SECTION - 4

Q1

Ans Puzzolana :- It is finely ground siliceous material which by itself alone that passes any cementing property but in presence of water it reacts with calcium hydroxide i.e, lime at normal condition and form compound of low solubility having cementation properties.

Type of Puzzolana:

1. Natural Puzzolana:

(i) It occurs as ~~nat~~ natural material as - volcanic tuffs, pumicite / diatomaceous earth, shales.

(ii) Natural clay and shales before used are required to be calcined at about 425°C to 1100°C to make them active puzzolana.

2. Artificial Puzzolana:

(i) It is produced as by products for example fly ash, surkhi etc.

(ii) The ~~chemi~~ chamical composition and physical requirement required for a suitable puzzolana material are:

Silica + Alumina + Iron oxide > 70% Silica alone > 40%, Calcium oxide < 10%, Magnesium oxide < 3%

B. Puzzolana Materials: There are various type as follo

1. Fly Ash:

(i) Fly ash is finely divided residue produced in large quantities at various thermal power plant in India.

(ii) It is a puzzolana material which consist of small spheres of glassy phase of complex chemical composition.

2. Surkhi:

(i) Calcined clay puzzolana is manufactured by grinding the brick beat in the grinding mills until an impulpable powder is obtained. This puzzolana is known as surkhi.

(ii) This material was very much used in India for economic construction work.

(iii) It is used only as a replacement to aggregate than that to cement in present trend for light weight.

3. Rice Husk Ash:

(i) The composition of agricultural residues volatizes the organic matter and a silica-rich ash is produced.

(ii) Rice husk ash when mixed with lime, give black lemon

(iii) Rice husk ash cement containing not more than 20% of lime sugar refineries.

* Sketches of timber Defect :-

1. Defects due to Abnormal Growth:

These effect occured during the growth of the tree itself. Following type of defect come in this category:

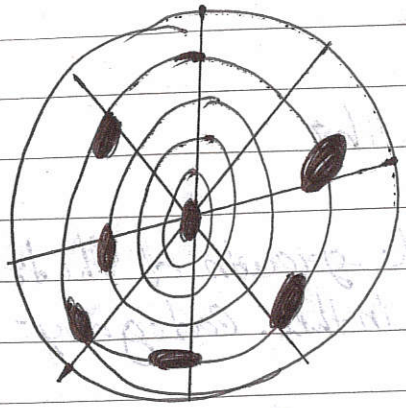
i. Knot : Knots in any timber result from cutting the tree across a branch or limbs embedded in tree. When a branch or limb of a tree is cut, it decies and form Knots.

(ii) Druiness : There are white spots occur due to assess of fungi through a broken branch. It occur due to early decay of wood.

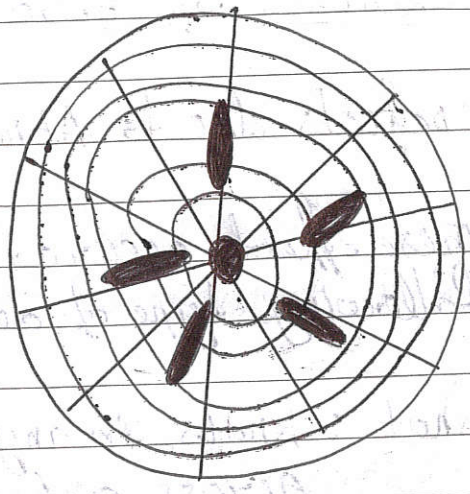
(iii) Rindgall & Grains : Rindgall are white spot occures due to assess of fungi, through a broken branch. These white spot occur as the presence of lingnin and fungi & The Strength of timber reduces considerably according to the change in arrangement of grains.

2. Defect due to Rupture & Rupture of Tissues:

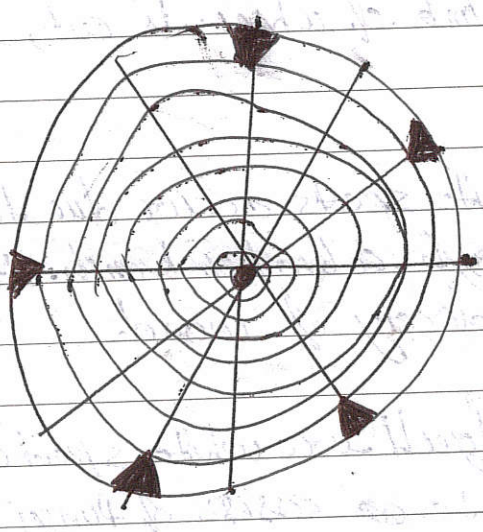
(i) Due to rupture of tissues of the tree some cavities are formed in tree either along the medullary rays or along annual rings and form different shape and. these defect are donated according to this shape.



Star shake



Heart Shake



Cup Shake.

3. Defects after Felling of Tree:

1 Dry Rot:

2. Wet Rot

4. Defects occurring during Seasoning Conversion of