UN – 560

V Semester B.Sc. Examination, November/December 2015
(Semester Scheme) (NS)
(2013 – 14 & Onwards)
BOTANY – VI
Cytology, Genetics & Evolution and Plant Breeding

Time : 3 Hours | Max. Marks : 70

Instructions : *1) Answer **all** Parts.*
*2) Draw diagrams **wherever** necessary.*

PART – A

A. Answer **any seven** of the following : **(7×2=14)**

1) What is telomere ? Mention its significance.
2) What is the principle involved in the functioning of electron microscope ?
3) Differentiate between deletion and duplication.
4) Define alleles with a suitable example.
5) What is Test Cross ? Mention its significance.
6) What is Crossing Over ? Explain its importance.
7) What is Pollen Bank ?
8) Define mutation. Name the scientist who proposed mutation theory.
9) What is Quarantine ?

PART – B

B. Answer **any six** of the following : **(6×4=24)**

10) Explain epistasis with a suitable plant example.
11) Explain the process of paracentric inversion.
12) Write short notes on Layering and Gootee.
13) Write notes on partial dominance.

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14) Explain the various event of interphase of cell division.

15) Give an account of interspecific and intergeneric hybridization.

16) Explain nueleosome model.

17) Write short notes on plastidial inheritance.

PART – C

C. Answer **any four** of the following : (8×4=32)

18) Explain multiple factor inheritance with a suitable example.

19) Give a detail account of extra chromosomal inheritance.

20) Describe the aim and objectives of plant breeding.

21) Explain various postulates of Darwinism.

22) Explain prophase – I of Meiosis.

23) Explain the process of Translocation.

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V Semester B.Sc. Examination, Nov./Dec. 2016
(Repeaters – Prior to 2016-17) (NS – 2013-14 and Onwards)
BOTANY – VI
Cytology, Genetics, Evolution and Plant Breeding

Time : 3 Hours Max. Marks : 70

Instructions : *1) Answer **all** Parts.*
*2) **Draw** diagrams **wherever** necessary.*

PART – A

A. Answer **any seven** of the following : **(7×2=14)**

1) Differentiate between centromere and telomere.
2) Mention the types of Electron microscope.
3) Define trisomy with an example.
4) What is dihybrid cross and dihybrid ratio ?
5) What is cryopreservation ?
6) Define mutation.
7) What is crossing over ? Mention its importance.
8) Differentiate dominant gene from recessive gene.
9) What is test cross ?

PART – B

B. Answer **any six** of the following : **(6×4=24)**

10) Supplementary factors
11) Inversions
12) Incomplete dominance
13) Cutting and grafting

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14) Mitosis

15) Maintenance of germplasm

16) Nucleosome model

17) Chloroplast inheritance.

PART – C

C. Answer **any four** of the following : (4×8=32)

18) Multiple factor inheritance with example.

19) Methods of vegetative propagation.

20) Explain Lamarckism.

21) Prophase I of Meiosis.

22) What is Epistasis ? Give an example.

23) What are complementary factors ? Give an example.

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US – 370

VI Semester B.Sc. Examination, May 2017
(CBCS) (Fresh) (2016-17 and Onwards)
BOTANY – VII
Cytology, Genetics, Evolution and Plant Breeding

Time : 3 Hours Max. Marks : 70

Instructions : *1) Answer **all** questions.*
*2) Draw diagrams **wherever** necessary.*

PART – A

A. Explain/Define **any ten** of the following in **two** to **three** sentences : **(10×2=20)**

1) What is a kinetochore ?
2) What is a telomere ?
3) What is a holocentric Chromosome ?
4) Define Karyokinesis.
5) What are mitotic inhibitors ? Give an example.
6) Events of interphase.
7) What is a heterozygous genotype ?
8) Define epistasis.
9) Define test cross.
10) Trisomy with an example.
11) Intergeneric hybridization with an example.
12) Quarantine.

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PART – B

B. Write critical notes on **any four** of the following : **(4×5=20)**

13) Nucleosome model of an eukaryotic chromosome.

14) Apoptosis.

15) Incomplete dominance with an example.

16) Sex determination in Melandrium.

17) Monosomy with an example.

18) Layering and Gootee.

PART – C

C. Give a comprehensive account of **any three** of the following : **(3×10=30)**

19) Describe meiosis-I with diagrams.

20) Explain law of independent assortment with an example.

21) In sweet peas, the genes C and P when present together produce purple flowers. But, when either C or P is present alone, it produces white flowers.

What phenotypic ratio will be obtained in the F_2 generation when two white flowered varieties are crossed ?

Define the factor interaction involved in the problem.

22) What are chromosomal aberrations ? Explain deletion and inversion.

23) a) Role of mutations in evolution.

b) Pollen banks.

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SM – 387

VI Semester B.Sc. Examination, May/June 2018
(CBCS) (Fresh + Repeaters) (2016 – 17 and Onwards)
BOTANY – VII
Cytology, Genetics, Evolution and Plant Breeding

Time : 3 Hours Max. Marks : 70

Instructions : 1) *Answer* ***all*** *Parts.*
2) *Draw diagrams* ***wherever*** *necessary.*

PART – A

A. Explain/Define **any ten** of the following in **two** to **three** sentences : **(10×2=20)**

1) What is Karyotype ?
2) What is 2R-hypothesis ?
3) What is Pollen Bank ?
4) What is an allele ?
5) What are caspases ?
6) Mention the types of chromosomes based on the position of centromere.
7) What are Chaismata ?
8) Mention the types of chromosomal aberrations.
9) Differentiate between Phenotype and Genotype.
10) Any two significances of Mitosis.
11) What is Neo-Darwinism ?
12) What are Homologous chromosomes ?

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SM – 387

PART – B

B. Write critical notes on **any four** of the following. **(4×5=20)**

13) Mitotic Apparatus.

14) Incomplete Linkage with an example.

15) Objectives of Plant Breeding.

16) Pachytene and Diplotene stages of Meiosis–I.

17) Differences between Mitosis and Meiosis.

18) Explain the Law of segregation with a monohybrid cross.

PART – C

C. Give a comprehensive account of **any three** of the following. **(3×10=30)**

19) Describe the structure of a chromosome and add a note on nucleosome.

20) Complementary factors with a suitable example.

21) Describe Grafting and Layering with suitable sketches.

22) Role of Polyploidy in plant evolution.

23) In Antirrhinum majus, tall (DD) is dominant over dwarf (dd) and the red flowers (RR) are incompletely dominant over white (rr), the hybrid being pink.
When a pure tall red is crossed to dwarf white, give the expected phenotypes both in F_1 and F_2.

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VI Semester B.Sc. Examination, May/June - 2019

BOTANY - VII

Cytology, Genetics, Evolution and Plant Breeding (CBCS) (F+R) (2016-17 & Onwards)

Time : 3 Hours Max. Marks : 70

Instructions : *1. Answer **all** Parts.*
2. Draw diagrams wherever necessary.

PART - A

I. Explain/Define **any ten** of the following in **two** to **three** sentences : **10x2=20**

1. What is Telomere ? Mention its significance.
2. Differentiate between Euchromatin and Heterochromatin.
3. Mention the significance of Centromere.
4. What is Genome ?
5. Define Dyad and Tetrad.
6. What is SAT - chromosome ?
7. What is Test Cross ?
8. What is Monohybrid cross ?
9. Give the phenotypic ratio of dominant Epistasis.
10. What is intergeneric hybridization ? Give an example.
11. What is chromosomal aberration ? Give an example.
12. Define Mutation.

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PART - B

II. Write critical notes on **any four** of the following : **4x5=20**

13. Role of Lysosomes in Apoptosis.

14. Significance of Mitosis.

15. Incomplete dominance.

16. Supplementary factors.

17. Chemical theory of Evolution.

18. Allopolyploidy.

PART - C

III. Give a comprehensive account of **any three** of the following : **3x10=30**

19. Prophase-I of Meiosis.

20. Pollen bank and its role.

21. Any two methods of vegetative propagation.

22. Complementary factors.

23. In Garden Pea, Round (R) is dominant over wrinkled (r) and tall plant (T) is dominant over dwarf (t).

If a plant with homozygous tall habit and round seeds is crossed with a plant homozygous for dwarf habit and wrinkled seeds. What will be the phenotype of F_1 and F_2 ? Bring out the F_2 phenotypic ratio.

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