.