- **All questions are compulsory.**
- **All questions carry equal marks.**
- **Draw diagram wherever necessary**

Q .I (A) Define (any three) of the following **(03)**

1. Eye piece
2. Pillar of microscope
3. Mordant
4. Basic dye
5. Iris diaphragm
6. Auxochrome group

Q. I (B) Give one word each for (any two) of the following **(02)**

1. A small platform attached to the arm of microscope used to keep the object for observation.
2. The property of a lens that decides the quantity of light that can enter into it.
3. Dye used to study cell respiration.
4. Another name for blood stain

Q. I (C) Give an brief account on (any two) of the following **(10)**

1. Resolving power
2. Mechanical parts of a microscope
3. Monochrome staining
4. Aim and steps in staining

Q II (A) Fill in the blanks (any five) **(05)**

1. A ---------- Medium contains the simplest set of ingredients that the microorganism can use to synthesize all of the essential nutrients.
2. ---------- is a process of transfer of the genetic material in which bacteria picks up the fragment of free DNA.
3. The recipient cells receiving donor DNA cell in conjugation are called ---------.
4. When any gene is transferred by phage vector the process is ---------- type of transduction.
5. The suspension of released progeny phages after lysis is called a -------.
6. In a population where there are genes having more than two alleles then such alleles are ---------- alleles.
7. In ---------- the heterozygote exhibits the phenotype of both homozygotes
8. ---------- is a phenomenon in which one gene masks the effect of other gene.
9. ---------- is the F_2 phenotypic ratio of partial dominance.
10. ---------- is the ratio obtained in F_2 generation of recessive epistasis in coat colour of rodents.

Contd/... 2

Q II (B) Explain the following (any two) (10)

1. Griffith's transformation experiment.
2. Dominant epistasis.
3. Incomplete dominance.
4. Gene interaction which produces new phenotype without modification of Mendelian ratio.

Q III (A) Fill in the blanks (any three) (03)

1. Yellow fibres are formed of protein substance called ------
2. ----------receive and carry impulses towards the cyton.
3. ---------- muscle is found only in the walls of the heart.
4. The cytoplasm of the muscle fibre is called ----------.
5. Neurons are packed by non-nervous, non- exciting supporting cells called ------.
6. Squamous epithelium is called as ---------- epithelium because the cells fit together like tiles of a foot path.

Q III (B) Give two functions of the following (any one) (02)

1. Areolar connective tissue
2. Hyaline cartilage

Q III (C) Discuss the following (any two) (10)

1. Ciliated and glandular epithelial tissue.
2. Saccharomyces cerevisiae as a model organism.
3. Characteristics of smooth muscles.
4. Components of nervous tissue.

Q IV Write short notes on the following (any three) (15)

1. Compound optical microscope with a ray diagram.
2. Steps in staining.
3. Codominance.
4. Essential genes and lethal alleles.
5. Bone.
6. Adipose tissue.