Course code: 22BBOA1	ALLIED -IA	T/P	C	H/W
	PLANT DIVERSITY, PLANT PATHOLOGY, ENVIRONMENTAL STUDIES, PLANT ANATOMY	T	3	3

Objectives	➢ To study the structure and lifehistory of Algae, Fungi, Bryophytes Pteridophytes and Gymnosperms. ➢ To learn the internal structure of higher plants. ➢ To observe the cause of pollution and deforestation
Unit -I	**Algae:**General Characters, structure and life history of *Gracilaria* (Rhodophyceae). **Fungi:**General Characters, Structure and Life history of *Agaricus* (Basidiomycetes). **Bryophyta:** General Characters, structure and life history of *Marchantia* (excluding development)
Unit -II	**Pteriophyta:** General Characters, structure and Life history of *Marsilea* (excluding development) **Gymnosperms:** General Characters, structure and Life history of *Pinus* (excluding development)
Unit -III	**Plant Pathology:** Study of the following plant diseases with reference to causes, symptoms, dissemination, Control and preventive measures. Virus Diseases – Bunchy top of Banana. Bacterial Disease – Citrus Canker.
Unit –IV	**Environmental science:** Pollution – kinds – Cause – Harmful effects including Green House effect and acid rain & control measures. Deforestation, Land Misuse (Indiscriminate tree felling and raising of Plantations) Effects of Deforestation. Afforestation. Social Forestry.
Unit –V	**Plant Anatomy:** Tissues – Simple and compound permanent tissues. Meristems, types of meristems. Primary and secondary structure of dicot and monocot stem.

Reference and Textbooks

Alexopoulos, C.J. *Introductory Mycology*. John wiley& sons, New York

Cutter, E.G (1969) *Plant Anatomy*, Part 1 Addison – Wesley Publishing Co.

Lee, R.E. (2008). *Phycology*, Cambridge University Press, Cambridge. 4th edition.

Pandey B. *Plant Anatomy*

Pandey B.P. – *College Botany – Algae, Fungi and Bryophytes*. Vol. I S.Chand& Co., Calcutta.

Sambamurthy, A.V.S.S. 2005. *A textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany*. I.K. International Pvt.Ltd, New Delhi.

Sharma P.D. – *Elements of Ecology* – Rastogi Publishing, Meerut

Outcomes	➢ The students gain noteworthy knowledge in identification and utilization of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ The students will be able to understand pollution and its effects. ➢ The students will develop the skills in identification of anatomical structure of various plant parts.

Course code: 22BBOAP1	ALLIED PRACTICAL–I A	T/P	C	H/W
	PLANT DIVERSITY, PLANT PATHOLOGY, ENVIRONMENTAL STUDIES, PLANT ANATOMY	P	2	2
Objectives	➢ To observe, identify and micropreparation of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ To make suitable micropreparation of dicot and monocot stem. ➢ To learn about pollution, deforestation and Afforestation			
	1. Micro – Preparations and Identification of the Thallophyta prescribed in the Syllabus(Algae-*Gracilaria*: Fungi-*Agaricus*) 2. Cutting and Mounting of T.S. of Vegetative parts of *Marchantia , Marsilea* and *Pinus*. 3. Identification /Micropreparation of cones of *Marsilea, Pinus* and capsule of *Marchantia*. 4. To observe and identify spot at sight and make detailed study of the types of disease prescribed in the syllabus 5. Cutting, Mounting and identifications of T.S. of dicot and monocot stem. 6. Photographs/models on various pollution, deforestation, Afforestation and social forestry. **Submission of certified and bonafide record note book is mandatory for External Practical.**			
Outcomes	➢ Students may able to identify the various forms of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ Aware the knowledge of non-vascular and vascular cryptogams. ➢ To understand the pollution, deforestation, Afforestation and conservation.			

EXTERNAL QUESTION

Time: 3 hours **Max. Marks- 60**

1.	Make suitable micropreparation of "A" and "B". Mount in Glycerin. Draw labeled sketches.Identify and give reason. Submit the slide for valuation.	2 x7= 14
2.	Make suitable micropreparation of "C" Mount in Glycerin. Identify and giving reason. Submit the slide for valuation.	1x 7 = 07
3.	Comments on the etiology of "D"	1 x 4= 04
4.	Identify draw sketches and write notes on (E, F, G, H and I)	5 x5= 25
5..	Submission of Record note book	10
	Total	60

KEY AND SCHEME OF VALUATION

1.	Make suitable micropreparation of "**A**" and **B**. Mount in Glycerin. **A** - (Algae/ Bryophyte), **B** - Pteridophyte/Gymnosperm (Slide -2, Identification-1, sketch-2, Reason-2)	2 x7= 14
2.	Make suitable micropreparation of "**C**" Mount in Glycerin **C** – (Dicot/monocot stem). (Slide -2, Identification-1, sketch-2, Reason-2)	1x 7 = 07
3.	**D** – Etiology specimen prescribed in the syllabus (Identification-1, sketch-1, Reason-2)	1 x 4= 04
4.	**E** – Reproductive part of Algae, Fungi, Bryophyte, Pteridophyte, Gymnosperm. **F** – Morphology/ reproductive part of fungi **G** – Green house effect/Acid rain **H** – Deforestation/ Afforestation/Social forestry **I** – Simple permanent tissue (Identification-1, sketch-2, Reason-2)	5 x5= 25
5.	Submission of Record note book	10
	Total	60

INTERNAL QUESTION

Time: 3 hours **Max. Marks- 40**

1.	Make suitable micropreparation of "A" and "B".Mount in Glycerin. Draw labeled sketches. Identify and give reason. Submit the slide for valuation.	2 x6= 12
2.	Make suitable micropreparation of "C" Mount in Glycerin. Identify and giving reason. Submit the slide for valuation.	1x 6 = 06
3.	Comments on the etiology of "D"	1 x 2= 02
4.	Identify draw sketches and write notes on (E, F, G, H and I)	5 x3=15
5.	Continuous assessment	05
	Total	40

KEY AND SCHEME OF VALUATION

1.	Make suitable micropreparation of "**A**" and **B**. Mount in Glycerin. **A** - (Algae/ Bryophyte), **B** - Pteridophyte/Gymnosperm (Slide -2, Identification-1, sketch-1, Reason-2)	2 x6= 12
2.	Make suitable micropreparation of "**C**" Mount in Glycerin **C** – (Dicot/monocot stem). (Slide -2, Identification-1, sketch-1, Reason-2)	1x 6= 06
3.	**D** – Etiology specimen prescribed in the syllabus (Identification-½, sketch-½, Reason-1)	1 x 2= 02
4.	**E** – (Reproductive part of Algae, Fungi, Bryophyte, Pteridophyte and Gymnosperm, **F** – Morphology/ reproductive part of fungi, **G** – Green house effect/Acid rain, **H** – Deforestation/Afforestation/Social forestry, **I** – Simple permanent tissue. (Identification-1, sketch-1, Reason-1)	5 x3=15
5.	Continuous assessment	05
	Total	40

Course code: 22BBOA2	ALLIED - IB	T/P	C	H/W
	TAXONOMY OF ANGIOSPERMS, EMBRYOLOGY, PLANT PHYSIOLOGY	T	3	3

Objectives	➢ To provide the knowledge about angiosperms, Binomial nomenclature and the classification of plants ➢ To study about photosynthesis and respiration
Unit -I	**Taxonomy of Angiosperms** History of Taxonomy, Binomial nomenclature, ICN rules, Herbarium techniques Classification (Benthum and Hooker). Basic Knowledge of Morphology of Angiosperm (Inflorescence and flower).
Unit -II	Brief study of the following families with special features and economic importance. a) Annonaceae, b) Rubiaceae, c)Apocynaceae, d) Euphorbiaceae, e) Poaceae
Unit -III	**Embryology of Angiosperms:** Structure of male and female gametophyte, types of Ovules, Embryo sac, Fertilization – double fertilization, syngamy – significance, endosperm (Nuclear, cellular, helobial), Structure of dicot and monocot mature embryo.
Unit -IV	**Plant Physiology**: Absorption of water – Transpiration and Ascent of sap, translocation of solutes, Photosynthesis – Mechanism of Light Reaction – Dark Reaction - C3, C4 and CAM cycle
Unit -V	Respiration – Mechanism of Aerobic respiration, Fermentation and its significance Photorespiration – Photoperiodism and Vernalisation, Seed dormancy.

Reference and Textbooks

Taxonomy:

Bhojwani, S.S. and Bhatnagar S.P. – The embryology of Angiosperms' Vikas Publishing House P.Ltd., New Delhi.

Kochar, S.L.–Economic Botany – TATA Mc Graw Hill Publishing Co., Ltd., New Delhi.

Vasishta P.C. – Taxonomy of Angiosperms' R.Chandand Co., New Delhi.

Embryology of Angiosperms

Maheswari, P – Introduction to Embryology of Angiosperms – Tata McGraw Hill publishing Ltd., New Delhi.

Plant Physiology

Ray Noggle, G and George J.Frits – Introduction to Plant Physiology. Prentice Hall of India P.Ltd., New Delhi.

Robert M.Devlinn – Plant Physiology. Affiliated East West Press P.Ltd., New Delhi.

Outcomes	➢ The students can learn Binomial nomenclature and plant systematic. ➢ The students will get knowledge about photosynthesis and respiration of plants.

Course code: 22BBOAP2	ALLIED PRACTICAL – I B	T/P	C	H/W
	TAXONOMY OF ANGIOSPERMS, EMBRYOLOGY, PLANT PHYSIOLOGY	P	2	2

Objectives

- To develop observation technical skill in dissecting floral parts.
- To study about plant classification.
- To know about the important of pollen grains and ovules.
- To know about the photosynthesis and respiration in plants.

Taxonomy of angiosperms and economic Botany:

1. Morphological identification of Vegetative and Reproductive parts and their modifications.
2. Dissect out the floral parts of plants come under the families prescribed in the theory syllabus. Write descriptions in technical terms. Draw floral diagram and write floral formula/e.

Embryology:

1. To dissect out and mount Dicot embryo (*Tridax*)
2. To prepare permanent micro preparations showing types of ovules
3. Micro preparations anther and Take T.S of anther (*Datura/Cassia*)

Plant Physiology

1. Rate of Photosynthesis – *Hydrilla* Experiment of Willmont's Bubbler using different colour filters.
2. Separation of photosynthetic pigment by paper chromatography
3. Determination of Osmotic Pressure – Plasmolytic method.

Submission of certified and bonafide record note book is mandatory for External Practical.

Outcomes

- Develop observation and technical skill in dissecting floral parts and herbarium techniques.
- Understand the photosynthesis and respiration plants.
- Understand the fertilization and developments of fruits

EXTERNAL QUESTION

Time: 3 hours **Max. Marks- 60**

1.	**A**– Work out the specimen and identify the respective families and describe with technical terms. Take L.S. of flower.	1x 9=09
2.	**B** - Work out the specimen and identify the respective families through elimination process	1x 8=08
3.	**C** - Take T.S. of dicot anther from the given material. Mount in Glycerin and submit it for valuation. Write notes and draw sketch.	1x 8 =08
4.	**D** – Taking a lot, ask for requirement, write the procedure, setup and perform the experiment as indicated, collect data/ measurements, present them and interpret the results	1 x 10 = 10
5.	**E,F,G** – Identify, draw sketches and write notes on given specimen	3 x 5 = 15
6.	Submission of Record note book	10
	Total	**60**

KEY AND SCHEME OF VALUATION

1.	**A** – Angiosperm specimen selected from prescribed families in the syllabus (Dissection-3, Identification- 1, Sketch-2, Description- 3)	1x 9=09
2.	**B** – Angiosperm specimen selected from prescribed families in the syllabus (Identification-1, elimination-3, Reason- 4)	1x 8=08
3.	**C** - Dicot Anther –*Datura* material to be given (Slide-3, Identification -1, Sketch-2, Notes-2)	1x 8 =08
4.	**D** – From physiology Major experiments (Requirements-2, Procedure-3, Setup-3, and Result-1, Interpretation-1)	1 x 10 = 10
5.	**E –** Inflorescence/flower, **F** - Physiology-Respiration, **G** – Embryology- ovule (Identification- 1, Sketch – 2, Notes -2)	3 x 5 = 15
6.	Submission of Record note book	10
	Total	**60**

INTERNAL QUESTION

Time: 3 hours **Max. Marks- 40**

1.	**A**– Work out the specimen and identify the respective families and describe with technical terms. Take L.S. of flower.	1x 6=06
2.	**B** - Work out the specimen and identify the respective families through elimination process	1x 5=05
3.	**C** - Take T.S. of dicot anther from the given material. Mount in Glycerin and submit it for valuation. Write notes and draw sketch.	1x 5 =05
4.	**D** – Taking a lot, ask for requirement, write the procedure, setup and perform the experiment as indicated, collect data/ measurements, present them and interpret the results	1 x 10 = 10
5.	**E,F,G** – Identify, draw sketches and write notes on given specimen	3 x 3 = 09
6.	Continuous assessment	05
	Total	**40**

KEY AND SCHEME OF VALUATION

1.	**A** – Angiosperm specimen selected from prescribed families in the syllabus (Dissection-2, Identification- 1, Sketch-1, Description- 2)	1x 6=06
2.	**B** – Angiosperm specimen selected from prescribed families in the syllabus (Identification-1, elimination-2, Reason- 2)	1x 5=05
3.	**C** - Dicot Anther –*Datura* material to be given (Slide-2, Identification -1, Sketch-1, Notes-1)	1x 5 =05
4.	**D** – From physiology Major experiments (Requirements-2, Procedure-3, Setup-3, and Result-1, Interpretation-1)	1 x 10 = 10
5.	**E –** Inflorescence/flower, **F** - Physiology-Respiration, **G** – Embryology- ovule (Identification- 1, Sketch – 1, Notes -1)	3 x 3 = 09
6.	Continuous assessment	05
	Total	**40**

Course code: 22BBOA3	ALLIED II A	T/P	C	H/W
	THALLOPHYTA, ARCHEGONIATE, PLANT PATHOLOGY, ECOLOGY, PLANT ANATOMY	T	3	3

Objectives	➢ To study the structure and life history of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ To learn the internal structure of higher plants. ➢ To observe the cause of pollution and deforestation
Unit -I	**Thallophyta:** **Algae:** General Characters, structure and life history of *Gracilaria* (Rhodophyceae). **Fungi:** General Characters, Structure and Life history of *Agaricus* (Basidiomycetes). **Bryophyta:** General Characters, structure and life history of *Marchantia* (excluding development)
Unit -II	**Archegoniate:** **Pteriophyta:** General Characters, structure and Life history of *Marsilea* (excluding development) **Gymnosperms:** General Characters, structure and Life history of *Pinus* (excluding development)
Unit -III	**Plant Pathology:** Study of the following plant diseases with reference to causes, symptoms, dissemination, Control and preventive measures. Virus Diseases – Bunchy top of Banana. Bacterial Disease – Citrus Canker.
Unit –IV	**Ecology:** Pollution – kinds – Cause – Harmful effects including Green House effect and acid rain & control measures. Deforestation, Land Misuse (Indiscriminate tree felling and raising of Plantations) Effects of Deforestation. Afforestation. Social Forestry.
Unit –V	**Plant Anatomy:** Tissues – Simple and compound permanent tissues. Meristems, types of meristems. Primary and secondary structure of dicot and monocot stem.

Reference and Textbooks

Alexopoulos, C.J. *Introductory Mycology*. John wiley& sons, New York

Cutter, E.G (1969) *Plant Anatomy*, Part 1 Addison – Wesley Publishing Co.

Lee, R.E. (2008). *Phycology*, Cambridge University Press, Cambridge. 4th edition.

Pandey B., *Plant Anatomy*

Pandey B.P. – *College Botany – Algae, Fungi and Bryophytes*. Vol. I S.Chand& Co., Calcutta.

Sambamurthy, A.V.S.S. 2005. *A textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany.* I.K. International Pvt.Ltd, New Delhi.

Sharma P.D. – *Elements of Ecology* – Rastogi Publishing, Meerut

Outcomes	➢ The students gain noteworthy knowledge in identification and utilization of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ The students will be able to understand pollution and its effects. ➢ The students will develop the skills in identification of anatomical structure of various plant parts.

Course code: 22BBOAP3	ALLIED PRACTICAL– II A	T/P	C	H/W
	THALLOPHYTA, ARCHEGONIATE, PLANT PATHOLOGY, ECOLOGY, PLANT ANATOMY	P	2	2

Objectives	➢ To observe, identify and micropreparation of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ To make suitable micropreparation of dicot and monocot stem. ➢ To learn about pollution, deforestation and Afforestation
	1. Micro – Preparations and Identification of the Thallophyta prescribed in the Syllabus(Algae-*Gracilaria*: Fungi-*Agaricus*) 2. Cutting and Mounting of T.S. of Vegetative parts of *Marchantia , Marsilea* and *Pinus*. 3. Identification /Micropreparation of cones of *Marsilea, Pinus* and capsule of *Marchantia* . 4. To observe and identify spot at sight and make detailed study of the types of disease prescribed in the syllabus 5. Cutting, Mounting and identifications of T.S. of dicot and monocot stem. 6. Photographs/models on various pollution, deforestation, Afforestation and social forestry. **Submission of certified and bonafide record note book is mandatory for External Practical.**
Outcomes	➢ Students may able to identify the various forms of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms. ➢ Aware the knowledge of non-vascular and vascular cryptogams. ➢ To understand the pollution, deforestation, Afforestation and conservation.

EXTERNAL QUESTION

Time: 3 hours **Max. Marks- 60**

1.	Make suitable micropreparation of "A" and "B".Mount in Glycerin. Draw labeled sketches.Identify and give reason. Submit the slide for valuation.	2 x7= 14
2.	Make suitable micropreparation of "C"Mount in Glycerin. Identify and giving reason. Submit the slide for valuation.	1x 7 = 07
3.	Comments on the etiology of "D"	1 x 4= 04
4.	Identify draw sketches and write notes on (E, F, G, H and I)	5 x5= 25
5.	Submission of Record note book	10
	Total	60

KEY AND SCHEME OF VALUATION

1.	Make suitable micropreparation of "**A**" and **B**. Mount in Glycerin. **A** - (Algae/ Bryophyte), **B** - Pteridophyte/Gymnosperm (Slide -2, Identification-1, sketch-2, Reason-2)	2 x7= 14
2.	Make suitable micropreparation of "**C**"Mount in Glycerin **C** – (Dicot/monocot stem). (Slide -2, Identification-1, sketch-2, Reason-2)	1x 7 = 07
3.	**D** – Etiology specimen prescribed in the syllabus (Identification-1, sketch-1, Reason-2)	1 x 4= 04
4.	**E** – Reproductive part of Algae, Fungi, Bryophyte, Pteridophyte, Gymnosperm. **F** – Morphology/ reproductive part of fungi **G** – Green house effect/Acid rain **H** – Deforestation/ Afforestation/Social forestry **I** – Simple permanent tissue (Identification-1, sketch-2, Reason-2)	5 x5= 25
5.	Submission of Record note book	10
	Total	60

INTERNAL QUESTION

Time: 3 hours **Max. Marks- 40**

1.	Make suitable micropreparation of "A" and "B".Mount in Glycerin. Draw labeled sketches. Identify and give reason. Submit the slide for valuation.	2 x6= 12
2.	Make suitable micropreparation of "C" Mount in Glycerin. Identify and giving reason. Submit the slide for valuation.	1x 6 = 06
3.	Comments on the etiology of "D"	1 x 2= 02
4.	Identify draw sketches and write notes on (E, F, G, H and I)	5 x3=15
5.	Continuous assessment	05
	Total	40

KEY AND SCHEME OF VALUATION

1.	Make suitable micropreparation of "**A**" and **B**. Mount in Glycerin. **A** - (Algae/ Bryophyte), **B** - Pteridophyte/Gymnosperm (Slide -2, Identification-1, sketch-1, Reason-2)	2 x6= 12
2.	Make suitable micropreparation of "**C**" Mount in Glycerin **C** – (Dicot/monocot stem). (Slide -2, Identification-1, sketch-1, Reason-2)	1x 6= 06
3.	**D** – Etiology specimen prescribed in the syllabus (Identification-½, sketch-½, Reason-1)	1 x 2= 02
4.	**E** – (Reproductive part of Algae, Fungi, Bryophyte, Pteridophyte and Gymnosperm, **F** – Morphology/ reproductive part of fungi, **G** – Green house effect/Acid rain, **H** – Deforestation/Afforestation/Social forestry, **I** – Simple permanent tissue. (Identification-1, sketch-1, Reason-1)	5 x3=15
5.	Continuous assessment	05
	Total	40

Course code: 22BBOA4	ALLIED COURSE – II B	T/P	C	H/W
	SYSTEMATIC OF ANGIOSPERMS, EMBRYOLOGY, PLANT PHYSIOLOGY	T	3	3

Objectives	➢ To provide the knowledge about angiosperms, Binomial nomenclature and the classification of plants ➢ To study about photosynthesis and respiration
Unit -I	**Taxonomy of Angiosperms** History of Taxonomy, Binomial nomenclature, ICN rules, Herbarium techniques Classification (Benthum and Hooker). Basic Knowledge of Morphology of Angiosperm (Inflorescence and flower).
Unit -II	Brief study of the following families with special features and economic importance. b) Annonaceae, b) Rubiaceae, c)Apocynaceae, d) Euphorbiaceae, e) Poaceae
Unit -III	**Embryology of Angiosperms:** Structure of male and female gametophyte, types of Ovules, Embryo sac, Fertilization – double fertilization, syngamy – significance, endosperm (Nuclear, cellular, helobial), Structure of dicot and monocot mature embryo.
Unit -IV	**Plant Physiology**: Absorption of water – Transpiration and Ascent of sap, translocation of solutes, Photosynthesis – Mechanism of Light Reaction – Dark Reaction - C3, C4 and CAM cycle
Unit -V	Respiration – Mechanism of Aerobic respiration, Fermentation and its significance Photorespiration – Photoperiodism and Vernalisation, Seed dormancy.

Reference and Textbooks

Taxonomy:

Bhojwani, S.S. and Bhatnagar S.P. – The embryology of Angiosperms' Vikas Publishing House P.Ltd., New Delhi.

Kochar, S.L.–Economic Botany – TATA Mc Graw Hill Publishing Co., Ltd., New Delhi.

Vasishta P.C. – Taxonomy of Angiosperms' R.Chandand Co., New Delhi.

Embryology of Angiosperms

Maheswari, P – Introduction to Embryology of Angiosperms – Tata McGraw Hill publishing Ltd., New Delhi.

Plant Physiology

Ray Noggle, G and George J.Frits – Introduction to Plant Physiology. Prentice Hall of India P.Ltd., New Delhi.

Robert M.Devlinn – Plant Physiology. Affiliated East West Press P.Ltd., New Delhi.

Outcomes	➢ The students can learn Binomial nomenclature and plant systematic. ➢ The students will get knowledge about photosynthesis and respiration of plants.

Course code: 22BBOAP4	ALLIED PRACTICAL – II B	T/P	C	H/W
	SYSTEMATIC OF ANGIOSPERMS, EMBRYOLOGY, PLANT PHYSIOLOGY	P	2	2

Objectives

- To develop observation technical skill in dissecting floral parts.
- To study about plant classification.
- To know about the important of pollen grains and ovules.
- To know about the photosynthesis and respiration in plants.

Taxonomy of angiosperms and economic Botany:

1. Morphological identification of Vegetative and Reproductive parts and their modifications.
2. Dissect out the floral parts of plants come under the families prescribed in the theory syllabus. Write descriptions in technical terms. Draw floral diagram and write floral formula/e.

Embryology:

1. To dissect out and mount Dicot embryo (*Tridax*)
2. To prepare permanent micro preparations showing types of ovules
3. Micro preparations anther and Take T.S of anther (*Datura/Cassia*)

Plant Physiology

1. Rate of Photosynthesis – *Hydrilla* Experiment of Willmont's Bubbler using different colour filters.
2. Separation of photosynthetic pigment by paper chromatography
3. Determination of Osmotic Pressure – Plasmolytic method.

Submission of certified and bonafide record note book is mandatory for External Practical.

Outcomes

- Develop observation and technical skill in dissecting floral parts and herbarium techniques.
- Understand the photosynthesis and respiration plants.
- Understand the fertilization and developments of fruits

EXTERNAL QUESTION

Time: 3 hours **Max. Marks- 60**

1.	**A**– Work out the specimen and identify the respective families and describe with technical terms. Take L.S. of flower.	1x 9=09
2.	**B** - Work out the specimen and identify the respective families through elimination process	1x 8=08
3.	**C** - Take T.S. of dicot anther from the given material. Mount in Glycerin and submit it for valuation. Write notes and draw sketch.	1x 8 =08
4.	**D** – Taking a lot, ask for requirement, write the procedure, setup and perform the experiment as indicated, collect data/ measurements, present them and interpret the results	1 x 10 = 10
5.	**E,F,G** – Identify, draw sketches and write notes on given specimen	3 x 5 = 15
6.	Submission of Record note book	10
	Total	**60**

KEY AND SCHEME OF VALUATION

1.	**A** – Angiosperm specimen selected from prescribed families in the syllabus (Dissection-3, Identification- 1, Sketch-2, Description- 3)	1x 9=09
2.	**B** – Angiosperm specimen selected from prescribed families in the syllabus (Identification-1, elimination-3, Reason- 4)	1x 8=08
3.	**C** - Dicot Anther –*Datura* material to be given (Slide-3, Identification -1, Sketch-2, Notes-2)	1x 8 =08
4.	**D** – From physiology Major experiments (Requirements-2, Procedure-3, Setup-3, and Result-1, Interpretation-1)	1 x 10 = 10
5.	**E –** Inflorescence/flower, **F** - Physiology-Respiration, **G** – Embryology- ovule (Identification- 1, Sketch – 2, Notes -2)	3 x 5 = 15
6.	Submission of Record note book	10
	Total	**60**

INTERNAL QUESTION

Time: 3 hours **Max. Marks- 40**

1.	**A**– Work out the specimen and identify the respective families and describe with technical terms. Take L.S. of flower.	1x 6=06
2.	**B** - Work out the specimen and identify the respective families through elimination process	1x 5=05
3.	**C** - Take T.S. of dicot anther from the given material. Mount in Glycerin and submit it for valuation. Write notes and draw sketch.	1x 5 =05
4.	**D** – Taking a lot, ask for requirement, write the procedure, setup and perform the experiment as indicated, collect data/ measurements, present them and interpret the results	1 x 10 = 10
5.	**E,F,G** – Identify, draw sketches and write notes on given specimen	3 x 3 = 09
6.	Continuous assessment	05
	Total	**40**

KEY AND SCHEME OF VALUATION

1.	**A** – Angiosperm specimen selected from prescribed families in the syllabus (Dissection-2, Identification- 1, Sketch-1, Description- 2)	1x 6=06
2.	**B** – Angiosperm specimen selected from prescribed families in the syllabus (Identification-1, elimination-2, Reason- 2)	1x 5=05
3.	**C** - Dicot Anther –*Datura* material to be given (Slide-2, Identification -1, Sketch-1, Notes-1)	1x 5 =05
4.	**D** – From physiology Major experiments (Requirements-2, Procedure-3, Setup-3, and Result-1, Interpretation-1)	1 x 10 = 10
5.	**E –** Inflorescence/flower, **F** - Physiology-Respiration, **G** – Embryology- ovule (Identification- 1, Sketch – 1, Notes -1)	3 x 3 = 09
6.	Continuous assessment	05
	Total	**40**