SLR-VQ – 6

Seat No.	

M.Sc. (Part – I) (Semester – I) Examination, 2014
GENETICS (CGPA Pattern) (New)
Biostatistics and Population Genetics (Paper – II)

Day and Date : Wednesday, 23-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1)* ***All*** *question of Section* ***I*** *are* ***compulsory****.*
2) Answer ***any four*** *questions from Section* ***II****.*
3) ***All*** *questions carry* ***equal*** *marks.*
4) Draw ***neat*** *and labeled diagrams* ***wherever*** *necessary.*

Section – I

Q.1 A] Rewrite the following sentences by choosing the most correct alternative given below: **[07]**

i] ---------- causes changes in gene frequency
a) Mutation b) Natural Selection
c) Genetic Drift d) All of the above

ii] _____ is often defined as group of individual that actually or potentially interbreed in nature
a) Hybrids b) Soma clones
c) Genus d) Species

iii] Theory of Natural selection was given by----------
a) Robert Hooke b) Hardy Weinberg
c) Fisher d) Charles Darwin

iv] For Hardy Weinberg's genetic equation to be accurate its population is required to be -------- ----------
a) Mendelian b) Small
c) Large d) Non Random

v] Shoe size of the most of the people in India is No. 8., it represents ..... parameter of measure of central value.
a) Mean b) Second Quartile
c) Mode d) Eighth Decile

vi] The mean of 7 observations is 8. A new observation 16 is added. The mean of 8 observations is:
a) 9 b) 12
c) 6 d) 2

vii] A frequency distribution having two modes is said to be:
a) without mode b) bimodal
c) trimodal d) unimodal

P.T.O.

Q.1 B] Define the following terms: [07]

i] Heritability
ii] Polymorphism
iii] Fishers Fundamental theorem
iv] Mode
v] Probability
vi] Normal Distribution
vii] Mendelian Population

Section II

Answer any Four

Q.2 Explain various causes of changes in gene frequency in a population (14)

Q.3 Calculate the mean median and mode of the frequency distribution [14]

Class Limit	130-134	135-139	140-144	145-149	150-154	155-159	160-164
Frequency	5	15	28	24	17	10	1

Q.4 Write a note on species. Explain various causes and modes of speciation. [14]

Q.5 Calculate correlation coeffiecient between X and Y for the following Data [14]

X	1	2	3	4	5	6	7	8	9
Y	10	11	12	14	13	15	16	17	18

Interpret correlationship between X and Y.

Q.6 Answer any TWO of the following. [14]

a) Write a note on Hardy Weinberg's equilibrium
b) Write a note on Artificial and natural selection. Enlist the distinguishing points between them.
c) Describe various types of correlation.

Q.7 Answer any TWO of the following. [14]

a) Explain co-adapted gene complex
b) Write a note on various evidences of evolution.
c) Write a note on Standard Deviation. Enlist the merits and demerits of using it.

SLR-VQ – 13

Seat No.	

M.Sc. (Part – I) (Semester – II) (New) Examination, 2014
GENETICS (C.G.P.A. Pattern) (Paper – I)
Regulation of Gene Expression and Developmental Genetics

Day and Date : Tuesday, 22-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1)* ***All*** *questions of Section –* ***I*** *are* ***compulsory****.*
2) Answer ***any four*** *questions from Section –* ***II****.*
3) ***All*** *questions carry* ***equal*** *marks.*
4) Draw neat and labelled diagrams ***wherever*** *necessary.*

SECTION – I

1. A) Rewrite the following sentences by choosing the correct alternative given below : **7**

i) Lac Operon is initiated when there is presence of _____

a) β Galactosidase b) α Galactosidase

c) Lactose d) Lactase

ii) _____ protein continuously represses Gal 4 Protein in absence of Galactose in yeast.

a) Gal 20 b) Gal 40 c) Gal 80 d) Gal 100

iii) _____ regulate the cell cycle only when they are bound to CDK's.

a) Tumor Suppressor b) Cylins

c) P53 d) P21

iv) CaMV _____ is a very strong constitutive promoter responsible for transcription of whole CaMV genes.

a) 30s b) 35s c) 36s d) 34s

P.T.O.

v) Differentiation of organs and tissues in a developing organism is associated with _____

a) Lethal mutations
b) Deletion of genes
c) Developmental mutations
d) Differential expression on genes

vi) Development of segments in *Drosophila* is controlled by _____

a) Homeotic Genes b) Lethal Genes
c) Zygotic Genes d) Maternal Gene

vii) In *Dictyostelium* _____ represents the sexual stage.

a) Monocysts b) Hypnocysts
c) Macrocysts d) Aplanocysts

B) Define the following terms : **7**

i) Epigenetics
ii) Heat Shock gene
iii) RNA Editing
iv) CDK's
v) Morulla
vi) Sluge
vii) Flower.

SECTION – II

Answer **any four** :

2. Discuss in detail the life cycle of *Arabidopsis thaliana*. **14**

3. Explain the Operon model of gene regulation with special reference to Lac and Trp operon. **14**

4. Explain in detail segmentation genes and formation of body segments in *Drosophila*. **14**

5. Explain the gene regulation at transcriptional and post transcription stage in eukaryotes. **14**

6. Answer **any two** of the following. **14**

   a) Write a note on zygote development in plants.

   b) Explain the Galactose utilization pathway in yeast.

   c) Describe the mechanism of cell differentiation in sludge.

7. Answer **any two** of the following. **14**

   a) Write a note on signal integration in human beta interferon.

   b) Explain the polarity determination of embryo by maternal genes in *Drosophila*.

   c) Explain the control of lytic and lysogeny in lambda phage.

SLR- VQ – 14

Seat No.	

M.Sc. (Part – I) (Semester – II) Examination, 2014
GENETICS (C.G.P.A. Pattern) (New) (Paper – II)
Concepts of Biochemistry

Day and Date : Thursday, 24-4-2014 Max. Marks :70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1)* ***All*** *question of Section –* ***I*** *are* ***compulsory****.*
2) Answer ***any four*** *questions from Section –* ***II****.*
3) ***All*** *questions carry* ***equal*** *marks.*
4) ***Draw*** *neat and labelled diagrams* ***wherever*** *necessary.*

SECTION – I

1. A) Rewrite the following sentences by choosing the correct alternative given below : **7**

i) ΔG of a reaction in negative then the reaction is _____

a) at equilibrium b) spontaneous
c) endergonic d) steady

ii) The electron affinity of electron acceptor in redox conjugate pair is measured in terms of _____

a) Volts b) Amphere
c) Calorie d) Jule

iii) In digit Enzyme Commission number the second place indicates _____

a) Class b) Sub-class
c) Sub sub-class d) Serial number

iv) _____ is an aromatic amino acid.

a) Alanine b) Proline
c) Arginine d) Tyrosine

v) Osteomalacia is caused due to the deficiency of vitamin _____

a) A b) D c) E d) K

vi) α-D Glucose and β-D-Glucose are _____ of each others.

a) Structural isomers b) Anomers

c) Epimers d) DL forms

vii) _____ is required as a reductant in fatty acid synthesis.

a) NADH b) $FADH_2$

c) NADPH d) $FMNH_2$

B) Define the following terms : **7**

i) Entrophy

ii) Primary structure of proteins

iii) Km of enzyme

iv) Vitamin

v) Chloroplast

vi) Purines

vii) Transamination.

SECTION – II

Answer **any four** :

2. Explain the glycolysis. Add a note of its regulation and energetics. **14**

3. Discuss in detail about inhibition of enzyme. **14**

4. Describe biological oxidation reduction reaction. Add a note on redox potential. **14**

5. Classify the lipids. Add a note on its functions. **14**

6. Answer **any two** of the following : **14**

a) Describe ATP as a energy rich compound.

b) Discuss the secondary structure of proteins.

c) Draw the structural formula of vitamin A and ascorbic acid. Add a note on their biological role.

7. Answer **any two** of the following : **14**

a) Write a brief note on photosynthesis.

b) Explain in detail the urea cycle.

c) What is cori cycle ? Explain it.

_____

SLR-VQ – 15

Seat No.	

M.Sc. (Semester – II) Examination, 2014
GENETICS
Advanced Microbial Genetics (Paper – III)
(New) (C.G.P.A. Pattern)

Day and Date : Saturday, 26-4-2014 Max. Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions : *1) Section **I** is **compulsory**.*
*2) From Section **II** attempt **any four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to **right** indicate **full** marks.*
*5) Draw **neat** and **labelled** diagrams.*

SECTION – I

1. A) Rewrite the following sentences by using correct alternative. **7**

1) Hfr bacterium is one that contains
   a) many unusual plasmids
   b) chromosomal material acquired from recipient cell
   c) the ability to undergo transduction
   d) a plasmid integrated into its chromosome

2) Competency factors are
   a) intracellular
   b) extracellular
   c) protein in nature
   d) both intracellular and extracellular

3) In *Penicillium* the female organ is known as
   a) Archegonium
   b) Spermatangium
   c) Ascogonium
   d) Sporogonium

4) Which bacterial DNA sites are responsible for the packing of its DNA into P1 bacteriophage ?
   a) pseudo-pac sites b) pac sites
   c) xis sites d) gag sites

5) Auxotrophs are
   a) nutritional mutants b) phage resistant mutant
   c) drug resistant mutant d) all of the above

6) The F plasmid of high frequency recombinant strain (Hfr) exists as a
   a) independent plasmid b) episome
   c) prophage d) vector

7) The mutation that arise in the presence of mutagen is called
   a) induced mutation b) spontaneous mutation
   c) frameshift mutation d) all of the above

B) Answer the following terms. **7**

1) Plasmid
2) Mutants
3) Temperate phage
4) Prototrophs
5) Competancy
6) Plasmogamy
7) Episome

SECTION – II

Attempt **any four** :

2. Describe in detail the mechanism of conjugation. **14**

3. Write an essay on transduction. **14**

4. What are auxotrophs ? Explain method for the isolation of auxotrophic mutants. **14**

5. Describe yeast mating-type switching mechanism. **14**

6. Answer **any two** of the following: **14**

   1) Describe the analysis of mutation in biochemical pathway.

   2) Describe life cycle of fungi.

   3) Explain the biology of natural transformation system.

7. Answer **any two** of the following : **14**

   1) Describe interrupted mating technique.

   2) Write a note on fluctuation test.

   3) Describe the pathway for the induction of competency by *com* genes.

SLR-VQ – 16

Seat No.	

M.Sc. (Semester – II) Examination, 2014
GENETICS – I (New) (C.G.P.A) Pattern (Paper – IV)
Plant Breeding and Tissue Culture

Day and Date : Tuesday, 29-4-2014 Max. Marks : 70

Time : 11.00 a.m. to 2.00 p.m.

***Instructions** : 1) Section **I** is **compulsory**.*
*2) From Section **II** attempt any **four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to **right** indicate **full** marks.*
*5) Draw **neat** and labeled diagrams.*

SECTION – I

1. Rewrite the following sentences by using correct alternative. **7**

1) The selection from a mass of seeds or a bulk of plants is called as
   a) pure line selection b) pedigree method
   c) mass selection d) hybridization

2) Removal of stamens from the flowers before dehiscence of anthers is called
   a) hybridization b) mass selection
   c) emasculation d) pedigree method

3) Variants selected in callus culture have been referred to as
   a) calliclones b) protoclones
   c) polyclones d) aneuclones

4) In micropropagation, virus free plants can be obtained through
   a) shoot tip culture b) haploid culture
   c) protoplast culture d) embryo culture

5) Triploid plants can be generated from
   a) embryo b) endosperm
   c) pollen d) leaf

6) Somatic hybridization is achieved through
   a) grafting b) protoplast fusion
   c) conjugation d) rDNA technology

7) Embryo culture is used for
   a) establishing suspension culture
   b) recovery of interspecific hybrids
   c) somatic hybridization
   d) haploid production

B) Answer the following terms : **7**

1) Back cross

2) Hybridization

3) Incompatibility

4) Totipotency

5) Synthetic seed

6) Callus

7) Apical meristem.

SECTION – II

Attempt **any four.**

2. Give a detailed account on mutation breeding for crop improvement. **14**

3. Explain in detail polyploidy breeding. **14**

4. Explain in detail different steps for *invitro* clonal propagation. **14**

5. Write an essay on germplasm storage. **14**

6. Answer **any two** of the following : **14**

   1) Write a note on genetic resources.

   2) Explain mode of reproduction in crop plants.

   3) Write an account on vegetatively propagated crop plant.

7. Answer **any two** of the following : **14**

   1) Explain the role of auxins in plant tissue culture.

   2) Write a note on embryo rescue.

   3) Write in brief account on cybrids.

SLR-VQ – 21

Seat No.	

M.Sc. (Part – II) (Sem. – IV) Examination, 2014
GENETICS
Genetic Engineering (Paper – I)

Day and Date : Tuesday, 22-4-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

***Instructions** : 1) Part – **I**, Question **1** is **compulsory**.*
*2) Attempt **any four** questions from Part – **II**.*
*3) Figures to the **right** indicate **full** marks.*
*4) Answers to Part – **I** and Part – **II** are to be written in the **same** answer booklet only.*

PART – I

1. A) Choose the correct answers from given alternatives : **10**

1) Restriction enzymes can cut _____ bond.
a) Phosphodiester b) Hydrogen
c) Glycosidic d) Covalent

2) DNA chips are created using small _____ microscopic slide.
a) Gold b) Platinum
c) Polythene d) Glass

3) For isolation of specific gene, the technique should first be available for isolation of specific _____
a) DNA b) mRNA
c) tRNA d) rRNA

4) PCR requires _____
a) Primer b) DNA template
c) Taq DNA polymerase d) All of these

5) Terminal transferase add mononucleotides at _____
a) 3′ end b) 5′ end
c) both 3′ and 5′ end d) within the molecule

P.T.O.

6) Restriction enzymes are also called _____
   a) Site specific endonuclease
   b) Molecular scissors
   c) Molecular scalpel
   d) All of these

7) Maxam and Gilbert method of DNA sequencing requires _____
   a) Base specific degradation chemical
   b) Radiolabelled end of DNA
   c) Auto radiography
   d) All of above

8) _____ is the transfer of foreign DNA into cultured host cells mediated through chemicals.
   a) Transformation
   b) Transfection
   c) Conjugation
   d) Transduction

9) For denaturation reaction the tube is heated to approximately at _____
   a) 90°C b) 92°C
   c) 94°C d) 96°C

10) Plasmids found in bacteria are molecules of _____
   a) DNA b) RNA
   c) Protein d) Carbohydrates

B) Write briefly on the following : **10**

1) DNA sequencing

2) Molecular markers

3) Genomic library

4) Promotor

5) Gene-gun.

PART – II

Answer **any four** of the following :

2. Explain properties and structure of artificial plasmids. **20**

3. Explain the method of isolation and purification of vector DNA. **20**

4. Explain the method of RAPD as a molecular marker. **20**

5. Answer **any two** of the following : **20**
   1) Describe amplification of rDNA by using PCR.
   2) Explain the direct and indirect methods for screening of recombinants.
   3) Describe principle and applications of electroporation.

6. Answer **any four** of the following : **20**
   1) Designing of E. coli expression vector
   2) Immunoscreening
   3) Hepatitis B recombinant vaccine production
   4) Phagmids
   5) Restriction endonucleases
   6) Preparation of probes.

SLR-VQ – 22

Seat No.	

M.Sc. (Part – II) (Semester – IV) Examination, 2014
GENETICS
Molecular Medicine (Paper – II)

Day and Date : Thursday, 24-4-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

N.B. : *1) Part – **I** and Question **1** is **compulsory**.*
*2) From Part – **II** attempt **any four** questions.*
*3) Figures to the **right** indicate **full** marks.*
*4) Answer to the Part – **I** and Part – **II** should be written in the **same** answer book.*

PART – I

1. A) Choose the correct answer from given alternatives and rewrite the sentences : **10**

i) Nerve cell is a type of _____ cell.

a) Pluripotent b) multipotent
c) Totipotent d) Unipotent

ii) Initial cell from where the cancer starts is termed as _____

a) Cancer stem cell b) Malignant cell
c) Onco cell d) Tumor

iii) Cardiovascular disease involves problem in _____

a) Muscle b) Arteries
c) Lungs d) RBCs

iv) In cystic fibrosis patient the mucous is dehydrated because of improper regulation of _____ ions.

a) Calcium b) Chloride
c) Potassium d) Hydrogen

v) _____ DNA has the highest mutation rate.

a) Nuclear b) Chloroplast

c) Mitochondria d) All of these

vi) _____ gene is damaged in cystic fibrosis.

a) CFTC b) CFRC

c) CFRT d) CFTR

vii) Leber Hereditary Optic Neuropathy (LHON) disease is associated with _____

a) Haemoglobin b) Collagen

c) Mitochondria d) Stem cell

viii) _____ provides structural stability to the dystroglycan complex on the cell membrane.

a) Dystrophin b) Utrophin

c) CFTR d) Collagen

ix) Epigenetic modification is done at _____ level.

a) Somatic cell b) Microbial cell

c) Germ cell d) Fungal cell

x) Loss of functional mutation is likely when point mutation in gene produces the same pathological changes as _____

a) Deletion b) Addition

c) Inversion d) Duplication

B) Answer the following : **10**

i) Frame shift mutation

ii) Mini satellite

iii) Adenovirus in gene therapy

iv) Embryonic stem cell

v) Types of cardiovascular diseases.

PART – II

Answer **any four** of the following :

2. Discuss in detail Gene therapy and explain its importance compared to traditional therapy. **20**

3. Write note on genetic mutation. Compare and explain loss of function mutation and gain of function mutation. **20**

4. Discuss in detail Haemoglobinopathies. **20**

5. Write short answers to (**any two**) : **20**
   a) Stem cell
   b) Collagen and associated diseases
   c) FISH.

6. Write short notes on (**any four**) : **20**
   a) SCID
   b) Pharmacogenetics
   c) Human genome project
   d) Agammaglobulinemia
   e) Oligo peptide drugs
   f) Cancer stem cell.

SLR-VQ – 23

Seat No.	

M.Sc. (Part – II) (Semester – IV) Examination, 2014
GENETICS
Paper – III : Animal and Environmental Biotechnology

Day and Date : Saturday, 26-4-2014 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

***Instructions**: 1) Part - **I**, Question **1** is **compulsory**.*
*2) Attempt **any four** questions from Part - **II**.*
*3) Figures to the **right** indicate **full** marks.*
*4) Answers to the Part - **I** and Part - **II** are to be written in the **same** answer book **only**.*

PART – I

1. A) Choose the correct answer from the given alternative and rewrite the sentence. **10**

1) Normal animal cell shows _____ growth in artificial media.
   a) Multiple layer b) Indefinite
   c) Mono layer d) Bislayer

2) _____ is method of living organisms use to degrade environmental pollutions present in environment.
   a) Bioaggumentation b) Biofilteration
   c) Bioremediation d) Bioaccumulation

3) PGDF stands for
   a) Platelet Dependent Growth Factor
   b) Platelet Derived Growth Factor
   c) Pituitary Derived Growth Factor
   d) Pituitary Dependent Growth Factor

4) _____ bacteria is the first organism to be patented as superbug.
   a) Thioba scillus ferroxidancy b) Psedomonas pituda
   c) Klebsiella d) Bascillus subtilis

P.T.O.

5) Which of the following is an animal tissue culture media.

a) MEM b) RPMI 1640

c) CMRL d) All of above

6) _____ is the best method to dispose organic and degradable municiple solid waste.

a) Land filling b) Combustion

c) Composting d) Dilution

7) _____ blocks the endogenous synthesis of purine and pyrimidenes in the cell.

a) Hypoxanthene b) Aminopterin

c) Hexomidine d) Thioguanine

8) Methanogens are

a) facultative anerobes b) facultative aerobes

c) obligatory anerobes d) obligatory aerobes

9) The term hybridoma implies for

a) Gametic fusion b) Hybrid virion

c) Somatic hybridization d) DNA-RNA hybrid

10) HeLa cell line is

a) Human carcinoma cell b) Chick embryo cells

c) BHK cell d) Mouse embryo cell

B) Write short answers. **10**

1) Media for culturing cells

2) Vector

3) Transgene

4) Xeno biotics

5) Biogas.

PART – II

Answer **any four** of the following :

2. Write a detail account on primary cell culture methods and add a note on mechanical disaggregation. **20**

3. Write an essay on transfection of animal cell lines add a note on transformation of cell HAT selection. **20**

4. Write an essay on Bio leaching with special reference to environmental significance to genetically modified microbes. **20**

5. Answer **any two** of the following : **20**
   a) Phytoremediation
   b) Methanogenic bacteria
   c) Treatment of Industrial effluents.

6. Write short notes on **any four** of the following : **20**
   a) Production of monoclonal antibodies
   b) Applications of transgenic animals
   c) Over production of the expressed proteins in animals
   d) Conversion of sugar to alcohol
   e) Bioremediation of water contaminated with oil spills
   f) Degradation of pesticides by micro-organisms.

———————

SLR-VQ – 24

Seat No.	

M.Sc. (Part – II) (Semester – IV) Examination, 2014
GENETICS
Paper – IV : Bioinformatics and Intellectual Property Rights

Day and Date : Tuesday, 29-4-2014 Total Marks : 100

Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Part – **I**, Question **1** is **compulsory**.*
*2) Attempt **any four** questions from Part – **II**.*
*3) Figures to the **right** indicate **full** marks.*
*4) Answers to the Part – **I** and Part – **II** are to be written in **same** answer Booklet only.*

PART – I

1. A) Rewrite the sentence after choosing the correct answer from the given alternatives. **10**

1) PRI in GenBank Stands for

a) Principle b) Primate c) Print d) Primary

2) BLAST algorithm was described by

a) Altschul b) Lipman and Pearson

c) PROSITE d) OWL

3) Phylogenetic analysis is the means of _____ evolutionary relationships.

a) Inferring b) Estimating c) Calculating d) All of these

4) _____ is character based approach of phylogenetic analysis.

a) UPGMA b) Neighbor joining

c) Parsimony d) Fitch-Margoliash

5) PIR-3 contains _____ protein sequences.

a) Unverified b) Unclassified

c) Non-redundant d) Artificial

P.T.O.

6) If query sequence in protein and search database is translated nucleotide then _____ tool is used.

a) Blastp b) Blastx c) tBlastn d) tBlastx

7) Indian Patent Act was established in the year

a) 1957 b) 1970 c) 1999 d) 2001

8) Solapur chadar is an example of

a) Patent b) Trade mark

c) Geographical indication d) Copyrights

9) Hibberd patent is associated with _____ patent.

a) Microorganism b) Animal

c) Plant d) Molecule

10) _____ cannot be patented in India.

a) Life forms b) GMOs

c) Genetic resources d) All

B) Answer the following : **10**

1) Bioinformatics

2) Genomics

3) IPR

4) Copyrights

5) Oncomouse patent.

PART – II

Answer **any four** of the following :

2. Write an essay on biological databases. **20**

3. Write an essay on multiple alignment of sequence comparison. **20**

4. Write a detailed note on biological patents with examples and case studies. **20**

5. Write short answers of **any two** from the following : **20**

   1) Explain different types of copyrights and add a note on limitation and duration.

   2) Add a note on main activities of WIPO.

   3) Write a note on patenting of Life forms.

6. Write short notes on **any four** of the following : **20**

   1) FASTA

   2) Phylip

   3) Application of Bioinformatics

   4) Geographical indications

   5) Fair use of IPR

   6) Patenting of Genes and DNA sequences.

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SLR-VQ – 7

Seat No.	

M.Sc. – I (Semester – I) Examination, 2014
GENETICS (New)
Cytogenetics and Genome organization (Paper – III)
(CGPA Pattern)

Day and Date : Friday, 25-4-2014 Total Marks : 70
Time : 11.00 a.m. to 2.00 p.m.

Instructions *: 1) Section – **I** is **compulsory**.*
*2) From Section – **II** attempt **any four**.*
*3) **All** questions carry **equal** marks.*
*4) Figures to the **right** indicate **full** marks.*
*5) **Draw** neat and labelled diagrams.*

SECTION – I

1. A) Rewrite the following sentences by using correct alternative : **7**

1) _____ is a DNA protein complex consisting of a nucleosome, the linker DNA segment and its H1 histone.
a) Chromista b) Chromatids
c) Chromatosome d) Chromatophore

2) In 1952 _____ compound the polytene chromosome of different tissues of chironomons larvae and showed that although the pattern of bands and interbands was similar in all tissues.
a) W. Waksman b) W. Watsman
c) W. Beerman d) W. Fanke

3) _____ is characteristic DNA content of the cells of a given species.
a) Base pair value b) D-value c) N-value d) C-value

4) _____ period is an interval between the end of the S phase and the start of mitosis.
a) G1 b) G2 c) G0 d) C1

5) In *Chlamydomonas* the one chloroplast in a cell generally contains between _____ and _____ chloroplast DNA molecules.
a) 1000 to 2000 b) 500 to 1500 c) 50 to 500 d) 2000 to 5000

P.T.O.

6) *E.coli* chromosomes requires about _____ min for transfer in other cell.
   a) 70 b) 80 c) 90 d) 100

7) Some of DNA fragments of approximately 45 kb size as example gene found in eukaryotes can be closed in vectors called _____
   a) Shuttle b) Cosmids c) Plasmid d) YACS

B) Answer the following terms : **7**

1) IS elements
2) LINES
3) cryptic
4) Telomere
5) Karotyping
6) In-sutu hybridization
7) Concatemer.

SECTION – II

Attempt **any four** :

2. Write an essay on Functional genomics. **14**

3. Give an account on mechanism of sex determination. **14**

4. Give an account on Drosophila a model for genetic study. **14**

5. Write an essay on Polytene chromosome. **14**

6. Write short answers (**any two**) : **14**
   a) Mitotic and Meiotic chromosomes
   b) Mitochondria
   c) Different types of plasmids and significances.

7. Write short notes on (**any two**) : **14**
   a) Genome organization in animals
   b) Repetitive DNA
   c) Muitigene families.

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