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

Semester	**:**	**IV (New)**	**Term**	**:**	II	**Academic Year**	**:**	2020-21
Course No.	**:**	**GPB-243**	**Title**	**:**	**Principles of Seed Technology**			
Credits	**:**	(1+2)						
Day & Date	**:**	**15/6/2021**	**Time**	**:**	1.00 Hr	**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

SECTION-A

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

Q. 1 **Define Seed Certification. Give the steps involved in seed certification.**

Seed certification is a legally sanctioned system for quality control of seed multiplication and production

Steps involved in seed certification:

1) Receipt and scrutiny of the application.
2) Verification of seed source, class and other requirements.
3) Field inspection should be conducted to see that fields are up to the prescribed field standard.
4) Post-harvest inspection, including processing and packing.
5) Seed sampling and testing to confirm that the seeds are up to the prescribed seed standards.
6) Grant of certificate, tagging and sealing.

(1 Mark for definition and ½ mark for each correct step maximum 3 marks)

Q. 2 **Describe the production of certified seed of sorghum varieties with following points**
[a] Seed rate [b] Isolation distance [c] Roughing [d] harvesting

[a]Seed rate: 12 to 15 kg/ha **[b] Isolation distance:** 100 m for other sorghum variety, 400m from Johnson grass and 200m from forage sorghum **[c] Rouging :** 2-3 rouging **[d] Harvesting:** Seeds attain maturity 40 – 45 days after 50% flowering with 25-28% seed moisture content. Harvest the earheads when the seed attain the characteristic yellow colour, as once over harvest

(1 mark for each point, maximum four marks)

Q. 3 **Differentiate between grain and seed**

	Grain		Seed
1	In case of grains, no consideration is given for the genetic purity, germination, moisture content and insect or disease damage etc.	1	Good seed have high germination percentage, genetic and physical purity, optimum moisture content and should be free from insects pests and pathogen.
2	Grain is used for human consumption	2	The seed is used for sowing
3	Such chemicals cannot be used for grain as these may be harmful for human beings	3	Seed is treated with toxic chemicals to protect from insects pests and micro-organisms
4	Knowledge regarding seed characteristics is not required	4	Seed has to be scientifically produced.

(At least four correct differences, 1 mark each, maximum 4 marks)

Q. 4 **What is seed storage? List out the general principles of seed storage.**

Seed storage is to maintain the seed in good physical and physiological condition from the time they are harvested until the time they are planted

General principles of seed storage

	1. Seed storage conditions should be dry and cool. 2. Effective storage pest control. 3. Proper sanitation in seed stores. 4. Before placing seeds into storage they should be dried to safe moisture limits, appropriate for the storage system. 5. Storing the high quality seed only, i. e. well cleaned, treated as well as of high germination with vigour and good pre - storage history. 6. Determine seed storage needs in view of period or length of storage time, and prevailing climate of the area during storage period. ***(1 Mark for definition and ½ mark for each correct principle of seed storage maximum 3 marks)***
Q. 5	**Give the important factors affecting seed marketing**
	Factors affecting seed marketing are: 1] Clear cut policy, 2] Availability of well identified and adopted varieties, 3] Adequate production, storage and testing facilities, 4] Official program 5] Demand forecast, 6] Market intelligence 7] Transport and storage arrangements 8] Nature of product 9] Quality of program 10] Publicity; and 11] Financial assistance ***(At least eight factors should be given, ½ marks each, maximum 4 marks)***
	SECTION-B
	(Write the answers in one sentence only. Each question carries 2 marks)
Q. 6	**Do as directed**
	a) Enlist major types of seed samples.
	Major types of seed samples: primary samples, composite samples, submitted samples; and working samples ***(½ mark for each correct type of sample, maximum 2 marks)***
	b) Write down various stages of field inspection.
	Stages of field inspection: [a] Inspection during pre- flowering / vegetative stage [b] Inspection during flowering stage [c] Inspection during post flowering and pre –harvesting stage [d] Inspection at time of harvesting ***(½ mark for each correct stage, maximum 2 marks)***
	c) Give any four important benefits of seed treatment
	Benefits of seed treatment : [1] Prevention of spread of plant disease [2] Seed treatments protect seed from seed born infections [3] Improve germinations [4] Provide protection from storage insect [5] Controlling soil insect ***(½ mark for each correct benefit, maximum 2 marks)***
	d) Give full forms of AOSCA and ISTA
	AOSCA - Association of official seed certifying agencies **ISTA -** International Seed Testing Association. ***(1 mark for each correct full form, maximum 2 marks)***
	e) List out the major causes of genetic deterioration of variety.
	Causes : [1] Developmental variations [2] Mechanical mixtures [3] Mutations [4] Natural crossing [5] Minor genetic variations [6] Selective influence of diseases [7] The technique of the plant breeder etc., ***(½ mark for each correct benefit, maximum 2 marks)***
	f) What do you mean by Volunteer plant ?
	Volunteer plant- Unwanted plants growing from seed that remain in the field from previous crop ***(correct definition 2 marks)***
	g) Give list of different seed classes
	Seed classes viz., nucleus seed, breeder seed, foundation seed, registered seed, certified seed; and truthful seed ***(½ mark for each correct seed class, maximum 2 marks)***
	SECTION-C
	(Choose the correct option. Each question carry 1 mark)
Q. 7	1) The characteristics of good quality seed involves _____
	a) Genetic purity; b) Physical purity
	c) Seed health; **d) All of these**

	2) The Steps for maintaining genetic purity has been suggested by _____			
	a)	Horne	b)	Kadam
	c)	**Hartman and Kestar**	d)	Khare and Bhale
	3) Care during seed production is essential for maintaining _____ of varieties/hybrids			
	a)	Genetical purity	b)	Physical purity
	c)	**Both genetical and physical purity**	d)	None of these
	4) Seed processing involves _____			
	a)	Seed drying	b)	Seed grading
	c)	Seed treatment	**d)**	**All of these**
	5) Initial Seed Test Report is valid for _____			
	a)	6 months	**b)**	**9 months**
	c)	12 months	d)	None of these
	6) Find out in-correct tag-colour and seed class combination			
	a)	Breeder seed – Golden yellow	b)	Certified seed – Azure blue
	c)	Foundation seed – White	**d)**	**All are correct**
	7) The Seed Inspector has powers of _____			
	a)	Investigation seed related complaint	b)	Search and Seizing of seed stock
	c)	Check seed stocks of seed seller	**d)**	**All of these**
	8) The isolation distance for certified seed production of cotton is _____			
	a)	**30 meters**	b)	50 meters
	c)	100 meters	d)	200 meters
	9) The goals of Seed technology includes _____			
	a)	Reasonable price of seed	b)	Rapid and Timely seed supply
	c)	Assured high quality seed	**d)**	**All of these**
	10) The isolation distance for foundation seed production of wheat is _____			
	a)	**3 meters**	b)	5 meters
	c)	10 meters	d)	20 meters
	11) Isolation can be maintained through _____			
	a)	Space /Spatial	b)	Sowing time/Temporal
	c)	Physical barrier	**d)**	**All of these**
	12) Pollen shedders are _____			
	a)	**Presence of B line plants in A line**	b)	Presence of A line plants in B line
	c)	Presence of R line plants in A and B line	d)	None of these

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Signature of the course teacher
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