



M.TECH I Semester Degree Examination, April/May - 2024

MINERAL PROCESSING

Furnace and Refractory

(NEP)

Time : 1 Hour

Maximum Marks : 30

Note : Answer *all* the questions.

- The Fossil Fuels refers to :
(A) liquid fuels (B) solid fuels
(C) semi fluid fuels (D) semi liquid fuels
- Oil fired furnaces mostly use furnace oil especially for :
(A) Sintering (B) Melting (C) Reheating (D) None
- The inherent moisture refers to :
(A) The water molecules absorbed on the internal surface and internal open pore surface
(B) The water molecules absorbed on the open pore surface
(C) The water molecules absorbed on the surface
(D) The water molecules absorbed on the external surface and internal open pore surface
- The _____ is a structure which provides draft for hot flue gases.
(A) boiler (B) chimney (C) precursor (D) stoves
- PCV refers to :
(A) Poly Carbonate Value (B) Pyrometric Cone Value
(C) Present Cost Value (D) Poly Carbonate Volume
- Silica refractory is an example of :
(A) Acidic (B) Basic (C) Neutral (D) both (B) and (C)



7. MgCo_3 is referred as :
(A) Magnesite (B) Magnetite (C) Martite (D) Manganese
8. The heating of Continuous reheating furnace depends upon the :
(A) Hearth area (B) Ratio of wall surface to stock surface
(C) Emissivity of the stock (D) All of the above
9. Which is not a high alumina refractory ?
(A) mullite (B) corundum (C) bauxite (D) dolomite
10. Which of the following is a directly fired intermediate furnace ?
(A) beam reheating furnace (B) reverberate furnace
(C) tower furnace (D) tunnel kiln
11. Kynamite and Sillimanite refractories are widely used in :
(A) Pig iron making (B) Steel making
(C) Glass making furnaces (D) None
12. The temperature at which the refractory fuses is called :
(A) Firing Point (B) Fusion Point (C) Burning Point (D) Tempering
13. Baking occurs between :
(A) 1000 deg to 1200 deg (B) 150 to 200 deg
(C) 100 to 150 deg (D) 500 to 650 deg
14. Addition of Gorg to fireclay is mainly because of _____
(A) anti-shirking element (B) anti-scaling element
(C) anti-spalling element (D) all of the above
15. Drying of Moulded refractories increases its :
(A) Tensile Strength (B) Green Strength
(C) Compression Strength (D) Bulk Strength



16. Scaling of furnace Stock is reduced by _____ in the flue gas.
(A) CO (B) H₂O (C) High CO/CO₂ (D) Both (B) and (C)
17. Heat balance of furnace provides means of determining the :
(A) Thermal efficiency of the process
(B) Source of heat loss
(C) Scope of reduction of heat loss
(D) All of the above
18. Expand RUL
(A) Refractoriness under linear conditions
(B) Refractoriness under load
(C) Refractoriness under Low temperature
(D) Refractoriness under Light load
19. The raw materials for silica refractories are :
(A) Al₂O₃ (B) CaCO₃ (C) SiO₂ (D) MgSiO₃
20. The Blast furnace stoves are meant for heating :
(A) AIR (B) Blast furnace gas
(C) Iron ore (D) Limestone
21. Furnaces operating at low temperatures are called :
(A) Heating pan (B) Stoves (C) Ovens (D) Kilns
22. Super refractories are made from :
(A) Carbide (B) Oxides (C) Borides (D) Nitrides
23. _____ bricks should not be used in oxidizing atmosphere.
(A) Tar dolomite (B) Carbon (C) Silica (D) Fireclay
24. _____ is the measure of the strength of refractory under the combined effect of temperature and load
(A) Porosity (B) RUL
(C) Specific gravity (D) Thermal conductivity



- 25.** 10 to 30% Magnesite is added to Chromite to produce chrome-magnesite refractories. Magnesite addition Chromite :
- (A) Spalling resistance (B) Refractoriness
(C) Crushing strength (D) Resistance to slag
- 26.** Addition of zircon to silica refractory brick improves its :
- (A) Crushing Strength (B) Resistance to slag attack
(C) Both (A) and (B) (D) Neither (A) nor (B)
- 27.** An indication of degree of firing in silica brick is its :
- (A) Specific gravity (B) Fusion point
(C) RUL (D) None of these
- 28.** Basic bricks are not made of :
- (A) Fireclay (B) Magnesite (C) Forsterite (D) Chromite
- 29.** Carbon refractories have very high :
- (A) Wetting characteristics (B) Refractoriness
(C) Thermal conductivity (D) Both (B) and (C)
- 30.** Dolomite bricks have good resistance to attack by :
- (A) Molten steel (B) Iron oxide (C) Lime slag (D) None of these

- o 0 o -

