

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

<b>Semester</b>	: III (New)	<b>Term: I</b>	Academic Year: 2020-2021
<b>Course No</b>	: HORT-232	<b>Title</b>	: Production technology for
<b>Credits</b>	: 2(1+1)		<b>Vegetables and Spices</b>
<b>Day &amp; Date</b>	: 25.01.2021	<b>Time: 12.00 to 13.00</b>	<b>Total Marks: 40</b>

	<b>SECTION “A”</b>	<b>16</b>
	(Write the answers in 4-5 sentences only. Each question carries 4 marks)	
<b>Q. 1</b>	<p><b>Write in brief about importance of vegetables in human nutrition</b></p> <p><b>Ans: -</b></p> <ul style="list-style-type: none"> <li>• The balanced diet contain adequate energy source, nutrients and vitamins, minerals, carbohydrates, fats, protein etc.</li> <li>• Vegetable are the reliable source for many dietary factors.</li> <li>• As vegetable contain many of the dietary factors like vitamins, minerals and amino acids they are considered as protective supplementary food.</li> <li>• They produce taste, increase appetite and produce fair amount of fibers.</li> <li>• They maintain good health and protect against degenerative diseases. They can neutralize the acids produced during digestion of proteins and fats.</li> <li>• Nutrients which are present in vegetables vary from crop to crop.</li> <li>• Peas and beans are enriched with proteins.</li> <li>• Root crops like Tapioca, Sweet potato and potato are well known for carbohydrates, calcium K, Fe are the important minerals which are lacking in cereals and these are available in abundant quantities in the vegetables like peas, beans, spinach and bhendi.</li> <li>• Amaranth, cabbage, beans contain large quantity of cellulose which aid indigestion. All the leaf and fruit vegetables possess the required quantities of vitamins.</li> </ul>	
<b>Q.2</b>	<p><b>Write about the cultivation of chilli in respect of seed rate, varieties, harvesting and yield per hectare</b></p> <p><b>Ans: Seed rate:</b> 1 to 2 kg seed is required to raise seedlings for hectare.</p> <ol style="list-style-type: none"> <li>1. <b>Varieties</b> : Pusa Jwala, NP-46 A, Punjab Lal, Solan Yellow, Agnirekha&lt; Tejaswini, Konkan Kirti, Byadgi, Sankeshwari-32</li> <li>2. <b>Harvesting:</b> Flowering begins 40 to 60 days after transplanting depending upon variety climate, nutritional status of plant. Roots starts ripening about 3 months after transplanting and picking may go on for 2 to 3 months. Commercial chilli variety yield 10 – 15 Q per ha. Dry pods in rainfed conditions and 15 to 20 Q per ha in irrigated conditions. Hybrids can give up to 400 to 500 Q per ha. Green chilliest can be stored for about 40 days at 0o C and 95 to 98 % RH. Dried chillies can be kept for a month in dry places well protected from insect pests.</li> <li>3. <b>Yield : Green chillis:</b> 10-12t/ha, <b>Dry(Red)</b> 1.8-2.5 t/ha</li> </ol>	

Q.3	<p><b>Write in brief about raising of vegetables seedlings in nursery</b></p> <p><b>Ans:</b></p> <ol style="list-style-type: none"> <li>1. After preparing fine tilth raised beds are prepared</li> <li>2. 1.2 meter width and 15 cm high with convenient length</li> <li>3. FYM or compost is added and line sowing is preferred so as to get proper germination and to facilitate weeding and hoeing and plant protection operations</li> <li>4. Irrigate as when required. Watering of beds is done uniformly and gently so as to avoid washing of the soil covering away from the bed</li> <li>5. A week before transplanting the seedlings may be exposed to full sunshine and the frequency of watering should be reduced, so that the seedlings become hardy to bear the shock of transplanting.</li> <li>6. 4-6 week old sturdy seedlings are used for transplanting</li> </ol>	
Q.4	<p><b>Write about the cultivation of black pepper in respect of propagation, planting, varieties and harvesting of the crop.</b></p> <p><b>Ans:</b></p> <ol style="list-style-type: none"> <li>1. <b>Propagation:</b> Pepper is invariably propagated vegetatively (stem cuttings). This is because of variation shown by the seedling progenies and also that the seedlings become diocious and come to bearing very late (7-8 years). Pepper is propagated by cuttings raised mainly for the runner shoots. Cuttings from lateral branches are seldom used, because reduced number of fruiting shoots, short living and bushy in habit.</li> <li>2. <b>Planting:</b> Well drained leveled land and hill slopes are suitable for growing pepper. When the grown on a sloppy land, the slopes facing south should be avoided and the lower half of north and north eastern slopes are preferred for planting. Pepper cuttings are generally planted with onset of South west monsoon. When pepper is grown as pure crop, pits of 0.5 m<sup>3</sup> are dug at a spacing of 2.5 x 2.5 m. Erythrina stem cuttings of 2 m length are its 2 year old seedlings are planted on receipt of early monsoon showers.</li> <li>3. <b>Varieties :</b> Panniyur-1, Panniyur-2, subhakra, Srikara, panchami, Pournami</li> </ol> <p><b>Harvesting of crop :</b></p> <ul style="list-style-type: none"> <li>• Stage of harvesting depends upon the kind of pepper To be made.</li> <li>• For black pepper, fully matured berries are harvested when any one berry in cluster shows Scarlet red color.</li> <li>• For white pepper, ripened fruits are harvested.</li> </ul>	
Q.5	<p><b>Write about the cultivation of onion in respect of soil and climate, improved varieties, seed rate and harvesting of the crop</b></p> <p><b>Ans:</b></p> <ol style="list-style-type: none"> <li>1. <b>Soil and climate: soil-</b> cultivated on wide range of soils. Sandy loam to silt loam is supposed to best. Soil should be rich in humus, well drained and friable optimum pH 5.8-6.5  <b>Climate:</b> requires cool weather during early development of bulb and stalk. Dry atmosphere for maturation of bulb and seed. The optimum temperature is 13-24 °C for vegetative growth and 16-21 °C for bulb formation</li> <li>2. <b>Improved varieties:</b> Pusa Red, Patna Red, N-25, Arka Pitambar, A. Bindu,</li> </ol>	

	<p>P. Madhavi, N-2 4-1, Baswant 780, Phule Suvarna, Arka Niketan, Arka Pragati, Arka Kirtiman, Arka lalima, Arka Kalyan</p> <p><b>3. Seed rate:</b> seed rate 8-10 kg/ha.</p> <p><b>Harvesting of the crop:</b></p> <ul style="list-style-type: none"> <li>Onion is ready for harvest in 3-5 months after transplanting depending on variety.</li> <li>Harvesting is done by pulling out plants when tops are drooping but still green. During hot days when soil is hard, bulbs are pulled out with a hand-hoe.</li> </ul>	
--	---	--

## Section B

**Write the answer in one sentence**

	<b>Define the following terms</b>
A	<p>Where the institute of spices research is located?</p> <p><b>Ans: Kozhikode, Kerala</b></p>
B	<p>Name the pungent principle present in garlic</p> <p><b>Ans: Alliin / Allicin is pungent principle present in garlic</b></p>
C	<p>Name of the nutmeg varieties released by Dr. BSKKV, Dapoli</p> <p><b>Ans: Kokan sugandha , Kokan Swad, Kokan Shrimanthi</b></p>
D	<p>What is mataxenia?</p> <p><b>Ans: It is the effect of pollen grains on the taste &amp; fruit wall (Date Palm )</b></p>
E	<p>Name the anti sterility vitamin</p> <p><b>Ans: Vitamin "E" is anti sterility vitamin</b></p>
F	<p>Write the edible part of cinnamon</p> <p><b>Ans: Inner bark of the cinnamon tree is edible part</b></p>
G	<p>Who is the king of spices?</p> <p><b>Ans: Black Pepper is the king of spices</b></p>

## Section c

<b>1. For distant transportation, tomato fruit are picked at - <u>Mature green stage</u></b>	
a. Immature green stage	b. <b>Mature green stage</b>
c. Turning stage	d. Red ripe stage
<b>2. Brinjal borne <u>4</u> types of flower on the basis of length of style</b>	
a. <b>4</b>	b. 5
c. 3	d. 6
<b>3. Botanical name of chilli is... <u>Capsicum annuum</u></b>	
a. Capsicum annum	b. Capsicum anum
c. <b>Capsicum annuum</b>	d. Capsicomannuum
<b>4. Pungency in onion is due to... <u>Allyl Propyl Disulphide</u></b>	
a. Diallydisulphide	b. <b>Allyl Propyl Disulphide</b>
c. capsaicin	d. alkaloids
<b>5. okra fruit are excellent source of = <u>magnesium</u></b>	
a. calcium	b. <b>magnesium</b>
c. manganese	d. iodine
<b>6. PusaBedana is the seedless variety of... <u>Watermelon</u></b>	
a. Muskmelon	b. <b>Watermelon</b>
c. Sponge gourd	d. Round melon
<b>7. The yellow pigment present in rhizome of turmeric is = <u>Curcumin</u></b>	
a. <b>Curcumin</b>	b. Capsicin
c. Capsanthin	c. Charam
<b>8. Part of commerce in clove is = <u>Unopened flower bud</u></b>	
a. Leaves	b. <b>Unopened flower bud</b>
c. Fruit	d. Aromatic bark
<b>9. Cinnamon belongs to family = <u>Lauraceae</u></b>	
a. Anacardiaceae	b. Mysitiaceae
c. <b>Lauraceae</b>	d. Leguminaceae
<b>10. Indian institute of vegetables research is located at = <u>Varanasi</u></b>	
a. New Delhi	b. <b>Varanasi</b>
c. Ludhiyana	d. Bhopal
<b>11. Blossom end rot is due to the deficiency of = <u>Calcium</u></b>	
a. Boron	b. <b>Calcium</b>
c. Magnesium	d. Iron
<b>12. PusaKomal is a variety of = <u>Cowpea</u></b>	
a. French bean	b. Cluster bean
c. <b>Cowpea</b>	d. Sponge gourd