SLR-MP - 89

Seat	
No.	

M.Sc. I (Semester – I) Examination, 2015 BOTANY (Paper – II) (New)

Biology and Diversity of Algae, Bryophytes and Pteridophytes

Day and Date : Friday, 17-4-2015

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

Instructions: *i*) Attempt total *five* questions.

- *ii) Question No.* **1** is **compulsory**.
- iii) Attempt **any two** questions from Question No. **2** to **4**.
- iv) Attempt any two questions from Question No. 5 to 7.
- v) Figures to the **right** indicate **full** marks.

1. Write the correct answer.

- 1) The leaves bearing antheridia in the axil are known as
 - a) Perigonial leaves b) Perichaetial leaves
 - c) Paraphysis d) Bracts
- 2) Hygroscopic teeth present at the mouth of the capsule are known as
- a) Elaters
 b) Peristome
 c) Paraphyses
 d) Elaterophore
 3) Azolla is ______ fern.
 a) Epiphytic
 b) Terrestrial
 c) Aquatic
 d) Epilithic
 4) Lycopodium is commonly known as
 - a) Quill worth b) Ground pine c) Peat moss d) Club moss
- 5) Sporangia dehisce along a line of
 - a) Stomium b) Ostiole c) Strobilus d) Tapetum
- 6) Wonder plasmis located in
 - a) Carpogonium of *Batrachospermum*
 - b) Young Oogonium of Vaucheria
 - c) Oogonium of Chara
 - d) None of the above

Max. Marks: 70

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7) Mosses belongs to the class		
a) Hepaticopsida	b) Anthoceratopsida	
c) Bryopsida	d) Lycopsida	
8) Rhizoids of <i>Polytrichum</i> are	oblique septa.	
a) Unicellular with	b) Multicellular without	
c) Unicellular without	d) Multicellular with	
9) The ferns are mainly classified o	on the basis of	
a) Sori	b) Indusium	
c) Annulus	d) Sporangium	
10) The Sorus of <i>Gleichenia</i> is		
a) Mixed b) Simple	c) Gradate d) Acropetal	
11) The flagella with unilateral hair is	is termed as	
a) Pentonematic	b) Pentocronematic	
c) Stichnonematic	d) Acronematic	
12) Which of the following is non fila	-	
a) Enteromorpha	b) <i>Zygnema</i>	
c) Sirogonium	d) <i>Gleocapsa</i>	
13) Alginic acid is a product of		
a) Brown b) Red	c) Green d) Blue green	
14) Mucilage filled dead cell in Oscila) Akinets		
c) Hypnospores	b) Necridiad) Parthenospores	
	dy r arthenesperes	
2. Describe		
a) Terrestrial algae		7
b) Reproduction in Cyanophyceae.		7
3. Give an account of		
a) Life cycles of Byophytes		7
b) Sporophyte of Anthoceros.		7

4.	Describe	
	a) Salient features of Sphenopsida	7
	b) Modern trends in classification of Pteridophytes.	7
5.	Explain	
	a) Sphagnum as a peat	5
	b) Telome concept	4
	c) Reserved food of algae.	5
6.	Write in brief	
	a) Sporocarp of Salvinia	4
	b) Thallus organization of Acrogynae	5
	c) Shapes of chloroplast in algae.	5
7.	Write notes on any three :	14
	a) Cultivation of algae	
	b) Strobilus of Selaginella	
	c) Sporangium of <i>Psilotum</i>	
	d) Peristome.	

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SLR-MP – 107

Seat No.

M.Sc. – II (Semester – III) Examination, 2015 BOTANY PAPER – XII : Physiology of Plant Growth and Development

Day and Date : Wednesday, 22-4-2015

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

Instructions: *i)* Attempt totally *five* questions.

- *ii) Question No.* **1** *is compulsory***.**
- iii) Attempt any two questions from question No. 2 to 4.
- iv) Attempt any two questions from question No. 5 to 7.
- v) Figures to the **right** indicate **full** marks.

1.	Choose the correct alternative and rewrite the sentences :

1) Polyamines are synthesized from amino acids _____ and _____

- a) lysine and arginine b)glysine and serine
- c) alanine and aspartate d) other than these
- 2) _____ is a climacteric fruit.
 - a) banana b) apple c) mango d) all of these
- 3) _____ is a long day plant.
 - a) Cocklebur
 - b) Biloxy variety of soyabean
 - c) Maryland mammoth variety of tobacco
 - d) Black henbane
- 4) Brassinosteroids were first isolated from the bee-collected pollen grains of
 - a) *B. campestris* b) *B. napus*
 - c) *B. oleracea* d) *B. species*

Max. Marks : 70

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- 5) _____ is an example of PCD.
 - a) Formation of necrotic lesions after pathogenic infection
 - b) Development of aerenchyma in aquatic plants
 - c) Disappearance of protoplast in nature vessels and tracheids
 - d) All of these
- 6) Antigibberellins such as CCC find extensive use in
 - a) food industry b) breweries
 - c) floriculture industry d) tissue culture
- 7) _____ has become an important research tool for plant molecular biologists in recent years.
 - a) Arabidopsis thaliana b) Brassica napus
 - c) Solanum tuberosum d) Xanthium species
- 8) In plants, the richest source of phytochrome is
 - a) leaves b) stem
 - c) light grown seedling d) etiolated seedling

9) _____ a plant growth regulator is also employed as human medicine.

- a) Batassins b) Maleic hydrazide
- c) Salicylic acid d) Brassinosteroids
- 10) Garner and Allard worked on ______ and discovered photoperiodism.
 - a) Maryland mammoth variety of tobacco
 - b) Biloxy variety of soyabean
 - c) Both a and b
 - d) Hyoscymus niger
- 11) Monocarpic senescence is seen in _____
 - a) mango b) coconut c) pomegranate d) bamboo
- 12) _____ is not a secondary messenger.
 - a) Ca⁺⁺ b) c AMP c) c GMP d) ABA

			-3-	SLR-MP - 10)7
	13)	The chromophore of phytochrome is a) nitrogen atom c) oxygen atom	attached to polyper b) sulphur atom d) phosphorus ato		-
	14)	Blue light responses are mediated th a) phytochrome b) cryptochrome	rough		
2.	a)	Explain how tissue culture and mutan of physiological processes.	it analysis helped in	better understanding	7
	b)	Write an essay on Arabidopsis thalia	ana – a boon to plan	t biotechnologist.	7
3.	a)	Define plant growth regulators. Desc studies by you.	ribe discovery and	role of any two PGRs	7
	b)	What are polyamines ? Give an accord of action.	ount of polyamines a	and their mechanism	7
4.	a)	What is senescence ? Describe vari	ous patterns of leaf	senescence.	7
	b)	Explain the mechanism of leaf senes	scence.		7
5.	a)	What is PCD or apoptopsis ? Give it	s significance in hig	pher plants.	5
	b)	Explain the phenomenon of signallin	g in plant cells.		5
	c)	Enlist the secondary messengers in	plants.		4
6.	a)	Describe the mechanism of fruit ripe	ning.		5
	b)	Explain the hormonal and environme	ental control/regulat	ion of fruit ripening.	5
	c)	How artificially fruit ripening is follow	ved?		4
7.	W	rite notes on any three .			14
	a)	Role of phytochrome in flowering			
	b)	Cryptochrome			
	c)	Biochemistry of seed germination			
		—			

d) Pollen-stigma interaction.

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M.Sc. II (Semester – IV) Examination, 2015 BOTANY (Paper – XIII) Phytogeography and Conservation Biology

Day and Date : Thursday, 16-4-2015 Time : 3.00 p.m. to 6.00 p.m. Max. Marks : 70

14

Instructions : i) Attempt total *five* questions.

- *ii) Questions No.* **1** *is compulsory***.**
- iii) Attempt **any two** questions from questions No. **2** to **4**.
- iv) Attempt any two questions from questions No. 5 to 7.
- v) Figures to the **right** indicate full marks.
- 1. Write the correct answer from given alternatives.
 - 1) The term _____ means 's particular taxon has very restricted distribution'.
 - a) Endemic b) Low risk
 - c) Threatened d) Critically Endangered

2) In ______ technique the plant material preserved in liquid nitrogen.

- a) Ediacaran b) Skeletonizing
 - c) Cryopreservation d) Biotechnology

3) The term age and area hypothesis was coined by _____

- a) Alfred Wagner b) John Willis
- c) Charles Smith d) William Roxburgh

 Biodiversity is conserves outside the natural habitat means ______ conservation

- a) In-situ b) In-vivo
- c) Ex-vivo d) Ex-situ
- 5) Wildlife protection act was established on _____
 - a) 1972 b) 2010 c) 1980 d) 2002

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6)	National forest policy	aims at bringing _		of geog	rapl	nical area under	
	a) 15%	b) 33%	c)	75%	d)	90%	
7)	Padua Botanical gard				N		
	a) Washington	b) Netherlands	C)	England	d)	Italy	
8)	The concept				aina	ble agriculture.	
	a) Agro-forestry		b)	Polyhouse			
	c) Community seed	bank	d)	Afforestation			
9)	is the e	ndemic tree gene	era f	or India.			
	a) Acacia	b) Hardwickia	c)	Azadirachta	d)	Magnolia	
10)	is chief quantity.	ly a matter of qua	lity	while		is matter of	
	a) Flora, Vegetation		b)	Vegetation, Fl	ora		
	c) Flora, Fauna			Fauna, Flora			
11)	One of the most impo	-					
	a) The tundra		,	Northern coni			
	c) Temperate grass	land	d)	Temperate de	CICI	lous forests	
12)	The Biological Divers	ity Act is establish	ned	in			
	a) 2002	b) 2004	c)	2008	d)	1996	
13)	For the successful po component	lyhouse		is one of the	e m	ost important	
	a) CO ₂ enrichment	b) Heating	c)	Mulching	d)	Ventilation	
14)	Hunting of wildlife ani a) Biological Divers c) Forest Conservat	ity Act	b)	ibited under th The Wildlife P CITES		-	
2. W	rite an essay on veget	ation on Western	n Gh	nats.			14
	hat is ex-situ conserv nservation.	ation ? Describe	va	rious methods	of	ex-situ	14

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4.	Discuss on Phytogeographical zones of India.		14
5.	Describe in briefly.		
	a) Wildlife Protection Act.		7
	b) Role of NGO's in Conservation.		7
6.	Write on :		
	a) RET Plants		7
	b) Role of Bio-technology in conservation.		7
7.	Write short notes on any three of the following.		14
	a) Vicariance		
	b) Mangroves		
	c) Sacred Groves		
	d) Centres of speciation.		

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Max. Marks: 70

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Seat	
No.	

M.Sc. II (Semester – IV) Examination, 2015 BOTANY (Paper – XIV)

Plant Tissue Culture, Greenhouse Technology and Hydroponics

Day and Date :Saturday, 18-4-2015

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

Instructions : i) Attempt total five questions.

- *ii)* Question No. **1** is **compulsory**.
- iii) Attempt **any two** questions from question No. **2** to **4**.
- iv) Attempt any two questions from question No. 5 to 7.
- v) Figures to the **right** indicate **full** marks.

1. Write the correct answer.

i) The term hydroponics was first introduced by

- a) W.A. Setchell b) John Woodward
- c) W.F. Gericke d) D.R. Hoagland
- ii) Which one produces and rogenic haploids in anther culture?
 - a) Anther wall b) Pollen grains
 - c) Tapetal layer of anther d) Connective tissue
- iii) Insuspension cultures elicitation can be done by
 - a) Chitin b) Pectin c) U.V. light d) All of these
- iv) An artificial seed is a
 - a) Bead of gel containing somatic embryos
 - b) Bead of gel containing shoot buds
 - c) Bead of gel containing seeds
 - d) Both a and b
- v) Pollen embryoids were discovered by
 - a) Konal and Natraja b) Guha and Maheshwari
 - c) Skoog and Miller d) Helperin and Wetherell

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a) Carlson et.al.

	c)	Barski et. al.	d)	Vasil and Hilderbr	randt
vii)	De	evelopment of shoot and root in tis	ssu	e culture is determ	ined by
	a)	Cytokinin to auxin ratio	b)	Enzymes	
	c)	Plant nutrients	d)	Temperature	
viii)	Ha	rdening is induced by keeping pla	antle	ets under	
	a)	High light intensity and low humi	dity		
	b)	Low light intensity and low humic	dity		
	c)	Low light intensity and high humi	dity	,	
	d)	High light intensity and high hum	idit	у	
ix)	W	hich one of the following is cytoki	nin	?	
	a)	Indole-3-acetic acid	b)	Thidiazuron	
	,	Dicamba	,	Brassinosteroids	
x)	Ex	plant is required to be disinfected	bei	fore placing in cultu	ure. This is done by
	a)	Sodium hypochloride	b)	Mercuric chloride	
	c)	Calcium hypochloride	d)	All of these	
xi)	Pr	otoplast fusion in induced by whic	ch o	f the following trea	itments?
	a)	High voltage electric pulse			
	b)	High pH and High Ca2+ concent	ratio	on	
	c)	Polyethylene glycol (PEG)			
	d)	All of these			
xii)	Cr	yopreservation is based on which	n of	the following?	
	a)	Liquid CO2	b)	Liquid helium	
	c)	Liquid nitrogen	d)	All of these	
xiii)	W	hich of the following is thermo sta	ble	?	
	a)	Zeatin b) Pectinase	c)	ABA	d) All of these
xiv)	Ap	plication of embryo culture is			
	a)	Clonal propagation	b)	Production of alka	aloids
	c)	Overcoming hybridization barrier	d)	Haploid productio	n

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b) Steward

vi) The concept of cellular totipotency was given by

2.	Describe : a) What is greenhouse ? Describe different types of greenhouses. b) Write an essay on embryo culture.	7 7
3.	 Give an account of a) Detailed methodology for synthetic seed production. b) Explain in detail the steps involved in the production of homozygous lines from anther culture. 	7 7
4.	Describe the following :	
	a) Factors affecting anther culture.	7
	b) Construction of green house.	7
5.	Explain :	
	a) Different growth media used in hydroponics.	5
	b) Systems for production of secondary metabolites.	5
	c) Laboratory design in PTC.	4
6.	Write in brief	
	a) Different types of culture and their applications.	5
	b) Elicitors used in secondary metabolite production.	5
	c) Sequential steps for Somatic embryogenesis.	4
7.	Write notes on any three :	14
	a) Applications of synthetic seeds.	
	b) Applications of hydroponics.	
	c) Fumigation in green house.	
	d) Macronutrients.	

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M.Sc. II (Semester – IV) Botany Examination, 2015 ENVIRONMENTAL PLANT PHYSIOLOGY (Paper No. – XV)

Day and Date: Tuesday, 21-4-2015 Time: 3.00 p.m. to 6.00 p.m. Max. Marks: 70

Instructions: 1) Q. I is compulsory.

- 2) Solve any two from Q. II to Q. IV and two from Q. V to Q. VII.
- 3) All questions carry equal marks.
- 4) Draw neat and labelled diagrams wherever necessary.

١.	Wr	rite the correct answer.				14
	1)	CaSO ₄ is used for reclama	tion of	_soil.		
		a) acidic	b) alkaline	c) saline	d) marshy	
	2)	is not a con	npatible solute.			
		a) proline		b) glycine-betai	n	
		c) sorbitol		d) malic acid		
	3)	Methyl salicylate production	on is an indicator of	sti	ress.	
		a) biotic		b) heavy metal		
		c) high temperature		d) water		
	4)	UV radiations cause				
		a) DNA damage		b) anthocyanin	production	
		c) thymine dimer formation	n	d) all of these		
	5)	Annoxia can be experience	ed by roots of plants	under	condition.	
		a) saline soil		b) acidic soil		
		c) water logged		d) low temperat	ure	рто
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6)	Higher concentration of	in the at	mosphere cause	es acid rain.
	a) NO ₂ &O ₃	b) SO ₂ &0 ₃	c) NO x&SO ₂	d) $CO_2 \& SO_2$
7)	proteins w	vere originally disco	vered in fruit fly.	
	a) Antifreeze		b) LEA	
	c) Heat-shock		d) None of thes	Se
8)	Develoment of aerenchyr	na in the roots is th	e characteristic	of some plants
	tolerant to	Stress.		
	a) water		b) salinity	
	c) low temperature		d) flooding	
9)	Free oxygen radicals are _			
	a) Antioxidants		b) ROS	
	c) Scavengers		d) Reductants	
10)	Air pollutants mainly enter	through		
	a) stomata	b) cuticle	c) epidermis	d) lenticels
11)	During water stress,	helps in rec	lucing temperatu	re.
	a) GA	b) IAA	c) ABA	d) IBA
12)	are the sa	It tolerant crops.		
	a) maize & bean		b) cotton & bar	ley
	c) onion & citrus		d) sugarbeet &	datepalm
13)	Congress grass produces	an allelochemical k	nown as	
	a) solanin		b) parthenin	
	c) histidine		d) arginine	

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14)	As a result of Green House effect, there will be	
	a) increase in atm. humidity	
	b) increase in temperature	
	c) decrease in CO_2 concentration	
	d) increase in SO_2 concentration	
	xplain biotic stress tolerance mechanism in plants with AR.	n reference to HR and 14
III. Gi	ive an account of effect of air pollutants on plant metabo	lism studied by you. 14
IV. W	rite an essay on Allelopathy and Plants.	14
V. De	escribe in brief :	
a)	Effects of water stress on plant metabolism.	7
b)	Structural adaptations in xerophytes in response to	water stress. 7
VI. G	ive an account of :	
a)	Reactive oxygen species in plants and their origin.	7
b)	Antioxidants in plants and their role.	7
VII. W	/rite short notes on any three :	14
a)	Efffects of UV radiations on plants	
b)	Types od salinity and reclamation of saline soils	
c)	Effects of flood and tolerance mechanism in plants	
d)	Impact of elevated CO ₂ concentration on plants.	

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Seat	
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M.Sc. – II (Semester IV) Examination, 2015 BOTANY (Paper – XVI) Crop Physiology

Day ar	nd Date : Thursday	, 23-4-2015		Max. Marks	: 70
Time :	3.00 p.m. to 6.00 J	o.m.			
In	iii) At iv) At	uestion no. 1 is co i tempt any two qu tempt any two qu			
1. Re	ewrite the following	g sentences by cho	oosing correct alternat	ive.	14
1)	Which of the follo	wing is not examp	le of organic fertilizer	?	
	a) Compost		b) Green manures		
	c) Blood meal		d) Urea		
2)	All cytokinins are				
	a) acidic		b) amino purines		
	c) phenol		d) glucosides		
3)	Which of the follo	wing elements cor	npose about 95% of p	lant?	
	a) Cu, Fe, Mn	b) C, H, O	c) Mg, Co, Ni	d) None of these	
4)	Photoperiodism is	s associated with f	ormation of		
	a) Florigen	b) Auxin	c) Cytokinin	d) Enzymes	
5)	Substances used	I to increase the fe	ertility of soil is called		
	a) Fertilizer		b) Transpiration		
	c) Both (a) and (I	0)	d) None of the above	e	

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6)	Weed is nothing b	out					
	a) Plant at wrong	places	b)	Unwanted plants			
	c) Both (a) and (b)	d)	None of these			
7)	Optimum growth	occurs in					
	a) Blue light	b) Red light	c)	White light	d)	Green light	
8)	The hormone wh	ich has positive eff	ect	on apical dominar	ice		
	a) Auxin	b) Cytokinin	c)	GA	d)	All of these	
9)	-	natter production c time is known as	or in	crease in dry weig	ght	of plant per unit	
	a) LAR	b) NAR	c)	Harvest index	d)	None of these	
10)	Mainly BGA is us	ed in the field of					
	a) Jowar	b) Bajara	c)	Rice	d)	Maize	
11)	Optimum temper	ature required for p	olar	nt growth is			
	a) 15 to 30 [°] C	b) 10 to 15 [°] C	c)	35 to 40 [°] C	d)	20 to 30 [°] C	
12)	Which of the follo	wing is not DNP ?					
	a) Radish	b) Cotton	c)	Cucumber	d)	Potato	
13)	Most frequently o	occurring organic a	acid	in fruit cells are			
	a) Tartaric Acid	b) Citric Acid	c)	Malic Acid	d)	Both (b) and (c)	
14)	Hormone used to	reduce stomatal a	ape	rture size is			
	a) ABA	b) Ethylene	c)	GA	d)	Auxin	
2. a)	Define the term w mode of action.	veedicide and expl	ain	about common we	edi	cides and their	7
b)	Give an account	of physiological ba	asis	of yield in cotton.			7
3. a)	What is manure ' soil.	? Discuss various	typ	es of manures and	l its	role in fertility of	7

b) What is Photoperiodism ? Give an account of classification of plants based on Photoperiodism.

4.	 a) What is translocation of solute ? Explain source and sink concept of translocation of solute and add note on factors affecting on it. 	7
	b) Write the contribution of research stations in Indian agriculture.	7
5.	Describe briefly :	
	a) Common weedicides and their mode of action.	5
	b) Nitrogen fixation in chick pea.	5
	c) Formulate of growth measurement and its analysis.	4
6.	Write on :	
	a) Vernalization.	5
	b) Brief idea of physiological basis of yield of cotton.	5
	c) Antitranspirants.	4
7.	Write short notes on any three of the following :	14
	a) BARC, Bombay	
	b) Role of florigen	
	c) Rhizobium as a fertilizer	
	d) Physiological basis of yield of wheat.	

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M.Sc. – I (Semester – I) Examination, 2015 BOTANY (New) Paper – IV : Tools & Techniques in Botany

Day and Date : Wednesday, 22-4-2015 Time : 11.00 a.m. t0 2.00 p.m. Max. Marks : 70

Instructions : i) Attempt totally *five* questions.

- ii) Question No. 1 is compulsory.
- iii) Attempt any two questions from Question No. 2 to 4.
- iv) Attempt **any two** questions from question No. **5** to **7**.
 - v) Figures to the **right** indicate **full** marks.

1.	Choose the correct alternative and	d rewrite the sentences.	14
	1) β radiations are emitted by		
	a) C ¹⁴	b) P ³²	
	c) S ³⁵	d) All of these	
	2) Chromosomes can be observed	d by technique.	
	a) root-squash preparation	b) smear preparation	
	c) O-banding	d) all of these	
	3) In fluorescence microscope, the	e radiations are passed through	
	a) diffraction grating	b) phase plate	
	c) annular diaphragm	d) excitation filter	
	4) A scatter diagram is a method of	f studying between two variables.	
	a) dispersion	b) correlation	
	c) regression	d) distribution	
	5) microscope was of he was awarded Noble Prize in	priginally developed by Zernike (1933) for which physics in 1953.	
	a) Fluorescence	b) SEM	
	c) Phase contrast	d) TEM	

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6)	For isolation of enzyme, buffers	are use	d because th	ey prevent change in _
	a) Enzyme concentration	o) Subs	strate concer	itration
	c) Enzyme structure	d) pH		
7)	The concentration of H ⁺ in pure	vater at	25°C is	
	a) 1×10^{-14M}	b) 1	× 10 ^{-7M}	
	c) 7×10^{-7M}	d) 7	× 10 ^{-14M}	
8)	permits to underst affect the values in the given da		ation due to	different factors which
	a) Standard deviation	o) Mea	n deviation	
	c) ANOVA	d) Coef	ficient of var	iation
9)	The standard units of radioactiv	y meas	urement is/a	re
	a) becquerel	o) millio	curie	
	c) microcurie	d) both	b) and c)	
10)	The solubilizers used in gel ele	rophore	esis are	
	a) SDS	o) CTA	В	
	c) B-mercaptoethanol	d) All of	f these	
11)	H. Svensson in Sweden develop of proteins.	d a techi	nique	_for the better resolution
	a) electrophoresis	o) gel e	lectrophores	is
	c) isoelectric focussing	d) fast p	orotein liquid	chromatography
12)	For isopycnic centrifugation,	i	s used.	
	a) sucrose	o) cesiu	um chloride	
	c) sephadex	d) starc	ch	
13)	Liquid scintillation counter is ex	emely ı	useful for qu	antifying
	a) alpha emitters	o) gam	ma emitters	
	c) soft beta emitters	d) all of	these	
14)	100 ppm GA solution contains		_ mg in 100 n	nl.
	a) 1000	o) 100		
	c) 10	d) 1		

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2.	a)	Give the information about computer software's used in Biology.	7
	b)	Explain the use of radioisotopes in Botany with suitable examples.	7
3.	a)	Discuss the principles of any five types of spectrophotometry studied	by you. 7
	b)	Enlist the applications of UV-VIS and fluorescence spectrophotomet	ry. 7
4.	a)	Explain the technique of column chromatography in brief.	7
	b)	Sketch a diagram of fluorescence microscope showing its construction	on. 7
5.	a)	Give an account of permanent slide preparation in Botany.	5
	b)	Describe various stains used in cytological preparations.	5
	c)	Which are the important herbaria in India ?	4
6.	a)	Define ultracentrifugation. Explain how it has been useful in molecular b	iology. 5
	b)	Describe any one radioactivity counting system.	5
	c)	Given an account of stationary and moving phases in any two types chromatography.	of 4
7.	Wı	rite notes on any three :	14
	a)	Banding technique	
	b)	Standard units of expression	
	c)	Radioactive emissions	

d) Chi-square test.

SLR-MP – 96

Seat	
No.	

M.Sc. – I (Semester – II) Examination, 2015 BOTANY (New) (Paper No. – V) Biology and Diversity of Gymnosperms and Palaeobotany

Day and Date : Thursday, 16-4-2015

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

Total Marks : 70

Instructions: *i*) Attempt totally *five* questions.

- *ii)* Question No. **1** is **compulsory**.
- iii) Attempt any two questions from Question No. 2 to 4.
- iv) Attempt any two questions from Question No. 5 to 7.
- v) Figures to the **right** indicate **full** marks.

1. Choose the correct answer from given alternatives :

1)	The gymnosperm h a) <i>Ephedra</i>	aving fan shaped l b) <i>Ginkgo</i>	leaf is c) <i>Zamia</i>	d) <i>Cupressus</i>
2)	Tertiary spiral thick	ening in the trache	eids is observed in	
	a) <i>Ephedra</i>	b) <i>Taxus</i>	c) <i>Cycas</i>	d) <i>Cupressus</i>
3)	The stem and seed			•
	a) <i>Ginkgo</i>	b) <i>Ephedra</i>	c) <i>Cycas</i>	d) <i>Zamia</i>
4)	Exactly circular bor	dered pits are obs	erved in	
	a) <i>Araucaria</i>	b) <i>Cupressus</i>	c) <i>Ephedra</i>	d) Podocarpus
5)	Long form of R.L.S.	. is		
	a) Radial Longitudi	nal Section	b) Reverse Longi	tudinal Section
	c) Regional Length	wise Section	d) Radius Length	Section

6)	The medullary rays containing starch are known as rays.			known as		medullary
	a) Linear		b)	Pitted		
	c) Fusiform		d)	None of the abo	ove	
7)	An alkaloid obtained	d from	_is	used in ovarian	cai	ncer.
	a) <i>Ephedra</i>	b) <i>Cupressus</i>	c)	Taxus	d)	Ginkgo
8)	Herbaceous male c	ones are present i	n			
	a) <i>Cupressus</i>		b)	Welwitschia		
	c) <i>Ephedra</i>		d)	Zamia		
9)	The order lepidoder	ndrale was first intr	odu	iced by		
	a) Arnold	b) Panell	c)	Sternberg	d)	Andrews
10)	is havir	ng a single larger me	ega	spore and three s	sma	aller undeveloped
	spores at the apex.					
	a) Lepidostrobus fo					
	b) Lepidostrobu sbi					
	c) Lepidostrobus d					
	d) Lepidostrobus ve	eithemians				
11)	is ha	aving crescentshap	be n	negaspores		
	a) <i>Mazocarpon</i>		b)	Lepidocarpon		
	c) <i>Lepidostrobus</i>		d)	Sigillariostrobu	IS	
12)	The first account of	Psilophytales was	s giv	/en by		
	a) <i>Mackie</i>		b)	Kidston and La	ng	
	c) Sir William Daws	son	d)	Krausel and Hi	rma	ar
13)	is the ge	nus of living Isoeta	cec	ous plants.		
	a) <i>Pleuromia</i>		b)	Sigillaria		
	c) Nothorstiana		d)	Stylites		
14)	Mazocarpon is gene	eric name of				
	a) Sigillarian cone		b)	Lepidophyllum		
	c) Selaginella cone)	d)	Psilophyton co	ne	

	-3-	SLR-MP – 96
2.	a) Reproductive organs of Ephedra.	7
	b) Economic importance of Conifers.	7
3.	a) Salient features of Taxales.	7
	b) Write briefly about the Paleaobotanical	technique. 7
4.	a) Shoot dimorphism of Ginkgo.	7
	b) Morphology and anatomy of Rhynia ma	jor. 7
5.	Describe :	
	a) Male cone of <i>Zamia</i> .	5
	b) Female cone of Araucaria.	5
	c) Microsporophyll of Ginkgo.	4
6.	Explain :	
	a) Stellar patterns in the genus Medullosa	. 5
	b) Give important features of Psilophytale	s. 5
	c) Glossopteris flora.	4
7.	Write notes on any three :	14
	a) Ephidrine	
	b) Pycnoxylic wood	
	c) Calamostychys	
	d) Megasporophyll of Zamia.	

SLR-MP – 97

Seat No.

M.Sc. – I (Semester – II) Examination, 2015 BOTANY (Paper – VI) (New) Taxonomy of Angiosperms

Day and Date : Saturday, 18-4-2015

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

Instructions : *i*) Attempt totally *five* questions.

- ii) Question no. **1** is **compulsory** (Section **I**)
- iii) Attempt any two questions from question no. 2 to 4 (Section II).
- iv) Attempt any two questions from question No. 5 to 7 (Section III).
- v) Figures to the right indicate full marks.

SECTION-I

1. Rewrite the following sentences by choosing correct alternative.

1) ______ seeds are primitive in angiosperms.

- a) Fleshy b) Endospermic
- c) Dry d) Non-endospermic
- 2) Find out character not suitable for Orchidaceae
 - a) Plants are aquatic herbs
 - b) Generally flowers are hermaphrodite
 - c) One of the segment of inner whorl is modified and is known as lip or labellum
 - d) They vary very much in their habit
- 3) Flora of Osmanabad is the work of
 - a) V.N. Naik b) H. Santapau
 - c) S.R. Yadav d) M.r. Almeida
- 4) In Liliopsida the ______ included chiefly aquatic members.
 - a) Alismatidae b) Hamamelidae
 - c) Commelinaceae d) Lilidae

14

Max. Marks: 70

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-2-

5)	is the newly described taxon from Solapur district of Maharashtra India by Gaikwad et al, in 2014.		
	a) Vigna yadavii	b) Crinum solapurense	
	c) Astrea lobata	d) Dremea congesta	
6)	In vitro clonal propagation method is	s commonly known as	
	a) Micropropagation	b) Plant tissue culture	
	c) Somatic embryogenesis	d) Organogenesis	
7)	Cleistogamous flowers in seen in		
	a) Annonaceae	b) Commelinaceae	
	c) Orchidaceae	d) Malvaceae	
8)		the rank variety as Ficus benghalensis be the correct citation for such taxon ?	
	a) Ficus Krishnae C. DC. var. Beng	halensis (L.) Corner	
	b) Ficus Benghalensis L. var. Krish	nae (C.DC.) Corner	
	c) Ficus Benghalensis L. var. Krish	nae (L.) Corner	
	d) Ficus Benghalensis Corner, var.	Krishnae (L.) C. DC.	
9)	Panicle is included int	pe of inflorescence.	
	a) Spadix b) Racemose	c) Cymose d) Umbel	
10)	Trinucleate pollen grain is character	ristic of the members of	
	a) Ranales b) Rosales	c) Malvales d) None of these	
11)	The largest family in India is		
	a) Leguminosae	b) Poaceae	
	c) Orchidaceae	d) Urticaceae	
12)	In Ranunculaceous type of stomata		
	a) Specialized subsidiary cells	b) Ordinary subsidiary cells	
10)		d) Ordinary epidermal cells	
13)	The alternative name of family Cruc		
4 4)	a) Poaceae b) Moraceae	c) Brassicaceae d) Fabaceae	
14)	In Cronquist's system of classificati		
	a) Magnoliopsida	b) Liliopsida	
	c) Lilidae	d) Dillenidae	

SECTION-II

Give an account of evolutionary trends in inflorescence.	7
Write in brief principles of ICBN.	7
What is typification ? Describe various nomenclatural types.	7
Discuss evolutionary trends in 'Habitat and Growth habit'.	7
Merits of Cronquist's system of classification.	7
Discuss salient features and morphological diversity of family Sapotaceae.	7
SECTION - III	
Evolutionary trends in stomatal apparatus.	5
Omega taxonomy.	5
Citations of Author's name.	4
Effective and valid publication.	5
Evolutionary trends in seed.	5
Systematic position of Magnoliaceae.	4
rite notes on any three : Salient features of Polygoniaceae. Salient features of Tiliaceae. Salient features of Myrtaceae. Functions of taxonomy.	14
	Write in brief principles of ICBN. What is typification ? Describe various nomenclatural types. Discuss evolutionary trends in 'Habitat and Growth habit'. Merits of Cronquist's system of classification. Discuss salient features and morphological diversity of family Sapotaceae. SECTION – III Evolutionary trends in stomatal apparatus. Omega taxonomy. Citations of Author's name. Effective and valid publication. Evolutionary trends in seed. Systematic position of Magnoliaceae. rite notes on any three : Salient features of Polygoniaceae. Salient features of Tiliaceae. Salient features of Myrtaceae.

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SLR-MP – 98

Seat	
No.	

M.Sc. – I (Semester – II) Examination, 2015 BOTANY (New) (Paper – VII) Cell and Molecular Biology of Plants

Day and Date: Tuesday, 21-4-2015 Time: 11.00 a.m. to 2.00 p.m. Max. Marks: 70

Instructions : i) Attempt totally *five* questions.

- *ii)* Question No. *I* is *compulsory*.
- iii) Attempt any two questions from question No. II to IV.
- iv) Attempt any two questions from question No. V to VII.
- v) Figures to the **right** indicate **full** marks.

I. a) Choose the correct answer.

- 1) Membrane phospholipids include _____
 - a) Cholesterol b) Plasmologens
 - c) Sphingolipids d) Triglycerides

2) In agarose gel electrophoresis DNA moves from ______ electrode.

- a) ve to + ve b) ve to ve
- c) + ve to ve d) + ve to higher + ve
- 3) In chloroplast the protons are translocated across the thylakoid membrane and accumulate inside the _____
 - a) grana b) thylakoid sac
 - c) stroma d) intergrana

4) Maintenance of cell turgor is an important function of _____

a) Cell wall b) Vacuole c) ER d) Nucleus

7

	5) Each type of the cytoskeletal filament is constructed from smallersubunits.		
		a) Nucleic acid b) Protein	c) Lipoprotein d) Sugar
	6)	Terminology of introns and exons is	given by
		a) Chaw et al	b) Walter Gilbert
		c) Bergetet al	d) Sharp and Roberts
	7)	Extremely large DNA molecules are	e resolved by
		a) PAGE	b) Agarose gel electrophoresis
		c) PFGE	d) None of the above
b)	Fil	l in blanks.	
	1)	are small granular o	r filamentous bodies which are called
		the powerhouse of the cell.	
	2)	Genetic code was deciphered throug	h the experiments of scientist
	3) facilitates rapid transport of water across the plasma		
	membrane.		
	4)	Transport of metabolites across th	e membrane along the concentration
		gradient and without the use of a ca	rrier molecule is called
	5)	Filaments found in cells are of two ty	pes viz. microfilaments and
	6)	The phenomenon of programmed c	ell death is called as
	7)	is an initiation codon.	
II. Wr	ite	in short about :	
a)	Uľ	tra structure of plasma membrane.	
b)	Pla	asmodesmata.	

		-3-	SLR-MP – 98
III.	Discuss in short about :		
	a) Ultra structure of chlorop	plast.	7
	b) Biogenesis of mitochond	ria.	7
IV.	Explain briefly :		
	a) Structure and function of	tonoplast.	7
	b) Satellite DNA.		7
V.	Comment upon :		
	a) Functions of genetic code	е.	5
	b) Strutcture of microtubule	S.	5
	c) Endoplasmic reticulum.		4
VI.	Comment upon :		
	a) FISH		5
	b) Cyclins		5
	c) Cell plate formation and o	cytokinesis.	4
VII.	Write notes on any three of	the following.	14
	a) Confocal microscopy.		
	b) Enzyme regulation.		
	c) GISH		
	d) Kinetics.		

SLR-MP – 98

Seat	
No.	

M.Sc. – I (Semester – II) Examination, 2015 BOTANY (New) (Paper – VII) Cell and Molecular Biology of Plants

Day and Date: Tuesday, 21-4-2015 Time: 11.00 a.m. to 2.00 p.m. Max. Marks: 70

Instructions : i) Attempt totally *five* questions.

- *ii)* Question No. *I* is *compulsory*.
- iii) Attempt any two questions from question No. II to IV.
- iv) Attempt any two questions from question No. V to VII.
- v) Figures to the **right** indicate **full** marks.

I. a) Choose the correct answer.

- 1) Membrane phospholipids include _____
 - a) Cholesterol b) Plasmologens
 - c) Sphingolipids d) Triglycerides

2) In agarose gel electrophoresis DNA moves from ______ electrode.

- a) ve to + ve b) ve to ve
- c) + ve to ve d) + ve to higher + ve
- 3) In chloroplast the protons are translocated across the thylakoid membrane and accumulate inside the _____
 - a) grana b) thylakoid sac
 - c) stroma d) intergrana

4) Maintenance of cell turgor is an important function of _____

a) Cell wall b) Vacuole c) ER d) Nucleus

7

	5) Each type of the cytoskeletal filament is constructed from smallersubunits.		
		a) Nucleic acid b) Protein	c) Lipoprotein d) Sugar
	6)	Terminology of introns and exons is	given by
		a) Chaw et al	b) Walter Gilbert
		c) Bergetet al	d) Sharp and Roberts
	7)	Extremely large DNA molecules are	e resolved by
		a) PAGE	b) Agarose gel electrophoresis
		c) PFGE	d) None of the above
b)	Fil	l in blanks.	
	1)	are small granular o	r filamentous bodies which are called
		the powerhouse of the cell.	
	2)	Genetic code was deciphered throug	h the experiments of scientist
	3) facilitates rapid transport of water across the plasma		
	membrane.		
	4)	Transport of metabolites across th	e membrane along the concentration
		gradient and without the use of a ca	rrier molecule is called
	5)	Filaments found in cells are of two ty	pes viz. microfilaments and
	6)	The phenomenon of programmed c	ell death is called as
	7)	is an initiation codon.	
II. Wr	ite	in short about :	
a)	Uľ	tra structure of plasma membrane.	
b)	Pla	asmodesmata.	

		-3-	SLR-MP – 98
III.	Discuss in short about :		
	a) Ultra structure of chlorop	plast.	7
	b) Biogenesis of mitochond	ria.	7
IV.	Explain briefly :		
	a) Structure and function of	tonoplast.	7
	b) Satellite DNA.		7
V.	Comment upon :		
	a) Functions of genetic code	е.	5
	b) Strutcture of microtubule	S.	5
	c) Endoplasmic reticulum.		4
VI.	Comment upon :		
	a) FISH		5
	b) Cyclins		5
	c) Cell plate formation and o	cytokinesis.	4
VII.	Write notes on any three of	the following.	14
	a) Confocal microscopy.		
	b) Enzyme regulation.		
	c) GISH		
	d) Kinetics.		

Seat No.

M.Sc. I (Semester - II) Examination, 2015 **BOTANY (Paper – VIII)** Advances in Plant Pathology (New)

Day and Date: Thursday, 23-4-2015 Time : 11.00 a.m. to 2.00 p.m.

Instructions: i) Attempt totally five questions.

- ii) Question No. 1 is compulsory.
- iii) Attempt any two questions from question No 2 to 4.
- iv) Attempt any two questions from question No. 5 to 7.

v) Figures to the right indicate full marks.

1. Select the correct answer and rewrite the sentences.

1)	Disease triangle is for	med by	factors.	
	a) host		b) pathogen	
	c) environment		d) all the above	
2)	Phyllosphere is the	S	urface and immed	liate adjacent area.
	a) leaf	b) stem	c) flower	d) root
3)	Leaf blight is	symptom.		
	a) hypertrophy		b) necrosis	
	c) hypoplasia		d) all the above	
4)	Crling, twisting and pu	uckering are the s	symptoms of	
	a) over development	t	b) necrosis	
	c) under developmer	nt	d) all the above	
5)	Bacteria mostly enter	the host through		
	a) cuticle	b) directly	c) stomata	d) epidermal hair
6)	Wind borne diseases	can be controlled	lby	
	a) seed treatment		b) foliar spray	
	c) crop rotation		d) all the above	D.
				Ρ.

SLR-MP – 99

Max. Marks: 70

14

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SLR-N	/IP – 99	-2-				
7)	MLBs are	microbes.				
	a) unicellular		b)	prokaryotic		
	c) non flagellated		d)	all the above		
8)	Striga lutea is	parasite.				
	a) total root	b) total stem	c)	partial root	d) partial stem	
9)	White rust is the	disea	se.			
	a) fungal		b)	bacterial		
	c) viral		d)	nematode		
10) are secondary source of inoculum of powdery mildew						
	a) Zoospores		b)	Ascospores		
	c) Conidia		d)	Chlamydospo	ores	
11)	Cercospora sp. causes disease in many host plants.					
	a) fruit rot	b) smut	c)	rust	d) leaf spot	
12)	Root knot disease is caused by					
	a) <i>Fusarium</i> sp		b)	<i>Aspergillus</i> s	р	
	c) <i>Meloidogyne</i> sp.		d)	Pseudomona	<i>as</i> sp.	
13)	Disease resistance can be increased by synthesizing by the					
	host plants.		L)	Dhanalian		
	a) IAA			Phenolics		
	c) Cytokinins		,	All the above		
14)	Club roof of crucifer i	s caused by		-	of a fungus.	
	a) <i>Fusarium</i>			Aspergillus		
	c) Plasmodiophora		d)	Verticillium		
2. a)	2. a) Classify the plant diseases based on symptoms.					
b)	b) Add a note on genetic resistance of crop plants.					
3. a)	Classify MLBs and write the general characters.					
b)) Explain the role of soil pH and nutrition on disease development.					7

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4.	a) Describe the mechanism of infection by pathogen.	7
	b) Explain the morphological defense mechanism of host plant against pathogens.	7
5.	a) Write the symptoms and control measures of little leaf of Brinjal.	5
	b) Add a note on symptoms and control of rust disease.	5
	c) Control of seed borne pathogens.	4
6.	a) Write the symptoms, cause and control measures of downy mildew of grape.	5
	b) Add a note on the host range and symptoms of smut diseases.	5
	c) BMV-disease-symptoms and control.	4
7.	Write short notes on any three of the followings.	14
	a) Chemical control of plant disease.	
	b) Plant disease forecasting	
	c) Powdery mildew disease-symptoms and control measures.	

-3-

d) Control measures of root parasites.