BOT 501   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2012
BOTANY
PLANT PHYSIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. Answer both Part A & Part B.
2. Answer SIX full questions from Part B, selecting at least <u>two full questions</u> from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

PART – A

1. Answer any TEN of the following.   2x10=20
   a) Define pressure potential. Give the symbolic representation.
   b) What is tensile strength?
   c) Give two evidences in favour of active absorption of minerals.
   d) What are Co-enzymes? Give an example.
   e) What is Bioenergetics?
   f) Write chemical formula of Chlorophyll 'b' pigment. What is its colour?
   g) Expand FAD and FMN
   h) Name the organisms playing key role in acetic acid formation.
   i) Give the β-D glucose ring structure.
   j) What are plant waxes? Give an example.
   k) What are photoneutral plants? Give an example.
   l) What is scarification?

PART – B
UNIT – I
Answer any TWO of the following.   2x10=20

2. a) Describe plant cell as an Osmotic system in terms of water potential. What happens to the components of water potential during the process?   05
   b) Explain properties of Enzymes.   2½
   c) Role of Potassium in plants.   2½

3. a) Describe the K^+ ion exchange theory for stomatal movement.   05
   b) Explain cytochrome pump theory   2½
   c) Give practical application of plasmolysis.   2½

4. a) Describe mode of enzyme action.   05
   b) Give evidences for passive absorption of water.   2½
   c) Write a note on structural adaptations to check excessive transpiration 2½

UNIT – II

Answer any **TWO** of the following.   10x2=20

5. a)   EMP pathway (Schematic representation)   05
    b)   State the Law of limiting factors. Who proposed it?   2½
    c)   Explain the significance of Chemiosmosis.   2½

6. a)   Describe ETS chain.   05
    b)   Path of translocation of organic solutes.   2½
    c)   Red drop phenomenon.   2½

7. a)   Explain Noncyclic photophosphorylation.   05
    b)   What is photorespiration? Mention its significance.   2½
    c)   Write note on Munch's osmotic model.   2½

UNIT – III

Answer any **TWO** of the following.   10x2=20

8.   a)   Give an account of fatty acid synthesis.   05
     b)   Write note on 'phases of Growth'.   2½
     c)   Physiological effects of ethylene.   2½

9.   a)   Describe sucrose synthesis   05
     b)   Explain lecithins.   2½
     c)   Write note on causes of bud dormancy   2½

10. a)   Describe glyoxylate cycle.   05
     b)   Explain cellulose degradation (catabolism)   2½
     c)   Write note on practical application of Photoperiodism.   2½

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BOT 502

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION
OCTOBER 2012
BOTANY
ECOLOGY AND ENVIRONMENTAL BIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. Answer both Part A & Part B.
2. Answer SIX full questions from Part B, selecting at least two full questions from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

PART – A

1. Answer any TEN of the following.   2x10=20
   a) What is Competition? Mention the types.
   b) List out any four methods of soil conservation.
   c) Mention four types of toxicants.
   d) Write down any two causes of fall in ground water level.
   e) Define heliophytes and sciophytes.
   f) What is natality? Mention the types.
   g) What is greenhouse effect?
   h) Mention any four endemic plants of India.
   i) What is ecesis and pioneer colonizers?
   j) What is Vivipary? Explain.
   k) Mention any four sources of soil pollution.
   l) Define plant succession and hydrach.

PART – B
UNIT – I
Answer any TWO of the following.   2x10=20

2. a) Describe the role of temperature on vegetation.   05
   b) Explain energy flow in an ecosystem.   2½
   c) Write a note on mortality.   2½

3. a) List the vegetation types of Dakshina Kannada and explain shola vegetation.   05
   b) Explain population characters.   2½
   c) Write a note on soil microorganisms.   2½

4. a) Describe pond ecosystem with an illustration.   05
   b) Explain the role of plants as a biotic factor.   2½
   c) Explain population density.   2½

UNIT – II

Answer **any TWO** of the following.   **10x2=20**

5. a)   Describe xerophytic adaptations of non-succulents.   **05**
    b)   What are recharge pits?   **2½**
    c)   Write briefly the effects of noise pollution.   **2½**

6. a)   Describe Morphological adaptations of hydrophytes.   **05**
    b)   Write a note on control of water pollution.   **2½**
    c)   Explain necessity of rain water harvesting.   **2½**

7. a)   Give an account of purification of Water.   **05**
    b)   Explain host–parasite interaction.   **2½**
    c)   Write a note on xerophytic features of epiphytes.   **2½**

UNIT – III

Answer **any TWO** of the following.   **2x10=20**

8. a)   Give an account of soil erosion.   **05**
    b)   Write briefly the methods of toxicity testing.   **2½**
    c)   Write a note on primary treatment of sewage   **2½**

9. a)   Describe the biogas plant.   **05**
    b)   Write a note on national parks in India.   **2½**
    c)   Write a note on ex-situ conservation of biodiversity.   **2½**

10. a)   Describe metabolism of toxic substances.   **05**
    b)   Write a note on sanctuaries in India.   **2½**
    c)   Write a note on shifting cultivation.   **2½**

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BOT 501.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2013
BOTANY
PAPER V – PLANT PHYSIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. **Answer both Part A & Part B.**
2. **Answer two full questions from each unit.**
3. **All questions in Part B carry equal marks.**
4. **Draw diagrams wherever necessary.**

PART – A

1. Answer **any TEN** of the following.   10x2=20
   a) Define solute potential.
   b) What is Guttation?
   c) Write any two physiological roles of nitrogen.
   d) What is photolysis? Represent with an equation.
   e) What is absorption spectrum?
   f) Explain the reaction catalysed by succinic dehydrogenase.
   g) Name any two bacteria involved in biological nitrogen fixation.
   h) Mention the significant stages of sigmoid curve.
   i) Define vernalisation. Mention any use.
   j) Write any two practical applications of cytokinins.
   k) Define Fermentation. Give an equation to represent alcoholic fermentation.
   l) Differentiate ectoenzymes and endoenzymes.

PART – B
UNIT – I

Answer **any TWO** of the following.   10x2=20

2. a) Describe Cohesion Tension theory of ascent of sap.   5
    b) Explain the mode of enzyme action with reference to lock and key theory.   3
    c) Define turgor pressure and wall pressure.   2

3. a) Describe the Bennet Clark's theory of mineral salt absorption.   5
    b) Write a note on anatomical adaptations found in xerophytes to check
       excessive transpiration.   3
    c) What are co-enzymes? Give an example.   2

4. a) Describe Starch Hydrolysis theory of stomatal movement.   5
    b) Write a note on practical applications of plasmolysis.   3
    c) Explain the role of iron in plant metabolism.   2

UNIT – II

Answer **any TWO** of the following.   10x2=20

5. a) Describe the different steps of EMP pathway.   5
    b) Differentiate between cyclic and noncyclic photophosphorylation. 3
    c) What is lateral translocation? Explain.   2

6. a) Describe the different steps of Kreb's cycle.   5
    b) Differentiate between chlorophyll a and chlorophyll b.   3
    c) Define R.Q. What is R.Q. value of protein?   2

7. a) Describe mass flow theory of translocation of organic solutes. 5
    b) Give the diagrammatic representation of Electron Transport chain. 3
    c) Define the law of limiting factors.   2

UNIT – III

Answer **any TWO** of the following.   10x2=20

8. a) Describe the various steps of fatty acid synthesis.   5
    b) Ethylene is considered as growth inhibitor. Give reasons.   3
    c) Define photoperiodism. How are plants classified based on this. 2

9. a) Give an account of physical nitrogen fixation and nitrification. 5
    b) Write the molecular formula and structure of sucrose.   3
    c) What is transamination? Give an example.   2

10. a) What are Auxins? Discuss their practical applications.   5
    b) Explain any three methods used to break seed dormancy.   3
    c) Mention the importance of glyoxylate cycle.   2

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BOT 502.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2013
BOTANY
PAPER VI – MOLECULAR BIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. **Answer both Part A & Part B.**
2. **Answer two full questions from each unit.**
3. **All questions in Part B carry equal marks.**
4. **Draw diagrams wherever necessary.**

PART – A

1. Answer **any TEN** of the following.   10x2=20
    a) Name the components of nucleotide.
    b) Define recon and muton.
    c) What are plasmids? Give two examples.
    d) Mention the types of transposable elements.
    e) Define inversion.
    f) Mention the steps involved in gene expression in eukaryotes.
    g) What is nullisomy?
    h) What is tandem duplication?
    i) Define gene mutation.
    j) Name four physical mutagens.
    k) Expand NHGRI. What is its importance?
    l) What is the importance of taq-polymerase?

PART – B
UNIT – 1

Answer **any TWO** of the following.   10x2=20

2. a) Explain Griffith's experiment to prove that DNA is genetic material.   5
    b) What are spliceosomes? What is its function?   3
    c) Write a note on transcription factors.   2

3. a) Explain the process of DNA replication.   5
    b) What is post transcriptional modification of mRNA.   3
    c) Mention four salient features of genetic code.   2

4. a) Explain the mechanism of translation in prokaryotes.   5
    b) Explain the structure of mRNA.   3
    c) What is Pribnov-box? Explain.   2

UNIT – II

Answer **any TWO** of the following.   10x2=20

5.	a)	Explain the Lac-operon concept of gene expression.	5
	b)	Mention the characters of monosomy.	3
	c)	Differentiate deletions and deficiency.	2
6.	a)	Explain autotetraploidy.	5
	b)	What is gene-battery? Explain.	3
	c)	Differentiate single trisomy and double trisomy.	2
7.	a)	Describe in brief galactose metabolism in yeast.	5
	b)	Write note on types of translocations.	3
	c)	Write note on *Raphanobrassica*.	2

UNIT – III

Answer **any TWO** of the following.   10x2=20

8.	a)	Write a note on role of mutation in plant breeding and evolution.	5
	b)	What is BLAST? Explain.	3
	c)	What are the benefits of HGP?	2
9.	a)	Write a note on frame-shift mutations.	5
	b)	What are the applications of Northern-blotting technique?	3
	c)	What is ENTREZ?	2
10.	a)	Explain the steps involved in DNA-fingerprinting.	5
	b)	Write a note on Proteomics.	3
	c)	Explain spontaneous mutation.	2

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BOT 501.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2014
BOTANY
PAPER V – PLANT PHYSIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. Answer both Part A & Part B.
2. Answer two full questions from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

PART – A

1. Answer any **TEN** of the following.   10x2=20
    a) Write any two significances of imbibition.
    b) Give one difference between action and absorption spectra.
    c) Mention two physiological roles of phosphorous in plant metabolism.
    d) What are co-factors? Give two examples.
    e) Differentiate between amylose and amylopectin.
    f) Explain the reaction involved in the conversion of pyruvic acid to acetyl CoA.
    g) What is bolting effect?
    h) Explain reductive amination.
    i) What is Photolysis of water? Give the equation.
    j) Define translocation. Mention any two types.
    k) What is a scarification.
    l) What is a selective permeable membrane? Give an example.

PART – B
UNIT – I
Answer any **TWO** of the following.   10x2=20

2. a) Describe the mechanism of active absorption of water.   5
    b) Give the relationship between water potential, solute potential and pressure
        potential.   3
    c) What are trace elements? Give any two examples.   2

3. a) Describe Hydroponics? Mention its applications.   5
    b) Bring out the differences between transpiration and guttation.   3
    c) Explain any two properties of enzymes.   2

4. a) Give an account of potassium pump theory of stomatal movement.   5
    b) Write a short note on enzyme inhibitors   3
    c) Mention the deficiency symptoms of Potassium.   2

UNIT – II

Answer **any TWO** of the following. 10x2=20

5. a) Describe non cyclic photophosphorylation. 5
   b) Explain the steps of alcoholic fermentation. 3
   c) Explain chemiosmosis. 2

6. a) Describe EMP pathway. 5
   b) Differentiate between substrate level and oxidative phosphorylation with examples. 3
   c) What is Emerson effect? Explain. 2

7. a) Describe pressure flow theory of translocation of organic solutes. 5
   b) Define RQ Illustrate RQ of carbohydrates and fats. 3
   c) State the law of limiting factors. 2

UNIT – III

Answer **any TWO** of the following. 10x2=20

8. a) Describe the different steps of β- oxidation 5
   b) What is sigmoid curve? Explain. 3
   c) Write any two practical applications of photoperiodism. 2

9. a) Describe biological nitrogen fixation. 5
   b) Write the practical applications of Gibberellins. 3
   c) What is Vernalisation? Explain. 2

10. a) Describe the causes of seed dormancy. 5
    b) Explain the mechanism of sucrose synthesis. 3
    c) Write a note on Ethylene. 2

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BOT 502.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2014
BOTANY
PAPER VI – MOLECULAR BIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. Answer both Part A & Part B.
2. Answer two full questions from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

PART – A

1. Answer any TEN of the following.   2x10=20
   a) State Chargaff's rule.
   b) Name the initiator codon and terminator codon.
   c) What are transposons?
   d) Mention the types of translocation.
   e) Differentiate trisomy and tetrasomy.
   f) Mention any four characters of Autotetraploidy.
   g) Name the enzymes involved in Lac operon.
   h) Define cistron and recon.
   i) Define frame shift mutation.
   j) Mention the effects of radiation on DNA.
   k) What is SDS-PAGE? Mention its significance.
   l) What is Hapmap?

PART – B
UNIT – I
Answer any TWO of the following.   2x10=20

2. a) Describe Griffith's experiment.   5
   b) Mention the types of r-RNA.   3
   c) Mention the types of Post translational modification of proteins.   2

3. a) Describe the structure of t-RNA with a labelled diagram   5
   b) Mention the types and functions of RNA polymerase in Eukaryotes.   3
   c) State Wobbles' hypothesis   2

4. a) Describe the mechanism of transcription in prokaryotes.   5
   b) What is RNA splicing? Mention the methods of RNA splicing in eukaryotes.   3
   c) What are Okazaki fragments?   2

UNIT – II

Answer **any TWO** of the following.   10x2=20

5.	a)	Explain Tryp-operon in Prokaryotes.	5
	b)	Mention the importance of haploids.	3
	c)	What is allopolyploidy? Give an example.	2
6.	a)	Explain Britten-Davidson model for unit of transcription.	5
	b)	Mention the significance of polyploidy.	3
	c)	What is tandem duplication?	2
7.	a)	Describe the cytology of paracentric inversions.	5
	b)	Name the enzymes involved in galactose metabolism in yeast.	3
	c)	Define nullisomy? Give one example.	2

UNIT – III

Answer **any TWO** of the following.   10x2=20

8.	a)	Write a note on Southern blotting.	5
	b)	Mention the significance of mutation.	3
	c)	What is genome annotation? Explain	2
9.	a)	Write a note on Chemical mutagens.	5
	b)	What is proteomics? Mention any two applications.	3
	c)	What is a database? Give two examples.	2
10.	a)	Write a note on base pair substitution.	5
	b)	What are the goals of human genome project?	3
	c)	What is PCR? Write its importance.	2

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Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2015
BOTANY
MOLECULAR BIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
  1. **Answer both Part A & Part B.**
  2. **Answer two full questions from each unit.**
  3. **All questions in Part B carry equal marks.**
  4. **Draw diagrams wherever necessary.**

PART – A

1. Answer **any TEN** of the following.   10x2=20
   a)   What is phosphorylation? Give an example.
   b)   What is dendrogram?
   c)   Mention any four applications of HGP.
   d)   Distinguish between monosomy and trisomy
   e)   Write the importance of haploids.
   f)   Mention the role of mutation in plant breeding.
   g)   Write the functions of TF IID and TF IIF.
   h)   What are promoters? Mention the function.
   i)   Mention the advantages and disadvantages of autopolyploids.
   j)   Define Wobble hypothesis with an example.
   k)   Distinguish between genomics and proteomics.
   l)   Name the genes and enzymes involved in Galactose metabolism.

PART – B
UNIT – I

Answer **any TWO** of the following.   2x10=20

2.   a)   Explain the steps involved in DNA replication.   5
     b)   Write a note on termination process in prokaryotic transcription.   3
     c)   What are insertion elements? Mention their significance.   2

3.   a)   Describe initiation in eukaryotic translation.   5
     b)   Draw a neat labelled sketch of Watson and Crick model of DNA.   3
     c)   Write a note on transposable elements in maize.   2

4.   a)   Highlight the events involved in post transcriptional modification of m RNA. 5
     b)   Draw a neat labelled diagram of tRNA.   3
     c)   Write the significance of Hershey and Chase experiment.   2

UNIT – II

Answer **any TWO** of the following.   2x10=20

5. a) Describe the significance of allopolyploidy in plant breeding with two
        suitable examples.   5
    b) Write a note on types of duplication.   3
    c) Write a note on Britten and Davidson Battery model.   2

6. a) Explain the cytological behavior and its consequences in reciprocal
        translocation heterozygotes.   5
    b) What are deletions? Write about its genetic and phenotypic effects.   3
    c) Define repressible operon. Mention the example with repressible genes. 2

7. a) Explain Lac-operon concept.   5
    b) Differentiate between paracentric and pericentric inversions.   3
    c) What are the methods of induction of polyploidy?   2

UNIT – III

Answer **any TWO** of the following.   2x10=20

8. a) What are databases? Mention the types and write a note on them.   5
    b) Define frame shift mutations? What are its effects?   3
    c) What are the effects of exposure of UV rays on genetic material.   2

9. a) Explain the principles and procedure involved in PAGE.   5
    b) Differentiate between transition and transversions.   3
    c) What is DNA fingerprinting? Mention its applications?   2

10. a) Explain the effects of any five types of chemical mutagens on DNA.   5
    b) What is PCR? Mention the steps and any two of its applications.   3
    c) What are recessive mutations? Give any two examples.   2

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BOT 501.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION OCTOBER 2015
BOTANY
PAPER V – PLANT PHYSIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. Answer both Part A & Part B.
2. Answer two full questions from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

PART – A

1. Answer **any TEN** of the following.   10x2=20
    a) Define imbibition.
    b) Give two differences between transpiration and guttation.
    c) What is hydroponics? Mention its application.
    d) What are co-factors? Give an example.
    e) What is Red drop?
    f) Give two evidences against the Munch's mass flow hypothesis.
    g) What is chemiosmosis? Who proposed it?
    h) What is the significance of R.Q?
    i) Write the α-D glucose ring structure.
    j) What is grand period of growth?
    k) Which hormone is named as stress hormone? Why?
    l) What is scarification?

PART – B
UNIT – I

Answer **any TWO** of the following.   2x10=20
2. a) Describe the mechanism of water absorption.   5
    b) Explain the induced fit theory.   3
    c) Give two important properties of water which help during the ascent of sap. 2

3. a) Describe the physiological role and deficiency symptoms of Manganese and
       copper in plants.   5
    b) Draw a neat labelled diagram of Hydathode.   3
    c) Define water potential.   2

4. a) Describe different stages of plasmolysis, its importance and practical
       applications.   5
    b) Explain any three anatomical adaptations to check excessive transpiration. 3
    c) Write short note on competitive enzyme inhibitors.   2

UNIT – II

Answer **any TWO** of the following.   **2x10=20**

5. a) Give an account of noncyclic photophosphorylation.   5

    b) What is substrate level phosphorylation? Give an example.   3

    c) Write the reaction of lactic acid fermentation.   2

6. a) Give schematic representation of Krebs cycle.   5

    b) Describe absorption spectrum.   3

    c) Mention any two methods of electron transfer.   2

7. a) Give the schematic representation of EMP pathway.   5

    b) Explain Munch's osmotic model.   3

    c) Write the formula of Chl'a' and Chl'b'.   2

UNIT – III

Answer **any TWO** of the following.   **2x10=20**

8. a) Describe the structure and synthesis of sucrose.   5

    b) Write note on 'Phases of growth'.   3

    c) What is Vernalization? Give its uses.   2

9. a) Give an account of fatty acid synthesis.   5

    b) Mention the practical applications of Gibberellins.   3

    c) What are photoneutral plants? Give an example.   2

10. a) Describe glyoxylate cycle.   5

    b) Explain amino acid synthesis by transamination.   3

    c) What is seed dormancy? Mention any two causes.   2

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BOT 501.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION APRIL 2016
BOTANY
PLANT PHYSIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. **Answer both Part A & Part B.**
2. **Answer two full questions from each unit.**
3. **All questions in Part B carry equal marks.**
4. **Draw diagrams wherever necessary.**

PART – A

1.   Answer **any TEN** of the following.   10x2=20
   a)   Write the effects of abscissic acid.
   b)   Define Emerson effect.
   c)   Draw a neat labelled diagram of hydathode.
   d)   What is substrate level phosphorylation? Give an example.
   e)   State the law of limiting factors.
   f)   Define Cofactors. Give two examples.
   g)   What is Chemiosmosis?
   h)   What is the relationship between Ψ_w, Ψ_s and Ψp
   i)   Differentiate between short day and long day plants with examples.
   j)   Define vernalization. Give its application.
   k)   Differentiate between active and passive absorption of water.
   l)   Define nitrification. Mention the bacteria involved in it.

PART – B
UNIT – I

Answer **any TWO** of the following.   2x10=20
2.   a)   Discuss the role of any five macroelements in plant nutrition.   5
      b)   Discuss the significance Cohesion and tension theory.   3
      c)   What is a flaccid cell? Mention the effects of flaccidity.   2

3.   a)   Explain the theories of enzyme action.   5
      b)   Enumerate with examples various structural adaptations to counteract transpiration.
                                                                                  3
      c)   Write a note on imbibition.   2

4.   a)   Discuss the K^+ ion exchange theory.   5
      b)   Write a brief note on enzyme inhibitors.   3
      c)   Write a note on hydroponics.   2

UNIT – II

Answer **any TWO** of the following.   **2x10=20**

5. a) Describe pressure flow hypothesis.   **5**

    b) Give the Schematic representation of cyclic photophosphorylation. **3**

    c) Write a note on biochemical reactions in alcoholic fermentation. **2**

6. a) Give the schematic representation of Calvins cycle.   **5**

    b) Define RQ. Give the values of RQ in carbohydrates and proteins. **3**

    c) Differentiate between action and absorption spectra.   **2**

7. a) Explain Krebs cycle.   **5**

    b) Comment on photosynthetic pigments.   **3**

    c) What is translocation of organic solutes? Mention two types.   **2**

UNIT – III

Answer **any TWO** of the following.   **2x10=20**

8. a) Explain the structure and synthesis of sucrose.   **5**

    b) Give a graphical representation of Glyoxylate cycle with its significance. **3**

    c) Write a note on sigmoid curve.   **2**

9. a) Describe briefly the mechanism of Biological Nitrogen fixation. **5**

    b) Differentiate between scarification and stratification.   **3**

    c) What is transamination? Explain with an example.   **2**

10. a) What is β-oxidation? Discuss the steps.   **5**

    b) Write any three physiological effects of auxins.   **3**

    c) Differentiate between amylase and anylopectin.   **2**

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BOT 502.1   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION APRIL 2016
BOTANY
MOLECULAR BIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. **Answer both Part A & Part B.**
2. **Answer two full questions from each unit.**
3. **All questions in Part B carry equal marks.**
4. **Draw diagrams wherever necessary.**

PART – A

1. Answer **any TEN** of the following.   2x10=20
   a) What are primers?
   b) What is the function of RNA polymerase enzyme in transcription?
   c) What is Wobble hypothesis?
   d) What are transposons?
   e) What is reverse tandom duplication?
   f) What is repression?
   g) What is tetrasomy? Give one example.
   h) How is polyploidy induced in plants?
   i) Give two examples for physical mutagens.
   j) What are proteomics?
   k) Mention the uses of PCR.
   l) What are the goals of Human genome project?

PART – B
UNIT – I

Answer **any TWO** of the following.   2x10=20

2. a) Give an account of Griffiths experiment.   5
   b) Explain the plasmids and their significance.   3
   c) What are nucleotides? Give one example.   2

3. a) Explain semiconservative type of DNA replication.   5
   b) Write a note on cistron, Recon and muton.   3
   c) Draw a labelled diagram of tRNA.   2

4. a) Explain the process of translation in prokaryotes.   5
   b) List the characteristic features of Watson and Crick model of DNA.   3
   c) Give the structure of eukaryotic gene.   2

UNIT – II

Answer **any TWO** of the following.   **2x10=20**

5. a) Give an account of genes and enzymes involved in galactose metabolism in yeast.
                                                                         5
   b) What is trisomy? Explain with examples.   **3**
   c) What is the cytological significance of deficiencies?   **2**

6. a) Explain paracentric inversion and its significance.   **5**
   b) What are autopolyploids? Give one example.   **3**
   c) What is tryp operon?   **2**

7. a) Explain lac operon model in bacteria.   **5**
   b) What is translocation? Mention its significance.   **3**
   c) Give examples for allopolyploids. Mention their role in plant evolution.   **2**

UNIT – III

Answer **any TWO** of the following.   **2x10=20**

8. a) Explain the role of mutation in plant breeding.   **5**
   b) What is DNA fingerprinting? Why is it done?   **3**
   c) What are databases?   **2**

9. a) Give an account of protein sequencing and nucleic acid sequencing.   **5**
   b) Write a note on contributions of various countries in HGP.   **3**
   c) What is frame shift mutation?   **2**

10. a) Explain Northern blotting. Mention its importance.   **5**
    b) What are the applications of PAGE.   **3**
    c) Give one example for spontaneous mutation.   **2**

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CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION
OCTOBER 2016
BOTANY
PLANT PHYSIOLOGY

Time: 3 Hrs   **Max. Marks: 80**

Instructions:
1. **Answer both Part A & Part B.**
2. **Answer two full questions from each unit.**
3. **All questions in Part B carry equal marks.**
4. **Draw diagrams wherever necessary.**

PART – A

1. Answer **any TEN** of the following.   10x2=20
    a) What is imbibition? Give an example.
    b) Write any two features of guttation.
    c) What are Cofactors? Give an example.
    d) List any two disadvantages of hydroponics.
    e) Differentiate between substrate level and oxidative phosphorylation.
    f) What is RQ? Comment on RQ of fats.
    g) What is phloem loading? Where does it occur?
    h) State the law of limiting factors.
    i) Write a note on catabolism of sucrose.
    j) List any four nitrogen fixing bacteria.
    k) Mention any two practical applications of vernalization in agriculture.
    l) Write any four functions of Cytokinins.

PART – B
UNIT – I

Answer **any TWO** of the following.   2x10=20
2. a) Explain the mechanism of stomatal movement according to K^+ ion exchange
        theory.   6
    b) Write a note on enzyme inhibitors.   4

3. a) Explain the mechanism of salt absorption by Bennet-Clarks theory.   6
    b) Write a note on i) Plasmolysis
                        ii) Diffusion   4

4. a) What is ascent of sap? Explain cohesion Tension theory.   6
    b) Write the role played by magnesium in plants.   4

UNIT – II

Answer **any TWO** of the following.   **2x10=20**

5. a) Describe Non cyclic photophosphorylation.   **6**

    b) Explain Munch's hypothesis.   **4**

6. a) Give an account of glycolysis   **6**

    b) Write a note on absorption spectrum.   **4**

7. a) Give the schematic representation of TCA cycle and calculate ATP formed.

                                                                         6

    b) Explain i) Chlorophyll pigments

                ii) Alcoholic Fermentation.   **4**

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UNIT – III

Answer **any TWO** of the following.   **2x10=20**

8. a) Describe the events of β oxidation of fatty acids.   **6**

    b) What is Photoperiodism? Classify plants giving an example each. **4**

9. a) Explain the role played by auxins in plants.   **6**

    b) Explain glyoxylate cycle. Mention its significance   **4**

10. a) Explain the structure, synthesis and degradation of starch.   **6**

    b) Explain sigmoid growth curve.   **4**

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BOT 502.2   Reg. No. ....

CREDIT BASED FIFTH SEMESTER B.Sc. DEGREE EXAMINATION
OCTOBER 2016
BOTANY
MOLECULAR BIOLOGY

Time: 3 Hrs   Max. Marks: 80

Instructions:
1. Answer both Part A & Part B.
2. Answer two full questions from each unit.
3. All questions in Part B carry equal marks.
4. Draw diagrams wherever necessary.

PART – A

1.   Answer **any TEN** of the following.   10x2=20
   a)   What are Topoisomerases?
   b)   What is reverse Transcription?
   c)   What are Chemical mutagens? Give an example.
   d)   Define splicing. Where does it occur?
   e)   Define cistron.
   f)   What is nullisomy?
   g)   Give two applications of Northern blotting.
   h)   What do you mean by anticodon? Where do you find it?
   i)   What is dendrogram?
   j)   What are amphidiploids? Give an example.
   k)   Give two applications of HGP.
   l)   What is reverse tandem duplication?

PART – B
UNIT – I

Answer **any TWO** of the following.   2x10=20

2. a)   Explain Avery, Macleod and Mc Carty Experiment.   6
   b)   Write a note on post translational modifications of proteins.   4

3. a)   Explain Watson and Crick model of DNA with a labelled diagram.   6
   b)   Write any four features of Genetic Code.   4

4. a)   Explain the mechanism of Transcription in Prokaryotes.   6
   b)   Give an account of types of plasmids.   4

UNIT – II

Answer **any TWO** of the following.   2x10=20

5. a) Give account of allopolyploidy.   6
    b) Write a note on Pericentric inversion.   4

6. a) Give an account of *Lac Operon*.   6
    b) Write note on Trisomy.   4

7. a) Give an account of Reciprocal Translocation.   6
    b) Write a note on Haploidy.   4

UNIT – III

Answer **any TWO** of the following.   2x10=20

8. a) Give an account of molecular basis of point mutation.   6
    b) Write a note on BLAST.   4

9. a) Explain the technique and applications of PCR.   6
    b) Write note on (i) Somatic and germinal mutation
                     (ii) Dominant and recessive mutation. 4

10. a) Write a note on Western blotting.   6
    b) Give an account on proteomics.   4

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