DR. PANJABRAO DESHMUKH KRISHI VIDYAPEETH, AKOLA
SEMESTER END THEORY EXAMINATION
B.Sc. (Hons.) Agriculture

Semester: III (New) **Academic Year: 2021-22**
Course No. : PATH-232 **Title: Principles of Integrated Disease Management**
Credit: 2 (1+1) **Day & Date: 23.11.2021** **Time: Total**
Marks: 40

Note: 1. Solve ANY Four questions from SECTION"A"
2. Solve ANY Six questions from SECTION"B"
3. All questions from SECTION"C" are compulsory.
4. Send the PDF file of answer sheet to the email id of respective course teacher.

MODEL ANSWER
SECTION 'A'

(Write the answers in 4-5 sentences only. Each question carries 4 marks)

Q.1.	**Define Plant Disease. Write in detail about economic importance of plant diseases.**
Ans.	Def: Any malfunctioning of host cells and tissues that result from continuousirritation by a pathogenic agent or environmental factor and leads to development of symptoms OR Interaction between host, parasite andenvironment is called plant disease. **Economic Importance of Plant Disease:** Important Historical events in plant pathology, ancient literature in which plant diseases are mentioned, Irish Famine, Bengal Famine, spread and lossesdue to some important diseases.
Q.2.	**What do you mean by PRA? What are the different stages of PRA?**
Ans.	Define PRA. Enlist the Stages of PRA. 1. Initiation. 2. Pest Risk Assessment. Step 1: Pest categorization: Step 2: Assessment of probability of pest entry, establishment and spread: Step 3: Assessment of potential economic consequences resulting from pest entry, establishment and spread: 3. Pest Risk Management.
Q.3.	**What is diagnosis? Describe different steps involved in plant disease diagnosis.**
Ans.	Define: Diagnosis of plant disease is to identify the disease nature of illness/problem by examination of symptoms. Detection of plant disease is to determine the causal agent whether living or non-living by observation/noticing/recognition. Steps involve in diagnosis of plant disease A simple, 7-step plan for basic plant disease diagnosis follows. Step 1: Identify the affected plant. Step 2: Determine what diseases have been reported on plants being examined. Step 3: Compare the diseased plants healthy growing plants nearby (symptoms or signs). Step 4: Determine the distribution of the disease within a field. Step 5: Review the cropping history of the affected area. Step 6: Examined the roots. Step 7: Inspect all parts of the plant.
Q.4.	**Comment on safety issues or guidelines in pesticide uses.**

	Discuss the following points in relation to safety issues taken during handling of pesticides - 1. The label, 2. Storage and transport, 3. Disposal, 4. General hygiene, 5. Protective clothing (Spraying indoors, Mixing, Impregnation of fabrics, maintenance), 6. Safe techniques
Q.5.	**What is integrated plant disease management? Describe IPDM strategy adopted for rice crop.**
Ans.	IPDM involve management systems which utilize compatible combinations of all the available techniques to keep the pathogen population below the economic threshold level (ETL) which would not result in economically unacceptable damage to the crop. **IPDM strategy in rice:** 1. Selection of healthy seed 2. Selection of resistant cultivars 3. Removal and destruction of collateral hosts 4. Balanced fertilization 5. Rouging of diseased plants 6. Seed treatment with carbendazim or tricyclazole at 2g/Kg seed application of carbendazim@0.1% or Tricyclazole@0.06% for the management of blast. 8. Need based foliar application of validamycin for the management of sheath blight. 9. Soil application of carbofuran granules or foliar spray of any systemic fungicide is followed to cage insect vectors, thereby decreasing the spread of viral diseases.

SECTION "B"

(Write the answers in one sentence only. Each question carries 2 marks)

Q.6. Fill in the blanks (Any Six)

1. A cell of plants cultured in special nutrient medium and whole plants regenerated from cultured cells in vitro is called **Tissue Culture**

2. The commercial fungal biocontrol agent used in plant disease management is ***Trichoderma spp.***

3. **Plant Disease** is any abnormal changes in the physiological processes which disturb the normal activity of plant organ.

4. The plant disease responsible for Irish Famine was **Brown spot of rice.**

5. RT-PCR is used for **detection or identification highly sensitive pathogens.**

6. NPPO stands for **National Plant Protection Organization**

7. IPPC stands for **International Plant Protection Convention.**

SECTION "C"

(Choose the correct option. Each question carry 1 mark)

Q. 7. Choose the correct Answer.

1.	_____ is potent biocontrol agent used against most of the soil borne pathogens.	
	a. Alternaria sp.	***b. Trichoderma sp***
	c. Rhizopus sp.	*d. Curvularia sp.*
2.	Recommended concentration of Aureofungin for spraying is _____ ppm.	
	a. 50	b. 70
	c. 100	d. 30

3.	Plant quarantine laws were first enacted in _____.	
	a. Germany	b. Italy
	c. France	d. Japan
4.	The Irish famine is due to _____.	
	a. Coffee rust	b. Panama Wilt
	c. Powdery mildew	**d. Late blight of Potato**
5.	Mycelium grows on external surface of epidermal cells is an example of _____.	
	a. Powdery mildew pathogen	b. Wilt disease pathogens
	c. Smut disease pathogens	d. Leaf spot disease pathogens
6.	The Rhizoctonia sp. produced dormant structure namely _____	
	a. Spores	b. Spores fruit
	c. Chlamydospores	d. **Sclerotia**
7.	Leaf whorl application of fungicides is mostly used in ----------	
	a. Pomegranate	**b. banana**
	c. Mango	d. Citrus
8.	Any part of pathogen that can incite the infection.	
	a. Inoculum	b. Pathogen
	c. Inoculation	d. Propagule
9.	Parasitic habit of a one species upon another plant parasitic species.	
	a. Antibiosis	**b. hyperparasitism**
	c. Competition	d. None of these
10.	The technology to isolate particular gene from one organism/plant, insert them into the genome of another organism/plant and make them to express at right time	
	a. Tissue culture	c. Meristem culture
	b. **Genetic engineering**	d. Shoot tip culture
11.	Mycelium growing in vascular tissues of Plant	
	a. Intercellular mycelium	b. Intracellular mycelium
	c. Vascular mycelium	d. Ectophytic mycelium
12.	Bengal famine is caused by the fungus----------	
	a. Leaf spot of Rice	b. late blight of potato
	c. Downey mildew of maize	d. Panama wilt of banana