

PNS SCHOOL OF ENGINEERING & TECHNOLOGY

Nishamani vihar,marshaghai, kendrapara

Internal assessment Examination-2022 {3rd semester }

Questions with answer

**SUBJECT-Th -3 –Building material & building
construction**

Branch- civil engineering

1.What is stones?

Stones is solid materials .Its obtained from rocks which are used in building constructions and designing of any type of engineering structure.

2. what are the tests of stones?

- | | | |
|---------------------|-----------------------------|-------------------------|
| 1.Acid test. | 3. Crushing test | 5. crystallization test |
| 2.Atrition test | 4.freezing and thawing test | 6. Impact test |
| 7.Microscopic test. | 9. Hardness test | |
| 8. smith's test | 10. waterabsorption test | |

3. What is brick?

- Brick is a type of block used to build walls, pavements and other elements in masonry construction. Property, the term brick denotes a block composed of dried clay, but is now also used informally to denote other chemically cured construction blocks.

4. Write two advantages of brick?

- The bricks are obtained by moulding clay in rectangular blocks of uniform size and then by drying and burning these blocks.
- As bricks are of uniform size, they can be properly arranged.
- They are light in weight no lifting appliance is required for them.

5. What is nominal size of bricks?

Nominal size

19cmx9cmx9cm

Standard size. 20cmx10cmx10cm

6. What is cement ?

A cement is a binder, a substance used for construction that sets, hardens, and adheres to other materials to bind them together.

Cement is seldom used on its own, but rather to bind sand and gravel ([aggregate](#)) together. Cement mixed with fine aggregate produces [mortar](#) for masonry, or with [sand](#) and [gravel](#), produces [concrete](#).

7. what are the properties of cement ?

Lime

Alumina

,Silica

,Sulfur trioxide,

magnesia ,

Alkalis.

8. What is initial and final setting time of cement ?

- Setting time may depend upon uniformity of cement, water-cement ratio, presence of admixtures, etc. The initial [setting time of the cement](#) should not be less, and the final setting time should not be high.
- The best [initial and final setting time](#) for cement is given as:
- **Initial Setting Time:** 30-45 Minutes
- **Final Setting Time:** Below 10 Hours

9. what is mortar ?

The term mortar is used to indicate a paste prepared by adding required quantity of water to a mixture of binding material like cement or lime and fine aggregate like sand.

10. What are the types of mortar ?

- Cement Mortar
- Lime Mortar
- Surki Mortar
- Gauged Mortar
- Mud Mortar

LONG QUESTIONS

NO-2

1. What are the good characteristics of stones ?

- **CRUSHING STRENGTH**- For a good structural stone, the crushing strength should be greater than 100N/mm.
- **APPEARANCE**-the stones are to be used for face work should be decent in appearance and that should be capable of preserving their colour uniformly for a long time.
- The colour of the stones as compared to dark clouded stones because there are chances of the latter variety to be attacked easily by weathering agents.
- **DURABILITY**-A good building stone should be durable. The various factors contributing to durability of a stone are its chemical composition, texture, resistance to atmospheric and other influences, location in structure, etc.
- **FACILITIES OF DRESSING** ; -The stones should be such that they can be easily carved, moulded, cut and dressed.

- It is an important consideration from the economic point of view.
- However this property of stones is opposed to its strength, durability and hardness.
- **FRACTURE**—for a good building stone, its fracture should be sharp, even, bright and clear with grains well cemented together. A Dull chalky and earthy fracture of a stone indicates signs of early future decay.
- **HARDNESS**—The coefficient of hardness as worked out in hardness test, should be greater than 17 for a stone to be used in road work.
- If it is between 14 and 17 the stone is said to be medium hardness.
- **RESISTANCE TO FIRE**—The minerals composing stone should be such that shape of stone is preserved when a fire occurs.
- **SEASONING**—the stones should be well seasoned before putting into use. The stones obtained fresh from a quarry contain some moisture which is known as the quarry sap.
- The presence of this moisture makes the stones soft. Hence the stones quarried freshly are easy to work.
- **SPECIFIC GRAVITY**;—for a good building stone its specific gravity should be greater than 2.7 or so. The heavy stones are more compact and less porous and they can be used for various engineering applications such as dams, weirs, retaining walls, docks, harbors, etc.

2. what is mortar and types of mortar ?

The term mortar is used to indicate a paste prepared by adding required quantity of water to a mixture of binding material like cement or lime and fine aggregate like sand.

Types of mortar

- Cement Mortar
- Lime Mortar
- Surki Mortar
- Gauged Mortar
- Mud Mortar

Cement Mortar

Cement mortar is a type of mortar where [cement](#) is used as binding material and sand is used as fine aggregate. Depending upon the desired strength, the cement to the sand proportion of cement mortar varies from 1:2 to 1:6.

Types of mortar

- Cement Mortar
- Lime Mortar
- Surki Mortar
- Gauged Mortar
- Mud Mortar
- **Lime Mortar**
 - *Lime mortar* is a type of mortar where lime (fat lime or hydraulic lime) is used as binding material and [sand](#) is used as fine aggregate. The lime to the sand proportion of cement mortar is kept 1:2. The pyramids at Giza are plastered with lime mortar.

- **Gauged Mortar**

- *Gauged mortar* is a type of mortar where cement and lime both are used as binding material and sand is used as fine aggregate. Basically, it is a lime mortar where cement is added to gain higher strength. The process is known as gauging. The cement to the lime proportion varies from 1:6 to 1:9. Gauged mortar is economical than cement concrete and also possess higher strength than lime mortar.

- **Surki Mortar**

- *Surki mortar* is a type of mortar where lime is used as binding material and surki is used as fine aggregate. Surki mortar is economic.

Mud Mortar

- *Mud mortar* is a type of mortar where mud is used as binding material and sawdust, rice husk or cow-dung is used as fine aggregate. Mud mortar is useful