MAHARASHTRA AGRICULTURAL UNIVERSITIES EXAMINATION BOARD, PUNE
SEMESTER END EXAMINATION

B.Sc. (Hons.) Agriculture

Semester	: **II (New)**	**Term**	: **II**	**Academic Year**	: **2017-18**
Course No.	: PATH 121	**Title**	: **Fundamentals of Plant Pathology**		
Credits	: 3 (2+1)				
Day & Date	: Monday, 07.05.2018	**Time**	: 09.00 to 12.00	**Total Marks**	: **80**

Note :
1. Solve **ANY EIGHT** questions from **SECTION "A".**
2. All questions from **SECTION "B"** are compulsory.
3. All questions carry equal marks.
4. Draw neat diagrams wherever necessary.

SECTION "A"

Q.1 Describe general characteristics of fungi and plant viruses.

Q.2 Define Plant Pathology. State objectives of Plant Pathology and explain in brief the importance of plant diseases.

Q.3 Write in brief about modification of thallus and hyphal aggregations in fungi.

Q.4 Write short notes (Any Four).

a) Binomial system and nomenclature
b) Gametangial contact
c) Phanerogamic plant parasites
d) Signs and symptoms
e) Characters of phytonematodes
f) Antibiotics

Q.5 Enlist and describe the principles of plant disease management.

Q.6 Mention one important contribution of following scientists in the field of Plant Pathology.

a) B. B. Mudkur
b) P. A. Millardet
c) E. J. Butler
d) Anton de Bary
e) Adolf Mayer
f) J. C. Luthra
g) K. C. Mehta
h) N. A. Cobb

Q.7 Enlist the methods of reproduction in fungi and describe the methods of reproduction.

Q.8 State and describe the biotic and abiotic causes of plant diseases with one example of each.

Q.9 Explain the sexual spore fruits in fungi with suitable examples.

Q.10 Define fungicide and enlist major chemical groups of fungicides with suitable example.

(P.T.O.)

SECTION "B"

Q.11 State True or False.

1) Fungi are eukaryotic organisms.
2) Binary fission is the most common method of asexual reproduction in bacteria.
3) Nematodes are obligate parasites.
4) Study of algae is called mycology.
5) Powdery mildew is categorized under necrotic group of symptoms.
6) Only DNA is present in mycoplasma.
7) Mancozeb is a systemic fungicide.
8) Basidiospheres are sexual spores.

Q.12 Match the following pairs.

"A"	"B"
1) P. A. Micheli	a) Non motile spores
2) Powdery mildew	b) Cleistothecium
3) *Pseudomonas*	c) Oospores
4) Aplanospores	d) Hypoplasia
5) Ascospores	e) Basidiomycotina
6) Peronospora	f) Gram negative bacterium
7) Mosaic	g) *Nova Plantarum Genera*
8) Mushroom	h) Ectophytic mycelium

✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧ ✧

MAHARASHTRA A[illegible]ULTURAL UNIVERSITIES EXAMINATION BOARD

SEMESTER END EXAMINATION

B.Sc. (Agri.)

MODEL ANSWER PAPER

Semester	:	II (New)	Academic Year	:	2017-2018		
Course No	:	PATH-121	Title	:	Fundamentals of Plant Pathology		
Credits	:	2+1=3	Time	:		Total Marks	: 80
Day and Date							

Note: 1. Solve **ANY EIGHT** questions from **"SECTION A"**

2. All questions from **"SECTION B"** are compulsory.

3. All questions carry equal marks.

4. Draw neat labelled diagrams wherever necessary

SECTION A

Q.1. **Describe general characteristics of fungi and plant viruses.**

General characteristics of fungi :

Brief description about nutrition , thallus, cell wall, nuclear status, life cycle, sexuality , sporocarps, habitat and distribution of fungi is expected, **(Marks 4)**

General characteristics of viruses :

1.Sub microscopic infectious obligate parasites

2. can be seen only under electron microscope

3. They do not have metabolism of their own

4. They have nucleic acid, either DNA or RNA not both. **(Marks 4)**

Q.2. **Define Plant pathology, state objectives of Plant pathology and explain in brief, the importance of plant diseases.**

Definition of Plant pathology and 4 objectives of plant pathology. Brief description about crop losses due to plant diseases in the past is expected. **(Marks 4)**

Write in brief about modification of thallus and hyphal aggregations in fungi. **(4 Marks)**

Q.3. **Write in brief about modification of thallus and hyphal aggregations in fungi.**

Description about rhizoids , haustorium , appressorium, rhizomorph, sclerotium, stromata , fungal tissues is expected. **(One mark for each structure)**

Q.4. **Write short notes on (ANY FOUR) (2 marks for each short note)**

a) **1) Binomial system of nomenclature :** rules of nomenclature : name in two parts including genus and species name, both names should be underlined or italicized, citation of single authors name, two authors names , mentioning of different texa such as kingdom, division, class , oreder, family etc.

b) **2) Gametangial contact** : description about antheridium, oogonium or ascogonium , trichogyne, and examples of fungi in which this method is commonly observed with neat labelled diagram is expected.

c) **3) Phanerogamic plant parasites** : stem/root , complete/ partial plant parasites with examples

4) Signs and symptoms: difference with examples

5) Characters of phytonematodes : Important morphological characters characters of male and female nematodes

6) Antibiotics: definition, examples of microbes involved in production.

Enlist and describe the principles of plant disease management
1. Avoidance 2) Exclusion 3) eradication 4) Protection 5) Therapy
Brief description with appropriate examples

Q.5. **Enlist and describe the principles of plant disease management**
1) Avoidance 2) Exclusion 3) Eradication 4) Protection 5) Therapy 6) Resistance
Brief description of each is expected
(General description 2 marks and 1 mark for each principle)

Q.6. **Mention one important contribution of following scientists in field of Plant Pathology** **(1 mark each)**

i) B.B. Mudkur ii) P.A. Millardet iii) E. J. Butler iv) Anton de Bary v) Adolf Mayer vi) J.C. Luthra vii) K. C. Mehta viii) N.A. Cobb.
One important contribution of each scientist in the field of Plant Pathology.

Q.7. **Enlist the methods of reproduction in fungi and describe the methods of asexual reproduction.**
Methods of reproduction : **(Enlisting of methods 2 marks)**
Asexual method of reproduction in fungi
1. Budding
2. Fragmentation
3. binary fission
4. Production of asexual spores

(1.5 marks for each method)

Sexual method of reproduction in fungi
1. Planogametic copulation
2. Gametangial contact
3. Gametangial copulation
4. Spermatization
5. Somatogamy
6. Dikaryotization
7. Nuclear dissociation
8. Hybridization

Short description on asexual method of reproduction in fungi stated above is expected in next part of the question.

Q.8 State and describe the biotic and abiotic causes of plant diseases with one example of each.
Diseases caused by fungi, bacteria, viruses, mycoplasma, nematodes, protozoa, algae with the name of causal organism **(5 Marks)**
Abiotic diseases : Definition of abiotic diseases and examples of any 3 -4 diseases with cause **(3 Marks)**

Q.9	Explain the sexual spore fruits in fungi with suitable examples. Sexual spore fruits in Ascomycotina : Cleistothecium, Perithecium, apothecium, ascostroma with labelled diagram **(5 Marks)** Sexual spore fruits in Basidiomycotina: mushrooms, puff balls, brackets with example. **(3 Marks)**
Q.10.	Define fungicide and enlist major chemical groups of fungicides with suitable example. Definition **(1 mark)** and major groups: Copper fungicides, Sulphur fungicides, Dithiocarbamates , Heterocyclic Nitrogen Compounds, Dicarboximide Compounds, Orgonophosphorous Fungicides, Systemic fungicides with one example each. **(1 mark each) Any seven groups are expected .**

SECTION "B"

Q.11 State true or false

1	Fungi are eukaryotic organisms.	True
2	Binary fission is the most common method of asexual reproduction in bacteria.	True
3	Nematodes are obligate parasites.	True
4	Study of algae is called mycology.	False
5	Powdery mildew is categorized under necrotic group of symptoms.	True
6	Only DNA is present in mycoplasma	False
7	Mancozeb is a systemic fungicide.	False
8	Basidiospores are sexual spores	True

Q.12 Match the following pairs.

	A	B
1	P.A. Micheli	g) *Nova Plantarum Genera*
2	Powdery mildew	h) Ectophytic mycelium
3	*Pseudomonas*	f) Gram negative bacterium
4	Aplanospores	a) Non motile spores
5	Ascospores	b) Cleistothecium
6	Peronospora	c) Oospores
7	Mosaic	d) Hypoplasia
8	Mushroom	e) Basidiomycotina

Dr. P. G. Borkar
Assistant Professor,
Department of Plant Pathology
College of Agriculture, Dapoli

Dr. A.P. Suryawanshi
Head,
Department of Plant Pathology
College of Agriculture, Dapoli