Ch-7 construction materials

Q. 1 what is brick? write properties of bricks.

→ Bricks are rectangular blocks made from clay. clay is moulded to form rectangular blocks of standard size, which are dried and latter burnt to high temperature to make them dense and compact.

⇒ Properties of Briks:

→ Bricks are manufactured from naturally available material clay.
→ Bricks are light in weight compared to stones.
→ They are durable.
→ They are low cost material.
→ They passess good strength.
→ They are easily available.
→ The standard shape of an ideal brick is rectangular. It has sharp edges and corners. The surface is regular and even.
→ The most common colour of well burnt brick is red. Dark red colour of brick is indicator of over burning and yellow colour of brick is the indicator of under burning.
→ A single brick will weight 3.2 to 3.5 k.g. Density varies from 1600 kg/m^3 to 1900 kg/m^3 compressive strength of brick may very from 35 kg/cm^2 to more than 200 kg/cm^2.

→ water absorption value of good quality bricks shall not be more than 20% - 25%.

Q.2- Explain the term cement. Enlist types of cement and explain any three.

→ cement is a product obtained by burning a well proportioned mixture of siliceous (containing silica), argillaceous (containing alumina) and calcareous (containing lime) materials and crushing the same into grey colour fine powder.

- Types of cement:-

- Normal setting cement
- Rapid Hardening portland cement
- Quick setting cement.
- Pozzuolona Portland cement (PPC)
- Low Heat cement
- Blast furnace cement
- White cement
- Sulphate Resisting cement
- Coloured cement.

- Quick setting cement:

→ This cement is produced by adding a small percentage of aluminium sulphate and by finely grinding the cement.

→ The setting action of this cement starts with in five minutes after addition of water and it becomes hard like stone in less than 30 minutes.

→ Blast furnace cement:-

→ About 60 to 70 percent of slag obtained from blast furnace is used to prepare blast furnace cement.
→ Its strength in early days is less hence curing period is long.

→ White cement:-

→ It is white in colours and it is used for floor finish, plaster work, ornamental work etc.
→ It is more costly than ordinary cement.
→ for burning of this cement, oil fuel is used instead of coal.

Q.3- what are the qualities of a good timber? write uses of timber.

→ qualities of good timber:-

→ The annual rings of the section must be close to each others.
→ freshly cut long surface should limit sweet smell.

→ It should have dark uniform colour.
→ It should be dense.
→ It should be workable, good machinability.
→ It should have uniform texture.
→ When it is struck it should produce a sonorous sound.
→ The medullary rays should be compact.
→ It should be free from defects like dead knots, shakes, rupture etc.
→ It should be free from crackes, splits, warp etc.

⇒ uses of timber:-

→ Various timbers are used to make following items
→ Railway sleepers, bridges, pipes, furniture, decorative pieces, doors and windows, Packing material, Piles, cart, wheels, furniture, matchbox, boat, dhupsali, Poks, Pen, rafters, keychain, flooring, table wares, roofs, Paving blocks etc.

Q.4- What is seasoning of timber? State various methods of seasoning and explain any one.
→ When a tree is fresh cut, the wood contains considerable quantity of water in the from of sap and moisture. It is necessary to remove this water from the wood before it can be use in any construction work.

⇒ methods of seasoning:-

1. Natural or air seasoning
2. Artifical or kiln seasoming
3. chemical seasoming - salt seasoning.
4. seasoning by boiling.
5. electrical seasoning.

* Natural seasoming or Air seasoming:-

→ wooden logs are cut in the form of sleepers and Plantes.
→ stack ground is Prepared a few cm below the ground level on dryland.
→ wood is Placed in stack in such a manner that enough space is left between two layers and free circulation of air around each part.
→ The stack should be safe from direct winds and direct heat.
→ There should be uniform rate of evaPortetion of wood moisture and sap.
→ This is a slow and echonimal Process.
→ moisture content can not be brought below 16-17%.

Q-5. What is concrete? write also advantages and disadvantages of concrete.

→ Concrete is a mixture of cement lime, sand, crushed rock and water. It is a major building material or construction work.

→ Advantages of Concrete:-

→ Concrete Possesess a high compressive strength.
→ It is more economical than steel.
→ It is not subjected to corrosive and such effects.
→ It is a versatile material in building construction. It finds application from foundations to top most storeys in structures.
→ It is hard and durable material.

→ DisAdvantages of concrete:-

→ concrete has a poor tensile strength and is liable to be cracked when subjected to tension
→ It develops shrinkage stresses.
→ concrete work requires skill and supervision by technical Persons.
→ It is necessary to maintain the newly placed concrete moist for several days.

Q.6- write Properties of a good sand.

→ It should be clean, free from organic and vegetable matter.
→ maximum Permissible clay content is 3 to 4% is sand.
→ It should contain sharp, angular and durable grains.
→ It should not contain salts which attract moisture from the atmosphere.
→ It should be well graded.