

JET-2022 Ceramic Sample Construct

• Domain

1. Refractoriness of super duty refractories is _____ degree Celsius
 - a) 1630 - 1670
 - b) 1520 - 1630
 - c) more than 2000
 - d) more than 1730
2. Fusion temperature of Silicon carbide refractory is _____ deg. Centigrade
 - a) 2500
 - b) 2700
 - c) 3500
 - d) 4000
3. Fusion temperature of alumina refractory is _____ deg. Centigrade
 - a) 1200
 - b) 1600
 - c) 1800
 - d) 2050
4. Which refractory have high insulation properties
 - a) Silica brick
 - b) Hysil block
 - c) Alumina brick
 - d) Insulation brick
5. Conductor refractory have _____ thermal shock resistance
 - a) High
 - b) Low
 - c) Moderate
 - d) Very Low
6. Thermal expansion related to _____ testing method of refractory.
 - a) CONTACT ANGLE
 - b) CCS
 - c) PLC
 - d) RUL
7. Forsterite phase is present in which of the phase diagram
 - a) $Al_2O_3-SiO_2$
 - b) Al_2O_3-MgO
 - c) Al_2O_3-CaO
 - d) $MgO-SiO_2$
8. Al_2O_3 % at eutectic point of $Al_2O_3-SiO_2$ phase diagram is
 - a) 0.05
 - b) 0.35
 - c) 0.25
 - d) 0.62
9. The major phase present in 62% Al_2O_3 brick is
 - a) Silica
 - b) Corundum
 - c) Mullite
 - d) Periclase
10. Mullite is the composition of alumina and silica _____
 - a) Solid solution
 - b) compound
 - c) spinel
 - d) mixer
11. The ratio of alumina and silica to form mullite is _____
 - a) 72 and 28
 - b) 50 and 50
 - c) 65 and 35
 - d) None of these
12. In a conventional castable which phase is more
 - a) Calcium mono aluminate
 - b) Tri calcium di aluminate
 - c) Dode calcium hepta aluminate
 - d) Mono calcium Hexa aluminate
13. Ceramic anchors are required for the application of which monolithic material.
 - a) Conventional castable
 - b) LCC
 - c) Plastic mass
 - d) DVM
14. Mg-Al Spinel structure have _____ percentage of alumina
 - a) 28
 - b) 72
 - c) 65
 - d) 35

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15. Gehlenite is a compound of _____ materials
 - a) Magnesita-carbon-silica
 - b) Calcia-alumina-silica
 - c) magnesita-alumina-carbon
 - d) Alumina-carbon-silica
16. Magnesita-alumina silicate can be formed which of the compound as a refractory material
 - a) Gehlenite
 - b) Periclase
 - c) cordierite
 - d) Dunite
17. What is the transformation temperature (degree centigrade) of beta quartz from alfa quartz?
 - a) 1470
 - b) 573
 - c) 870
 - d) 160
18. Transformation of beta quartz to beta tridymite is a _____ phase transition.
 - a) Displacive
 - b) Complexive
 - c) Reconstructive
 - d) Inactive
19. What is the volume expansion percentage when alfa quartz transforms to alfa tridymite?
 - a) 2 percentage expansion
 - b) 14 percentage expansion
 - c) 16 percentage expansion
 - d) Expansion not occur
20. 3WL/2bd2 is used to determine which properties of refractory. (where L-length, b-width ,d-thickness of specimen)
 - a) CCS
 - b) Creep
 - c) MOR
 - d) RUL
21. Wollastonite is the compound in which of the oxide materials.
 - a) Magnesita-Silica
 - b) Alumina-silica
 - c) Magnesita-alumina
 - d) Calcia-silica
22. Refractoriness of bricks should be
 - a) More than application temperature
 - b) Less than application temperature
 - c) No relation with application temperature
 - d) None of the above.
23. If the CA6 phase is more in a castable, what is the setting time?
 - a) Setting time high
 - b) Setting time low
 - c) Moderate setting
 - d) Setting after a long period
24. Which water is more preferable for castable application
 - a) Drinking normal water
 - b) Drinking hot water
 - c) ICE water
 - d) None of the above.
25. Which castable is preferred for casting
 - a) Conventional castable
 - b) Low cement castable
 - c) Both of above
 - d) None of the above.
26. A furnace is lined with four layer of different quality refractory material, what is the quality of material fixed with shell of that furnace
 - a) Insulation
 - b) High thermal conductivity
 - c) High bulk density
 - d) High corrosion resistance
27. Which material have high corrosion resistance
 - a) Sinter magnesita
 - b) Fuse magnesita
 - c) Fuse magnesita large grain
 - d) All of above
28. What is PCPF
 - a) Precast pre-fired
 - b) Precast partially fired
 - c) Partially cast pre-fired
 - d) Precast and not pre-fired

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29. Why thick refractory casting is always done with LC70 alumina.
 - a) High heat capacity
 - b) High density
 - c) High porosity
 - d) Low shrinkage
30. Which phase is responsible for moderate setting in calcium aluminate cement?
 - a) CA
 - b) C₃A₂
 - c) C₃A₂
 - d) CA₆
31. Common ceramics include aluminium oxide, melting point?
 - a) 3000°
 - b) 3320°
 - c) 3720°
 - d) 3920°
32. Which of the following are the properties of ceramics?
 - a) High melting points
 - b) Considerable durability
 - c) Great hardness and strength
 - d) All of the above
33. Which ceramic materials are not amenable to a great range of processing?
 - a) Modern ceramic
 - b) Non-crystalline ceramics
 - c) Crystalline ceramics
 - d) Advanced ceramics
34. Which of the following is a correct refractory type of quartz?
 - a) Basic
 - b) Neutral
 - c) Amphoteric
 - d) Acidic
35. Which one of the following is not an acidic refractory?
 - a) Silica brick
 - b) Dolomite
 - c) Sand
 - d) Quartz
36. Porcelain is a type of _____ ceramic.
 - a) whiteware
 - b) stone
 - c) abrasive
 - d) cement
37. Diamond and corundum are examples of _____ ceramics.
 - a) glass
 - b) stone
 - c) refractories
 - d) abrasives
38. Which of the following carbides are used for cutting tools?
 - a) Silicon carbide
 - b) Tungsten carbide
 - c) Vanadium carbide
 - d) Chromium carbide
39. What disadvantage does silicon carbide have?
 - a) Tensile strength
 - b) Oxidation resistance
 - c) Thermal conductivity
 - d) Cost
40. Which of the following is not a type of silicon nitride ceramics?
 - a) Reaction bonded silicon nitride
 - b) Hot pressed silicon nitride
 - c) Stiff silicon nitride
 - d) Pressure-less sintered silicon nitride
41. Which ceramic material does Si₃Al₃O₃N₅ denote?
 - a) Silicon carbide
 - b) Silicon nitride
 - c) Sialon
 - d) Silicon alumina nitrate
42. What is the creep strength of ceramics when compared to other materials?
 - a) Zero
 - b) Low
 - c) High
 - d) Excellent

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- **IoT**

43. Which one is Juran's "three-role model"
- a) supplier – process – customer
 - b) customer – process – customer
 - c) process – customer-supplier
 - d) process – supplier-customer
44. An improvement done by SGA team is called?
- a) Kaizen
 - b) Improvement
 - c) Muda
 - d) Fugai
45. Machine Learning has various function representations, which of the following is not a function of symbolic?
- a) Decision Trees
 - b) Rules in propositional Logic
 - c) Rules in first-order predicate logic
 - d) Hidden-Markov Models (HMM)
46. Support Vector Machine (SVM) model is generally used to solve which type of problems?
- a) Clustering
 - b) Anomaly Detection
 - c) Classification
 - d) Regression
47. Which of these is the most popular crypto-currency?
- a) Ripple
 - b) Bitcoin
 - c) Dash
 - d) Ethereum
48. Below are the tools/ software/ applications we have today for Industry 4.0 except
- a) Cockpit
 - b) 3D visualization
 - c) Condition Monitoring
 - d) Performance Manager
49. What is/are the emerging issues in the designing manufacturing industry?
- a) Sustainable deployment
 - b) Sustainable development
 - c) Aggressive competition
 - d) Both (a) and (b)
50. Give example/s of different industrial processes
- a) 3D printing
 - b) Automation
 - c) Manufacturing
 - d) All of the above

Disclaimer: The sample paper is for illustrative purposes alone. The actual jet exam may contain different numbers of total questions or duration.