

- Q.22 For what purpose crucibles are used? Name the materials used to make crucibles.

Q.23 Discuss what do you understand by sintering.

Q.24 Write properties of magnesia bricks.

Q.25 Explain in brief insulation bricks.

Q.26 Explain sintering densification process.

Q.27 Explain refractory mortars and cements.

Q.28 Discuss Cermets as composite materials.

Q.29 Discuss monolithic refractories.

Q.30 Write properties silicon carbides.

Q.31 For what purpose ladders are used?

Q.32 Name the refractories used in soaking pits.

Q.33 Write purpose of abrasive materials and classify them.

Q.34 Discuss in brief glass wool and ceramic fibres.

Q.35 Differentiate between refractory mortars and cement.

## **SECTION-D**

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain the manufacture, properties and uses of Zirconia bricks.
  - Q.37 Explain the manufacture, properties and uses of silicon nitridr bricks.
  - Q.38 Write the refractories used in various parts of blast furnace and cement industries.

No. of Printed Pages : 4  
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## **5th Sem / Branch : Ceramic Engineering Sub. : Ceramic Refractory Tech. II**

Time : 3 Hrs.

M.M. : 100

## **SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 The formula of Silicon Carbide is

  - a) SiC
  - b)  $\text{Si}_2\text{C}$
  - c)  $\text{SiC}_2$
  - d) None of these

Q.2 Roof of a basic open hearth furnace is lined with \_\_\_\_\_ refractory bricks.

  - a) Carbon
  - b) Fire Clay
  - c) Silica
  - d) Magnesia

Q.3 The properties of an insulating refractory include:

  - a) Low thermal conductivity
  - b) High thermal conductivity
  - c) Low porosity
  - d) All of these

Q.4 The hearth of a furnace is

  - a) The electrodes are often called hearth
  - b) The bowl shaped bottom of the furnace
  - c) The walls of the furnace
  - d) The dome shaped roof of the furnace

Q.5 Blast furnace is used to make \_\_\_\_\_.

- a) Iron
- b) Glass
- c) Refractories
- d) Tiles

Q.6 The main raw material for manufacture of silicon carbide refractories are \_\_\_\_\_.

- a) Silica sand and magnesia
- b) Silica sand and coke
- c) Alumina and magnesia
- d) Corundum

Q.7 Applications of cermets include

- a) Hearth of the blast furnace
- b) Nuclear reactors, missiles & space crafts
- c) Insulation of furnaces
- d) For making roof of electric furnaces

Q.8  $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$  is the formula of

- a) Alumina
- b) Ball clay
- c) Mullite
- d) Dolomite

Q.9 Examples of special refractory is \_\_\_\_\_.

- a) Fireclay Refractory
- b) Silica Refractory
- c) Silicon carbide Refractory
- d) All of these

Q.10 Examples of abrasive material is

- a) Quartz
- b) Garnet
- c) Diamond
- d) All of these

## SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Sintering is densification of shaped refractory bricks. (True/False)

Q.12 \_\_\_\_\_ refractory is used in coke oven.

Q.13 Titania refractories are \_\_\_\_\_ refractory.

Q.14 Silicon carbide refractories are made by reaction of silica sand and coke at temperature of \_\_\_\_\_. ( $2200^{\circ}\text{C}$ - $2600^{\circ}\text{C}$ ,  $1200^{\circ}\text{C}$ - $1600^{\circ}\text{C}$ )

Q.15 Silicon nitride refractories are used for making kiln furnitures. (True/False)

Q.16 For making furnace arc roof \_\_\_\_\_ refractories are used. (Silica, Magnesia)

Q.17 Carbon refractories are used for making blast furnace hearth. (True/False)

Q.18 Castables are refractories for giving a shape in the furnace. (True/False)

Q.19 Cermet is composite materials made by using ceramics and metal.

Q.20 Hydraulic-setting Refractory Mortar are also referred as non-water soluble refractory mortar. (True/False)

## SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 How saggers are made? Explain.