डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद

परिपत्रक क्रमांक/एस.यु./विज्ञान/अभ्यासक्रम/७४/२०१४

या परिपत्रकाद्वारे सर्व संबंधीतांना सुचित करण्यात येते की, विज्ञान विद्याशाखेने शिफारस केल्यानुसार बी. एस्सी. / एम. एस्सी. प्रथम व द्वितीय वर्षाच्या सुधारित अभ्यासक्रमास आणि बी. एस्सी. प्रथम वर्षाच्या अभ्यासक्रमात किरकोळ बदल करण्यास विद्यापरिषदेच्या वतीने मा. कुलगुरु यांनी, त्यांना प्राप्त असलेल्या विशेष अधिकार महाराष्ट्र विद्यापीठ अधिनियम-१९९४ कलम १४(७) अन्वये मान्यता दिलेली आहे. त्या अनुषंगाने सुधारीत तयार केलेल्या अभ्यासक्रमाची प्रत या परिपत्रकासोबत आपल्या पुढील कार्यवाहीसाठी पाठविण्यात येत आहे.

[1]	B.Sc. Physics	Semester-III & IV,
[2]	B.Sc. Chemistry	Semester-III & IV,
[3]	B.Sc. Botany	Semester-III & IV,
[4]	B.Sc. Zoology with minor changes	Semester-I & II,
[5]	B.Sc. Zoology	Semester-III & IV,
[6]	B.Sc. Fisheries	Semester-III & IV,
[7]	B.Sc. Electronics (Opt.)	Semester-III & IV,
[8]	B.A./B.Sc. Mathematics	Semester-III & IV,
[9]	B.Sc. Computer Science	Semester-I & II,
[10]	B.Sc. Information Technology	Semester-I & II,
[11]	B.C.A.	Semester-I & II,
[12]	B.Sc. Computer Science(Opt.)	Semester-I & II,
[13]	B.Sc. Information Technology(Opt.)	Semester-I & II,
[14]	B.Sc. Computer Application(Opt.)	Semester-I & II,
[15]	B.Sc. Computer Maintenance(Opt.)	Semester-I & II,
[16]	B.Sc. Biotechnology (Progressively)	Semester-I to VI,
[17]	B.Sc. Biotechnology (Opt.) (Progressively)	Semester-I to IV,
[18]	B.Sc. Sericulture Technology	Semester-I & II,
[19]	B.Sc. Networking Multimedia	Semester-III & IV,
[20]	B.Sc. Bioinformatics	Semester-I & II,
[21]	B.Sc. Hardware & Networking	Semester-I & II,
[22]	B.Sc. Animation	Semester-I & II,
[23]	B.Sc. Dairy Science & Technology	Semester-III & IV,
[24]	B.Sc. Biochemistry	Semester-III & IV,
[25]	B.Sc. Analytical Chemistry	Semester-III & IV,
[26]	B.Sc. Textile & Int. Decoration with minor changes	Semester-I & II,
[27]	B.Sc. Textile & Int. Decoration	Semester-III & IV,
[28]	B.Sc. Home Science with minor changes	Semester-I & II,
[29]	B.Sc. Home Science	Semester-III & IV,
[30]	B.Sc. Agro.Chem. & Fertilizers	Semester-III & IV,

..2..

[31]	**B.Sc. Geology**	**Semester-III & IV,**
[32]	**B.A. Statistics with minor changes**	**Semester-I & II,**
[33]	**B.A. Statistics**	**Semester-III & IV,**
[34]	**B.Sc. Statistics with minor changes**	**Semester-I & II,**
[35]	**B.Sc. Statistics**	**Semester-III & IV,**
[36]	**B.Sc. Industrial Chemistry**	**Semester-III & IV,**
[37]	**B.Sc. Horticultural**	**Semester-I & II,**
[38]	**B.Sc. Dry land Agriculture**	**Semester-I & II,**
[39]	**B.Sc. Microbiology**	**Semester-III & IV,**
[40]	**M.Sc. Computer Science**	**Semester-I to IV,**
[41]	**M.Sc. Information Technology**	**Semester-I to IV.**

हा सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाचा आराखडा शैक्षणिक वर्ष २०१४-१५ करिता मर्यादित असेल व विद्यापरिषदेच्या अंतिम मान्यतेनंतर हे परिपत्रक नियमित ठेवण्याबाबत या कार्यालयाद्वारे नवीन परिपत्रक पारीत करण्यात येईल. तसेच सुधारीत व नवीन तयार केलेल्या अभ्यासक्रमाची प्रत विद्यापीठाच्या संकेतस्थळावर उपलब्ध आहे.

करिता, या परिपत्रकाची सर्व संबंधितांनी नोंद घ्यावी.

विद्यापीठ प्रांगण,
औरंगाबाद-४३१ ००४.
संदर्भ क्र.एस.यु./सा.शा./सबवि /२०१३-१४/
६५९९-७०२
दिनांक :- २७-०५-२०१४.

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संचालक,
महाविद्यालये व विद्यापीठ
विकास मंडळ.

या परिपत्रकाची एक प्रत :-

१) **मा. परिक्षा नियंत्रक, परिक्षा विभाग,**
२) मा. प्राचार्य, सर्व संलग्नीत महाविद्यालये,
३) संचालक, युनिक यांना विनंती करण्यात येते की, सदरील अभ्यासक्रम विद्यापीठाच्या संकेतस्थंळावर उपलब्ध करुण देण्यात यावेत.
४) संचालक, ई-सुविधा केंद्र, विद्यापीठ परिसर,
५) जनसंपर्क अधिकारी, मुख्य प्रशासकीय इमारत,
६) कक्ष अधिकारी, पात्रता विभाग, मुख्य प्रशासकीय इमारत,
७) कक्ष अधिकारी, बी.ए. / बी.एस्सी./ बी.सी.एस./एम.एस्सी. विभाग, परीक्षा भवन,
८) अभिलेख विभाग, मुख्य प्रशासकीय इमारती मागे,

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

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DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY, AURANGABAD.

REVISED SYLLABUS

OF

B.Sc. Botany

SECOND YEAR

[Optional]

Third & Fourth Semester

[Effective for - June, 2014-15]

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B. Sc. II YEAR SYLLABUS

Subject -BOTANY

Semester –III and IV

	Paper No	Title of Paper	Lectures	Marks
B. Sc. II		**Semester- III**		
	VII	Taxonomy of Angiosperms	**45**	**50**
	VIII	Plant Ecology	**45**	**50**
	IX	Practical based on Paper - VII	**45**	**50**
	X	Practical based on Paper - VIII	**45**	**50**
		SEMESTER – IV		
	XI	Gymnosperms and Utilization of plants	**45**	**50**
	XII	Plant Physiology	**45**	**50**
	XIII	Practical based on Paper - XI	**45**	**50**
	XIV	Practical based on Paper - XII	**45**	**50**

Effective From – Academic year -2014-15

DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B.Sc. II YEAR (BOTANY)

Semester -III

Paper -VII

Taxonomy of Angiosperms

Period-45L

Unit-01

1. Salient features, origin and evolution of Angiosperms. (03)

2. Systems of classification –Introduction of Natural, Artificial and Phylogenetic. (01)

3. Bentham and Hooker's system of classification up to series level, its merits and demerits. (02)

4. Taxonomy in relation to anatomy, embryology, palynology, ecology and cytology. (05)

5. Concept of Binomial Nomenclature and its advantages . (02)

6. Concept of genus, species and epithet. (02)

7. Herbaria:- What is herbaria, procedure for collection of plants, pressing of the plants specimen, drying of specimen, poisoning, mounting, labelling of specimens, storing of specimen, function of herbaria and some important herbaria of the India; Digital herbaria. Botanical Gardens: What is botanical garden, functions of botanical garden and major botanical gardens of India. (05)

Unit: 02

Study of the following families: systematic position, salient features, floral formula, (25)

floral diagram, common examples and their economic importance.

i. Annonaceae

ii. Malvaceae

iii. Leguminosae

Fabaceae (Papilionaceae)

Caesalpiniaceae

Mimosaceae

iv. Apocynaceae

v. Solanaceae

vi. Acanthaceae

vii. Lamiaceae (Labiateae)

viii. Nyctaginaceae

ix. Liliaceae

x. Poaceae (Gramineae)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B.Sc. II YEAR (BOTANY)

Semester -III

Paper -VIII

Plant Ecology

Period- 45L

Unit – 1

Plant and environment

A)Climatic factors –

a) Light as an ecological factor, global radiation and photosynthetically active radiation (02)

b) Temperature as an ecological factor. (02)

c) Water as an ecological factor, physicochemical properties of water. (03)

B) Edaphic factor –

Soil formation, soil profile, physicochemical properties of soil, major soil types of India, soil erosion and soil conservation. (08)

Unit:2

1. Response of plants to water

Morphological, physiological and anatomical response of plants to water:– hydrophytes, xerophytes, halophytes and epiphytes. (12)

2. Phytogeography: (03)

Biogeographical regions of India, vegetation types of India.

Unit: 3

1. Community ecology:

Community characteristics -frequency, density, life forms, biological spectrum. (06)

1. Ecosystem:

Structure -biotic and abiotic components, food chain, food web, ecological pyramids, energy flow, biogeochemical cycles-nitrogen and phosphorus. (09)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B.Sc. II YEAR (Practical)

Semester -III

Paper- IX

Taxonomy of Angiosperms

(Based on Paper- VII)

45 L

Angiosperms:

Study of locally available plants of the following families :

1. Annonaceae
2. Malvaceae
3. Leguminosae
   a) Fabaceae (Papilionaceae)
   b) Caesalpiniaceae
   c) Mimosaceae
4. Apocynaceae
5. Solanaceae
6. Acanthaceae
7. Lamiaceae (Labiatae)
8. Nyctaginaceae
9. Liliaceae
10. Poaceae (Gramineae)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B. Sc. II year (Practical)

Semester - III

Paper - X

Plant Ecology

(Based on Paper no –VIII)

45 L

1. Study of morphological and anatomical adaptations in hydrophytes – *Hydrilla, Eichhornia, Typha* and *Nymphaea* .
2. Study of morphological and anatomical adaptations in xerophytes -*Aloe, Nerium, Casuarina.*
3. Study of morphological adaptations in halophytes -Pneumatophore, Stilt roots.
4. Study of morphological and anatomical adaptations in epiphytes.
5. Study of vegetation by quadrat method.
6. Estimation of Importance Value Index (IVI) of grassland ecosystem on the basis of relative frequency, relative density and relative abundance.
7. Determination of water holding capacity of different soils.
8. Study of meteorological instruments -Rain gauge, Hygrometer, Barometer.
9. Determination of percent leaf area injury of different infected leaf samples.
10. Estimation of salinity of different water samples.
11. Determination of pH of different soils by pH papers/universal indicator/pH meter.

Note for paper IX and X:

Candidate shall submit the following at the time of practical exams: Certified laboratory record book, Field note book, Tour report and Collection of specimens. In addition to number of practicals prescribed above, the students are required to undertake field excursions to the places of botanical interest and industrial places under the guidance of teachers. Collection of rare flowering and non flowering plants should be avoided during excursion. There shall be frequent study tours in local areas. T.A. and D.A. be paid to the teachers, peons and field collectors as per university rules. The record book is to be signed periodically by teacher in charge and certified by the Head of Department at the end of the term. Candidate should not be allowed to appear for practical examination without a certified record book or a certificate from the Head of Department.

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B. Sc. II Year (Theory)

Semester - IV

Paper - XI

Gymnosperms and Utilization of Plants

45 L

Unit:1

Gymnosperms:

1. Salient features, classification as per Sporne 1965, economic importance. (02)
2. Geological time scale, fossilization, types of fossils, *Lyginopteris*, fossil fuels. (04)
3. Contributions of Prof. Birbal Sahani. (01)
4. Study of morphology, anatomy, reproduction (excluding developmental stages) and graphical representation of life cycle of the following types: (16)

a) Cycadales – *Cycas*

b) Coniferales – *Pinus*

c) Gnetales - *Gnetum*

Unit:2

Utilization of Plants:

1. Domestication of plants and their centers of origin. (02)
2. History, origin, cultivation, harvesting, improved varieties and economic importance of the following plants: (15)

i. Food plants – Wheat, Jowar.

ii. Sugar – Sugarcane.

iii. Fibers -Cotton, Jute.

iv. Vegetable oils – Groundnut, Sunflower.

v. Beverages – Tea, Coffee.

vi. Mushroom e. g. (Oyster) *Pleurotus*.

3. Botanical name, family name and economic importance of the following plants: (05)

i. Medicinal plants – Korphad, Aswagandha, Turmeric and Nirgudi.

ii. Timber and Gum – Teak, Neem, Babul, Sisham.

iii. Cosmetics and Perfumes – Rose, Mogara, Tuberose.

iv. Spices – Clove, Black pepper, Cumin, Coriander, Cinnamon.

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B. Sc. II Year (Theory)

Semester -IV

Paper -XII

Plant Physiology

45 L

Unit:1

1. Plant water relations:

a) Diffusion, osmosis, plasmolysis and imbibition. (02)

b) Water absorption and ascent of sap (Transpiration pull theory). (03)

c) Transpiration – Definition, types -cuticular, lenticular and stomatal, structure of stomata, mechanism of opening and closing of stomata (starch – sugar hypothesis). (02)

2. Mineral nutrition:

a) Macro and microelements: roles and deficiency symptoms of N, P, K, Mg, Ca, Fe, Zn, Bo, Mo.

b) Mineral uptake – passive (ion exchange theory) and active (carrier concept) . (05)

3. Translocation of solutes:

Mass flow hypothesis, protoplasmic streaming theory, Source and sink relationship. (03)

Unit:2

1. Enzymes :

Chemical nature holoenzyme , apoenzyme, prosthetic group, cofactor and coenzyme, properties , nomenclature, classification based on type of reactions, mechanism of enzyme action . (06)

2. Growth: Definition, Phases of Growth, Sigmoid growth curve. (02)

3.Growth regulators:

Discovery, structure, roles and practical applications of Auxins, Gibberellins, Cytokinins, Abscisic acid and Ethylene. (07)

Unit:3

1. Photosynthesis:

Definition, ultrastructure of chloroplast, photosynthetic pigments, Light reactions -Hill reaction, red drop and Emerson enhancement effect, two pigment systems (PS I, PS II), photophosphorylation – cyclic and non cyclic, Z-scheme; Dark reactions -C_3, C_4 and CAM pathways. (08)

2. Respiration:

Definition, Ultrastructure of mitochondria, types of respiration, Glycolysis, TCA Cycle, Electron transport system, alcoholic and lactic acid fermentation. (07)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B.Sc. II year (Practical)

Semester -IV

Paper -XIII

Gymnosperms and Utilization of plants

(Based on paper no - XI)

45L

Gymnosperms:

a) Cycas

i. Habit, young leaf, bulbils, male cone, microsporophyll, megasporophyll, pollen grains, mature seed.

ii. Study through permanent slides-Normal root (T.S.). Stem (T.S.), Ovule (L.S.).

iii. Study through hand section-Coralloid root (T.S.), Rachis (T.S.), Leaflet (T.S.).

b) Pinus

i. Habit, long and dwarf shoot, scale leaves, foliage leaves, male cone, female cone, pollen grains (W.M.), winged seed.

ii. Study through hand sections and permanent slides Root (T.S.), Stem (T.S.), Needle (T.S.).

iii. Study through permanent slide - T.L.S. & R.L.S. of stem, L.S. of male cone, L.S. of female cone.

c) *Gnetum*

i) Habit, T. S. of Stem, Male cone and female cone.

Paleobotany:

a) Types of fossils (Specimens).

b) *Lygynopteris* (Specimen / Permanent slide).

Utilization of plants :

a) Food plants – Study of the morphology, structure,and histochemical tests of food storing tissue in Jowar & Wheat.

b) Histochemical test of lignin and cellulose.

c) Cultivation of Oyster (*Pleurotus*) mushroom on agricultural waste.

d) Vegetable oils – hand section of Groundnut & Sunflower Seed and staining of oil droplets by Sudan III.

e) Study of the sources of Timber, Gum, Medicinal plants, Cosmotics and Perfumes.

f) Study of Black pepper, Clove, Cinnamon, Cumin, Coriander.

f) Field notebook, specimen collection, and tour report.

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

B.Sc. II year (Practical)

Semester -IV

Paper- XIV

Plant Physiology

(Based on paper no. -XII)

45L

1. Osmosis by egg membrane and potato osmoscope.
2. Plasmolysis in *Tradescantia* leaves.
3. Effect of different conc. of organic solvents on membrane permeability.
4. Determination of water potential of any tuber.
5. Detection of mineral elements in plant ash.
6. Digestion of starch by amylase.
7. Detection of enzyme activity : oxidase, peroxidase, catalase and dehydrogenase.
8. Separation of chloroplast pigments by paper chromatography.
9. Demonstration of Hill reaction.
10. Effect of different intensities of light on photosynthesis.
11. Effect of different colors of light on photosynthesis.
12. Fermentation by Kuhnes fermentation vessel.
13. Isolation of starch.
14. Isolation of pectin.
15. Estimation of total and reducing sugars in fruit juice by Fehling solution.
16. Separation of amino acids by paper chromatography.
17. Effect of IAA and Gibberellins on seed germination.

Note for paper XI and XII

Candidate shall submit the following at the time of practical examination: Certified laboratory record book. Field report , Tour report. and Collection of specimens. In addition to number of practicals prescribed above, the students are required to undertake field excursions to the places of botanical interest and industrial places under the guidance of teachers. Collection of rare flowering and non flowering plants should be avoided during excursion. There shall be frequent study tours in local areas. T.A. and D.A. be paid to the teachers, peons and field collectors as per university rules. The record book is to be signed periodically by teacher in charge and certified by the Head of the Department at the end of the term. Candidate should not be allowed to appear for practical examination without a certified record book or a certificate from the Head of the Department.

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

Pattern of Theory Question Paper

B.Sc. II YEAR (BOTANY)

Semester -III

Paper -VII

Taxonomy of Angiosperms

Time: 2 Hour Max. Marks: 50

N.B.: i) Attempt all questions
ii) All questions carry equal marks
iii) Draw neat and well-labelled diagrams wherever necessary

Q.1. Long answer question ……..……(Unit 1) 10
or
Long answer question (Unit 1)

Q.2. Long answer question ……..……(Unit 2) 10
or
Long answer question……..……(Unit 2)

Q.3. Long answer question ..……...(Unit 2) 10
or
Long answer question……..……(Unit 2)

Q.4. Short notes on any two of the following (**based on all Units)** 10
a) Short answer question
b) Short answer question
c) Short answer question
d) Short answer question

Q.5. Multiple choice question: **(based on all Units)** 10
1) ……(Unit 1)
2) ……(Unit 1)
3) ……(Unit 1)
4) ……(Unit 1)
5) …….(Unit 1)
6) ……..(Unit 2)
7) ……..(Unit 2)
8) ……..(Unit 2)
9) ……..(Unit 2)
10) …….(Unit 2)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

Pattern of Theory Question Paper

B.Sc. II YEAR (BOTANY)

Semester -III

Paper -VIII

Plant Ecology

Time: 2 Hour **Max. Marks: 50**

N.B.: i) Attempt all questions
ii) All questions carry equal marks
iii) Draw neat and well-labelled diagrams wherever necessary

Q.1. Long answer question ……..……(Unit 1) 10
or
Long answer question (Unit 1)

Q.2. Long answer question ……..……..(Unit 2) 10
or
Long answer question……..……(Unit 2)

Q.3. Long answer question ..……...(Unit 3) 10
or
Long answer question……..……(Unit 3)

Q.4. Short notes on any two of the following (**based on all Units)** 10
a) Short answer question
b) Short answer question
c) Short answer question
d) Short answer question

Q.5. Multiple choice question: **(based on all Units)** 10
1) …….(Unit 1)
2) …….(Unit 1)
3) …….(Unit 1)
4) …….(Unit 2)
5) …….(Unit 2)
6) …….(Unit 2)
7) …….(Unit 3)
8) …….(Unit 3)
9) …….(Unit 3)
10) ……...(Unit 3)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

Pattern of Theory Question Paper

B.Sc. II YEAR (BOTANY)

Semester- IV

Paper -XI

Gymnosperms and Utilization of plants

Time: 2 Hour Max. Marks: 50

N.B.: i) Attempt all questions
ii) All questions carry equal marks
iii) Draw neat and well-labelled diagrams wherever necessary

Q.1. Long answer question ……..……(Unit -1) 10

or

Long answer question..……(Unit- 1)

Q.2. Long answer question ……..……(Unit- 1) 10

or

Long answer question ……(Unit-1)

Q.3. Long answer question ..……(Unit- 2) 10

or

Long answer question ..……(Unit- 2)

Q.4. Short notes on any two of the following **(based on all Units)** 10

a) Short answer question
b) Short answer question
c) Short answer question
d) Short answer question

Q.5. Multiple choice question: **(based on all Units)** 10

1) …….(Unit 1)
2) …….(Unit 1)
3) …….(Unit 1)
4) …….(Unit 1)
5) ……..(Unit 2)
6) ……..(Unit 2)
7) ……..(Unit 2)
8) ……..(Unit 2)
9) ……..(Unit 2)
10) ……...(Unit 2)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty Of Science

Pattern of Theory Question Paper

B.Sc. II YEAR (BOTANY)

Semester- IV

Paper- XII

Plant Physiology

Time: 2 Hour Max. Marks: 50

N.B.: i) Attempt all questions
ii) All questions carry equal marks
iii) Draw neat and well-labelled diagrams wherever necessary

Q.1. Long answer question ……..……(Unit- 1) 10

or

Long answer question..……(Unit-1)

Q.2. Long answer question ……..……(Unit-2) 10

or

Long answer question ……(Unit-2)

Q.3. Long answer question ..……(Unit- 03) 10

or

Long answer question ..……(Unit-3)

Q.4. Short notes on any two of the following **(based on all Units)** 10

a) Short answer question
b) Short answer question
c) Short answer question
d) Short answer question

Q.5. Multiple choice question: **(based on all Units)** 10

1) ……(Unit 1)
2) ……(Unit 1)
3) ……(Unit 1)
4) ……(Unit 1)
5) …….(Unit 2)
6) ……..(Unit 2)
7) ……..(Unit 2)
8) ……..(Unit 3)
9) ……..(Unit 3)
10) …….(Unit 3)

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty of Science

Practical Examination

B.Sc. II YEAR (BOTANY)

Semester- IV

Paper -IX and XIII

(Taxonomy of Angiosperm, Gymnosperms and Utilization of plants)

Time: 09.00 A.M. to 01.00 P.M. Marks: 100

Date: _____ Batch No. _____

Center: _____

Q.1. Identify, classify giving reasons and describe the specimen "A" 20
Give floral formula and floral diagram.

Q.2. Make a double stained permanent preparation of the given specimen 'B'
(Gymnosperm). Identify and describe with a well labeled diagram. 20

Q.3.Perform Micro chemical test in given material "C"
(Protein / Carbohydrate /Lipid / cellulose / Lignin) 10

Q.4. Identify and describe the specimen D, E , F, G and H as per the instructions 25
(D and E- Angiosperms, F- Gymnosperms, G- and H- Utilization of plants)

Q.5. Submission: 10

a) Record book,

b) Permanent slides and collection, field notebook/Tour report 10

c) Viva - voce and collection 05

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DR.BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY,AURANGABAD

Faculty of Science

Practical Examination

B.Sc. II YEAR (BOTANY)

Semester IV

Paper X and XIV

(Plant Ecology and Plant Physiology)

Time: 02.00 P. M. to 06.00 P.M. Marks: 100

Date: _____ Batch No. _____

Center: _____

Q.1. Identify and describe morphological and anatomical adaptations in the given specimen. Make a temporary preparation of the given specimen. 20

Q.2.Conduct the ecological experiment, allotted to you, write the principal and record the observations and results. 15

Q. 3. Make a list of materials required for the physiological experiment allotted to you. Show it to the examiner, write the procedure and record the readings. 20

Q. 4. Make a list of materials required for the physiology experiment allotted to you. Show results to the examiner. 20

Q.5. Submission:

a) Record book, 10

b) Project report and collection 10

c) Viva - voce 05

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