



MEERUT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Department of Biotechnology and Microbiology

NH-58, Delhi-Roorkee Highway, Baghpat Road, Meerut -250005, U.P.

Question Bank for PUT & CCS main Exam

Sub Name:- Microbial Genetics (B-206)

By Subject Teacher: Dr. Subir K Bose

Q-(1) Difference between tests cross and back cross. Draw the Punnett squares of Dihybrid test cross?

Q- (2) Definition of genetics and its importance? Brief discussion on *Mendal's experiments*?

Q- (3) Difference between co-dominance and incomplete dominance? Give suitable example?

Q- (4) Short notes on the following topics?

(i) Rediscovery of Mendals law?

(ii) Draw the Punnett squares of dihybrid cross?

(iii) Lethal Gene and its example?

(iv) Father of modern genetics?

(v) Name of the Mendel seven pairs of contrasting characters of pea plants for his experiments?

Q(5):- Classical and Modern gene concepts?

Q (6):- Short notes on (i) Base excision repair (ii) Nucleotide excision repair (iii) Recombinant repair (iv) Role of photolyase enzyme on DNA repair?

Q (7):- Types of chromosomes on the basis of centromer?

Q (8):- Describe on chemical and physical mutagens? Write the name of the 3 chemical & 3 physical mutagen?

Q (9):- Short notes on (i) Alkylating agent (ii) Deaminating agents (ii) Intercalating agent

Q (10):- Explain the DNA damage and repair? And what is SOS repair system?

Q (11):- Define deamination in DNA bases and how it damage DNA?

Q (12):- Mechanism of direct repair of DNA?

Q (13):- Define extra-chromosomal/extranuclear/cytoplasmic inheritance in plant & animals?

Q (14):-Draw the structure of mitochondrial and chloroplast genetic system?

Q (15):-Define mutation & its types? Describe base substitution mutation?

Q-(16) Different b/w homozygous & heterozygous?

Q-(17) Short notes on alleles, pseudo alleles & lethal gene?

Q-(18) Different b/w Linkage and crossing over?

Q-(19) Name of the seven characteristics chose by Mendel's during experiments & Rediscovery of Mendel's law?

Q-(20) Benzer's work on r-II locus in T4 phage & describe complementation test by *S. Benzer* ?

Q-(21) Benzer's work on r II locus in T4 phage & explain Complementation test by Benzer's?

Q-(22) Explain the modern concept of gene by *S. Benzer*?

Q-(23) Draw the structure of bacteriophage?

Q-(24) In the monohybrid cross of Mendel, when a pure tall plant was crossed with a dwarf plant, all the F1 Progeny were tall, because of ?

Q-(25) Difference between tests cross and back cross. Describe the Punnett squares of Dihybrid test cross?

Q-(26) Define the law of purity of gametes describe your answer with suitable diagram (Punnett squares)?

Q-(27) Name of the three diseases caused from aneuploidy?

Q-(28) Discover of Lethal Gene and its example in animals?

Q-(29) Name of the two Nobel laureates related to molecular biology?

Q-(30) Outer membrane of chromosome is known as.....?

Q-(31) Colchicin is obtained from which plant?

Q-(32) Short notes on maternal inheritance?

Q-(33) Types of non mendalian inheritance and give your answer with suitable reply?

Q-(34) What are the structural differences and similarities between chloroplast and mitochondrial and also its geneomes?

Q-(35) Write the importance of gene and draw a gene structure?

Q-(36) Diagrammatical representation of chromosomes and also mention telomeric portion and its importance?

Q-(37) Brief explanation of gene and its discovery and explain the term related to gene (i.)Cistron (ii.)Recon (iii.)Muton & its function?

Q-(38) Match the correct pair?

(i) Muton	(a)Mendel
(ii) Mitochondria	(b) Locus of bacteria phage Gene
(iii) Wtson and Crick	(c) Alleles
(iv) T4 rII	(d) Outer membrane of chromosomes
(v)Telomere	(e) Morgan & Lewis
(vi) Pellicle	(f) Histone octamer
(vii) Nucleosomes	(g) End of the chromosomes
(viii)Term Pseudoalleles	(h) Unit of gene responsible for mutation
(ix) Alternate forms of gene	(i) Discovery of DNA
(x) Term Factor	(j) Maternal inheritance/Non mandelian inheritance

Q-(39) supposes that a snail had a dextral coiling. Upon self-fertilization, it produces progeny all of which showed sinistral coiling. How do you explain these results?

Q-(40) write short notes on the following?

(i) Kappa particles in paramecium

(ii) Maternal inheritance

Q-(41) what is the difference between Mendelian & non-Mendelian inheritance?

Q-(42) what do you understand by spontaneous mutations and induced mutations? Describe the variation in mutation frequencies at different level within the same organism?

Q-(43)What do you understand by self- incompatibility ?

Q-(44) Explain complete and incomplete linkage providing the work of TH Morgan on *Drosophilla*?

Q-(45) write short notes on the following?

- (i) Plastid inheritance (ii) Non chromosomal gene (iii) Fertility restore

Q-(46) Attempt any two of the following?

(i) Physical and chemical mutagens (ii) DNA damage and Repair

(iii) Isoalleles

(iv) Lethality of genes in Mice

Q-(47) Difference between (i) Transcription and Translation

(ii) Epistasis and Dominance (iii) Recon and Mutton

Q-(48) Write short notes on theories of crossing over?

Q-(49) what is linkage? Explain the mapping of genes taking three point test cross?

Q-(50) Short notes on alleles, pseudoalleles & lethal gene?

Q-(51) Different b/w Linkage and crossing over?