**Subject Name:**

**BUILDING MATERIALS, CONSTRUCTION AND PLANNING**

**Prepared by (Faculty (s) Name):**

**Mr.P.AVINASH**

**Year and Sem, Department:**

**II-YEAR-II SEM-DEPARTMENT OF CIVIL ENGINEERING**

**Unit-I: (Title)**

**INTRODUCTION TO BASIC Stones and Bricks, Tiles :**

**Important points / Definitions: (Minimum 15 to 20 points covering complete topics in that unit)**

**ROCK:** A rock is an aggregation of different mineral constituents which form the earth crust.

**Sedimentary rocks :**

Sedimentary rocks are formed by the deposition of sediments obtained by the weathering of pre-existing rocks and these sediments are transported by various agents such as water, wind, frost, gravity, etc. These transported sediments form layered structures and give rise to the sedimentary deposits.

**Examples**: Sandstone, lime stone, lignite, etc.

**Igneous rocks** **:**

Igneous rocks are formed by the solidification of magma below the earth’s surface. When the magma is unable to erupt through the earth surface during its upward journey, it is held up below the earth’s surface and unable to descend. This magma cools down gradually and solidifies into igneous rocks.

## Blasting for Quarrying of Stones :

In this method explosives are used to separate the stones from parent rock. This process is applied in case of hard stone or hard rock which does not contain any cracks or fissures.

**Aggregate :**

Aggregates are the important constituents of the concrete which give body to the concrete and also reduce shrinkage. Aggregates occupy 70 to 80 % of total volume of concrete.

**Classification of Aggregates Based on Size :**

Fine aggregate

Coarse aggregate

**Fine Aggregate :** When the aggregate is sieved through 4.75mm sieve, the

aggregate passed through it called as fine aggregate.

**Coarse Aggregate :**

When the aggregate is sieved through 4.75mm sieve, the Aggregate retained is called coarse aggregate.

**Wedging :**

This method is applicable when the rock contains cracks or joints in it. Steel wedges or steel points are put in these cracks or fissures and hit them with hammer.

Then the rock portion separates from parent rock. If natural cracks are there, then artificial holes are drilled in the rock and wedging is done.

**Short Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)**

1. **Describe the working of any intermittent kiln known to you with the help of neat Sketches**.**-MAY 2018.**
2. **Why you choose stone as a building material** ?**-MAY 2018**
3. **Write down the characteristics of good stone?-MAY 2019**
4. **Name the operations involved in the manufacture of brick.-MAY 2019**
5. **Define tempering?-JUNE 2017**
6. **What is un soiling? -JUNE 2017**
7. **List out the names of bricks for special use.-MAY 2016**
8. **What are the advantages & disadvantages of clamp burning?-MAY 2016**
9. **What are the advantages & disadvantages of kiln burning?-MAY 2014**
10. **Name the types of rocks according to geological classification.-APRIL 2013.**

**Long Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)**

**1. What are the operations involved in manufacturing of bricks? Explain them briefly**.**—MAY 2019**

**2.** **Describe the characteristics of good building stones —MAY 2019**

**3.** **What do you understand about the dressing of stones and explain briefly?—MAY 2018**

**4. Write the various methods of quarrying of stones. Explain briefly —MAY 2018**

**5. Elaborate the following**

**a) Tests on the aggregates**

**b) Measurement of moisture content of aggregates —MAY 2017**

**6. Discuss the classification of bricks and explain about their qualities, special types of bricks? —MAY 2017**

**7. Write Short notes on:**

**i. Tempering**

**ii. Frog**

**iii. Ground– moulded bricks**

**iv. Runnel kiln —JUNE 2016**

**8. Write Short notes on:**

**i. Sieve analysis**

**ii. Specific gravity**

**iii. Bulking**

**iv. Moisture content —JUNE 2016**

**Fill in the Blanks / Choose the Best: (Minimum 10 to 15 with Answers)**

**(1)** What is the size of dressing of stones **…………………………….**

(2) What is the common classification of aggregates………..

(3) What are the constituents of good brick…………….

(4) The Size of bricks for special……………………………

(5) The basic classifications of stones………………..

(6) The Size of Coarse Aggregate ……………………………

**(7)** The Size of fine Aggregate

……………………………

(8) What are the size of dressing of stones

……………………

(9) What is unsoiling

…………………

(10) The type of aggregates can be classified based on what size.……………

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**Unit-II: (Title)**

**Cement & Admixtures**

**Important points / Definitions: (Minimum 15 to 20 points covering complete topics in that unit)**

**Types of cements :**

Ordinary Portland Cement (OPC)

Portland Pozzolana Cement (PPC)

Rapid Hardening Cement

**Ordinary Portland Cement (OPC) :**

In usual construction work, Ordinary Portland Cement is widely used.

**Ingredients of Concrete :**

Concrete is a composite material with changeable properties. The ingredients mixing ratio of concrete is variable and depends on the properties of ingredients and mix design.

**Aggregate** : Two types of aggregates are used in concrete. Coarse aggregate and Fine aggregate.

**Coarse aggregate:** Big sizes aggregates in concrete are coarse aggregates. The size of it varies between 1/2″ to 1.5″ depending on concrete mix design. Generally, crushed stone or brick chips are used as coarse aggregate.

**Fine aggregate:**

The smaller size aggregates in concrete are Fine aggregates. The FM (Fineness Modulus) of fine aggregates can be between 1.2 to 2.5 depending on mix design. We use sand as fine aggregate in concrete

**Types of Admixtures of Concrete :**

**Chemical admixtures :**

Accelerators, Retarders, Water-reducing agents, Super plasticizers, Air entraining agents etc.

Mineral admixtures **:**Fly-ash Blast-furnace slag, Silica fume and Rice husk Ash etc.

**Short Questions (minimum 10 previous JNTUH Questions – Year to be mentioned)**

1. **List out the ingredients of cement.. –MAY 2019**
2. **List out the various grades of cement in India.. MAY 2019**
3. **What do you mean by setting time of cement? – MAY 2018**
4. **Enumerate various types of cement? -MAY 2017**
5. **What are admixtures? JUNE 2015**
6. **Give the chemical composition of cement ? -- DEC 2016**
7. **What are the properties of cement?---DEC 2016**
8. **List the various uses of cement..--MAY 2014**
9. **State different standard test of cement and its aim? -- MAY 2014**
10. **List out the uses of Portland pozzolana cement? MAY 2018**

**Long Questions (minimum 10 previous JNTUH Questions)**

**1.**

**Differentiate between the following:**

**i. Initial setting time and final setting time**

**ii. Hydration and hardening of cement.**

**2.**

**Write short notes on:**

**i. Soundness test of cement**

**ii. Tensile strength test of cement.**

**3.Describe the methods of manufacture of cement. Explain any one method with flow diagram**

**4.** **Explain briefly about the tests conducted on cement to find its properties?**

**5.** **Describe in briefly any type of manufacture of cement with the help of flow diagram?**

**6.** **Explain the field tests on cement? Write the chemical composition of ordinary Portland cement.**

**7. Explain about special purpose of cements of the following**

**a) Rapid hardening Portland cement**

**b) Low heat Portland cement8. What are the methods of testing the properties of green concrete? Describe thembrief**

**Fill in the Blanks / Choose the Best: (Minimum 10 to 15 with Answers)**

**(1)** What are the ingredients of cement**…………………………….**

(2) Write the various grades of cement in India………..

(3) Write various types of cement…………….

(4)What are chemical composition of cement……………………………

(5) What do you meant by OPC………………..

(6) The Size of Coarse Aggregate ……………………………

**(7)** What is a chemical admixture ……………………………

(8) What are the size of dressing of stones ……………………

(9) What is unsoiling..………………

(10) The type of aggregates can be classified based on what size.……………