

- Q.5 Aeolin deposits are
 a) Running water deposits
 b) Wind deposits
 c) Glacier deposits
 d) Sea Water deposits
- Q.6 Abrasion is carried out by
 a) Moving pure ice b) Running snow
 c) Boulders & stone frozen into moving ice
 d) All of the above
- Q.7 Chemical weathering is most active in
 a) Warm areas b) Wet areas
 c) Low lying areas d) All of the above
- Q.8 The molten mass of the material inside earth crust is termed as
 a) Lava b) Magma
 c) Igneous rock d) All of the above
- Q.9 A good building stone should not have any
 a) Fault b) Slip
 c) Hade d) All of the above
- Q.10 Weathering of rocks is affected by
 a) Rain b) Erosion
 c) Temperature d) Both i and ii

SECTION-B

- Note:** Objective type questions. All questions are compulsory. 10x1=10
- Q.11 Troposphere contains about _____% of total mass of atmosphere. (50, 75)
- Q.12 The solid part of earth is called lithosphere. (True/False)

- Q.13 The innermost part of earth is called _____. (Crust, Mantle, Core)
- Q.14 The process in which loose particles are removed by impact of blowing wind is known as deflation. (True/False)
- Q.15 Plucking is the way in which rocks are eroded. This process takes place in geological work of _____. (Wind, running water, glaciers)
- Q.16 Horizontal distance between hanging and foot wall is known as _____. (Hade, Heave, Throw).
- Q.17 Primary or first forming rocks are called sedimentary rocks. (True/False)
- Q.18 The rocks which contain less than 50% of silica is known as _____. (Plutonic rocks, Basic Rocks)
- Q.19 Granite is the example of igneous rock. (True/False)
- Q.20 The disintegration or breaking up of rocks is called Physical weathering. (True/False)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 How igneous rocks are formed? Explain.
- Q.22 Discuss importance of faults.
- Q.23 Explain earth as a planet.
- Q.24 How wind erosion takes place? Explain.
- Q.25 How deposition take place during geological work of glaciers?

- Q.30 Name raw materials of cements.
- Q.31 Differentiate refractories and glass.
- Q.32 List properties of refractories.
- Q.33 Discuss in brief history of ceramic engineering.
- Q.34 Differentiate acidic and basic refractories.
- Q.35 Explain scope of Ceramic engineering.

SECTION-D

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

- Q.36 Explain classification of white wares.
- Q.37 List various types of Portland cements. Explain any one with properties and uses.
- Q.38 Define the term refractory. Explain its classification.

No. of Printed Pages : 4
Roll No.

120426

2nd Sem. / Ceramic Engineering

Subject : Introduction to Ceramic Engineering

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Which of the following is a ceramics material?
a) Alumina b) Iron
c) Plastic d) Bronze
- Q.2 Which of the following is conventional ceramics?
a) Bio ceramics b) Pottery
c) Nuclear Ceramics d) Dental Ceramics
- Q.3 Basic refractories are not attacked by _____
a) Acidic Slags b) Basic slags
c) Neutral slags d) All of the above
- Q.4 Which one of the following is an acidic refractory?
a) Carbon brick b) Metal
c) Silica brick d) Dolomite
- Q.5 The work "Keramos means"

- Q.5 Phase diagram help to predict ____ of materials.
- a) Firing behavior b) Mixing behavior
c) Both A and B d) None of the above
- Q.6 Soft magnetic materials are
- a) Easy to magnetise b) Difficult to magnetise
c) Both A and b d) None of the above
- Q.7 Coercive force value is greater for
- a) Hard magnets b) Soft magnets
c) Both A and B d) None of the above
- Q.8 Which is not type of bond in atoms
- a) Ionic b) Covalent Bond
c) Coordinate bond d) Plastic bonding
- Q.9 What is the name of the phase transition that occurs when a solid is converted directly into a gas (without going through the liquid phase)?
- a) Melting b) Boiling
c) Sublimation d) Freezing
- Q.10 The order of filling orbitals is...
- a) 1s, 2s, 2p, 3s, 3p, 3d, 4s, 4p
b) 1s, 2s, 2p, 3s, 3p, 3d, 4p, 3d
c) 1s, 2s, 2p, 3s, 3p, 4s, 3d, 4p
d) 4p, 4s, 3d, 3p, 3s, 2p, 2s, 1s

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120431

SECTION-B

- Note:** Objective type questions. All questions are compulsory. 10x1 = 10
- Q.11 Maximum number of electrons in s-orbital is ____.
- Q.12 Phase diagram is maps that give relationship between phases at equilibrium. (True/False)
- Q.13 Coercive force is the magnetizing force which must be applied in reverse direction to demagnetize magnetic materials. (True/False)
- Q.14 Maximum Creep is slow plastic deformation of metal under constant stresses at high temperature. (True/False)
- Q.15 Hard magnetic materials can be easily demagnetized. (True/False)
- Q.16 Example of ternary phase diagram is _____.
- Q.17 Ductile fracture involves fracture of materials after considerable plastic deformation. (True/False)
- Q.18 Coordinate bond is formed by sharing of electrons between two atoms, (True/False)
- Q.19 In body centered cell, there are two atoms per unit cell. (True/False)
- Q.20 Materials which can be easily magnetize and demagnetize are known as _____ magnetic materials

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. 12x5 = 60
- Q.21 Enlist different types of bonds. Explain any one.
- Q.22 Draw iron carbon phase diagram .

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120431

- Q.15 An attenuator with constant attenuation is normally called_____ (fixed attenuator /variable attenuator)
- Q.16 Write full form of LPF.
- Q.17 The band of frequencies which is allowed to pass without any attenuation is called stop band. (True/False)
- Q.18 Material like_____ has piezoelectric effect. (quartz/zinc)
- Q.19 An equivalent circuit of Transmission line has capacitance in _____ arm. (series/shunt)
- Q.20 Write full form of VSWR.

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 What are the uses of attenuator?
- Q.22 Explain balanced and unbalanced network.
- Q.23 Draw and Explain the characteristics (phase shift vs frequency) of T filter.
- Q.24 Explain concept of band pass filter.
- Q.25 Define the term attenuation constant in symmetrical network.
- Q.26 Explain concept and significance of Iterative Impedance.
- Q.27 What is Stub? Why it is used?
- Q.28 Drive an expression for characteristic impedance of 'T' network.

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- Q.29 Explain the basic idea of use of filter network in different communication.
- Q.30 A lossless line is terminated in pure resistance of 600 W if characteristic impedance is 400 W. Find value of SWR.
- Q.31 Design a symmetrical 'T' attenuator.
- Q.32 What is difference between active and passive filter? Explain in detail.
- Q.33 Write a short note on crystal filter.
- Q.34 Define Infinite line.
- Q.35 List different types of Transmission line.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 For the asymmetrical PI network having series impedance 50W and shunt arm impedance 150 W and 250W, find the asymmetrical network properties.
- Q.37 Write a short note on-
- Relationship between Neper and Decibel
 - Need of m-derived filter
- Q.38 Explain distortion in transmission line. What is the condition for minimum distortion of the signal in a transmission line? Explain in detail.

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SECTION-B

Note: Objective type questions. All questions are compulsory. (6x1=6)

- Q.7 Define glass.
- Q.8 Name oxide used in glass formation
- Q.9 Name igneous rock
- Q.10 Name physical agents of Weathering
- Q.11 Name the planet which is farthest from the sun.
- Q.12 Define Sedimentary Rocks.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Explain internal structure of Earth in brief.
- Q.14 Explain Formation of igneous rocks.
- Q.15 Discuss any two theories of origin of Earth
- Q.16 Enlist two raw material of glass. Write their functions.
- Q.17 Explain wind erosion.
- Q.18 Describe Earth as Planet.
- Q.19 Explain formation of Glaciers.
- Q.20 Explain formation of Sedimentary rocks.
- Q.21 Discuss concordant bodies.
- Q.22 Explain seashore line problems.

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SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Explain classification of glass.
- Q.24 How Sedimentary rocks are formed? Explain its classification.
- Q.25 Explain geological work of rivers.

(3)

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- Q.33 Discuss magnetic flux and flux density.
 Q.34 Explain water system phase diagram.
 Q.35 Describe importance of phase diagrams.

SECTION-D

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

- Q.36 Explain point, Line and surface defects of materials.
 Q.37 Explain different types of chemical bonding.
 Q.38 Explain electrical properties of mechanical properties of materials.

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180431

3rd Sem. / Ceramic Engineering

Subject : Ceramics Science

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 The order of filling orbitals is.....
 a) 1s, 2s, 2p, 3s, 3p, 3d, 4s, 4p
 b) 1s, 2s, 2p, 3s, 3p, 3d, 4p, 3d
 c) 1s, 2s, 2p, 3s, 3p, 4s, 3d, 4p
 d) 4p, 4s, 3d, 3p, 3s, 2p, 2s, 1s
- Q.2 _____ is formed by transfer of electrons between two atoms.
 a) Covalent Bonding b) Ionic Bonding
 c) Hydrogen Bonding d) All of the Above
- Q.3 Formula of Kaolin is _____
 a) $Al_2O_3SiO_2$ b) $Al_2O_32SiO_22H_2O$
 c) $Al_2O_32SiO_2$ d) $Al_2O_32SiO_2H_2O$
- Q.4 Clay show plasticity when water is _____
 a) Added b) Removed
 c) Both a & b d) None of the above
- Q.5 In face centered cubic crystal system number of atoms per unit cell is _____.
 a) 1 b) 2

- Q.31 Discuss Mass transfer in heterogeneous system.
- Q.32 Differentiate between humidification and dehumidification.
- Q.33 Explain Enthalpy.
- Q.34 Discuss Heterogeneous system.
- Q.35 Explain Internal energy.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Describe the function and operation of rotary dryer with the help of neat diagram.
 - Q.37 Explain working principle and function of ball mill.
 - Q.38 Explain modes of heat transfer in detail with the help of examples.

No. of Printed Pages : 4
 Roll No.

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3rd Sem. / Ceramic Engg.
Subject : Ceramics Industrial Operations/Unit
op.in Ceramics

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Which of these is property of fluids?
 a) viscosity b) water
 c) sand d) tree
- Q.2 Which is the unit of density ?
 a) kg/m/cc b) kg/m²
 c) kg/m³ d) kg/m
- Q.3 SI unit of temperature is _____.
 a) V b) K
 c) S d) P
- Q.4 Which of these is industrial screening equipment ?
 a) grizzlies b) oven
 c) mixer d) none
- Q.5 Which is a type of crusher?
 a) Jaw crusher b) Dodge crusher
 c) Gyratory crusher d) all of these
- Q.6 Which is a type of drying equipment?
 a) blunger b) mixer
 c) rotary drier d) none

- Q.7 Which is a type of modes of heat transmission or transfer?
 a) convection b) confection
 c) connection d) none
- Q.8 Which is a type of agitators?
 a) air compressor
 b) circulation pump system
 c) blunger
 d) none
- Q.9 Which is example of Portable power drive machine for handling of solids?
 a) Belt conveyor
 b) Electric battery trucks
 c) Screw conveyor
 d) Flight conveyor
- Q.10 _____ is type of mixer which typically used to blend multiple dry components until they are homogenous.
 a) Dry mixer b) Wet mixer
 c) Dryer d) none

SECTION-B

- Note:** Objective type questions. All questions are compulsory. 10x1=10
- Q.11 Crystallization is separation of solid crystalline phase from a liquid phase by cooling, evaporation or both. (T/F)
- Q.12 Drying involves process of removal of _____ from product. (water/coal)

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- Q.13 Air compressor is example of open system. (T/F)
- Q.14 Formula for calculation of pressure is _____
- Q.15 Unit of specific weight is _____
- Q.16 In laminar flow the fluid layer moves in _____
- Q.17 Example of crushing equipment is _____
- Q.18 _____ refers to the ease with which a substance may be broken by impact.
- Q.19 Fine size reduction usually been termed fine grinding. (T/F)
- Q.20 Screw conveyor consists of an endless helicoids screw fitted to a shaft. (T/F)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Tell about ideal gas law.
- Q.22 Explain crushing rolls.
- Q.23 Explain laminar flow.
- Q.24 Explain sedimentation.
- Q.25 Explain bulk density.
- Q.26 Discuss Stationary screens.
- Q.27 Explain system and surrounding.
- Q.28 Discuss Sedimentation.
- Q.29 Explain crystallization in detail.
- Q.30 Classify agitation equipment.

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- Q.30 Describe working of autoclave machine.
 Q.31 Explain construction of Pug mill.
 Q.32 Differentiate Jigger & Jolly machine.
 Q.33 Write notes on screw press.
 Q.34 Explain bucket elevator.
 Q.35 Describe batting machine.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Explain construction working of ball mill quantity of ball and size of ball as grinding media.
 Q.37 Describe principle, construction and working of filter press with neat sketch.
 Q.38 Classify the dryer? Explain tunnel dryers.

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030433/433

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180433/120433/
030433/433

3rd Sem. / Ceramic Engg.
Subject : Ceramic Machineries

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 Which of the following is used as primary crusher -
 a) Jaw crusher b) Gyratory Crusher
 c) Both a and b d) None of these
- Q.2 Pan grinding is used for-
 a) Moist material b) Wet material
 c) Dry material d) All of these
- Q.3 Jaw Crusher cannot crush-
 a) Hard material b) Sticky material
 c) Brittle material d) Heavy material
- Q.4 Blunger is made up of-
 a) Glass b) Refractory
 c) Cement & Concrete
 d) None of these
- Q.5 Agitator is used to store -
 a) Dry powder b) Mixed Powder
 c) Slurry d) All of these

(1) 180433/120433/
030433/433

- Q.6 Centrifugal pump is used to-
- a) Lift Slurry b) Lift Powder
c) Both (a) and (b) d) None of these
- Q.7 Blunger is used to mix-
- a) Two type of clay b) Water & Clay
c) Feldspar and clay d) none of these
- Q.8 Funnel type of magnetic Separator is used for-
- a) Slip material b) Powder Material
c) Both (a) and (b) d) None of these
- Q.9 Jigger & jolly machine is used for-
- a) Shaping machine
b) Mixing machine
c) Dewatering machine
d) None of these
- Q.10 Kiln is used for-
- a) Drying b) Mixing
c) Firing d) All of these

SECTION-B

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

- Q.11 Crushing is done in_____.(Jaw crusher/Ball mill)
- Q.12 Extrusion process is used for____ machine . (shaping/crushing)
- Q.13 Batch dryer is continuous dryer. (T/F)

(2) 180433/120433/
030433/433

- Q.14 Filter process works on the principles of remaining water from slurry.(T/F)
- Q.15 Iron particle are removed by magnetic separators. (T/F)
- Q.16 Initial setting time of cement can be determined by vicat apparatus . (T/F)
- Q.17 Pot mill is used for_____purpose.(crushing /grinding)
- Q.18 Diaphragm pump is used to lift slurry.(T/F)
- Q.19 Ball mill is used as_____.(crushing machine / grinding machine)
- Q.20 Chain conveyor is use to_____the material.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Define grinding.
- Q.22 Describe the working of Jaw crusher.
- Q.23 Explain tape casting process.
- Q.24 Describe working of Injection moulding.
- Q.25 Explain working of batch dryer.
- Q.26 What are factor that affect grinding efficiency.
- Q.27 Define potter wheel.
- Q.28 Write function & uses of vibrating sieve.
- Q.29 Define magnetic separator.

(3) 180433/120433/
030433/433

- Q.31 What is Pulverised Coal.
- Q.32 Tell different type furnaces.
- Q.33 Explain working of pyrometer.
- Q.34 Write advantages of tunnel kiln.
- Q.35 Explain Optical pyrometer.

SECTION-D

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

- Q.36 Describe working of Regenerators with neat sketch.
- Q.37 Describe working of Downdraft kiln with diagram.
- Q.38 Explain working of Bomb calorimeter with diagram.

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No. of Printed Pages : 4

Roll No. 180435/120435/030435
/94741

3rd Sem. / Ceramic Engg
Subject : Fuel & Furnace

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Combustion is an.....
 - a) Exothermic reaction
 - b) Endothermic reaction
 - c) Chain reaction
 - d) Hydrogen reaction
- Q.2 Which of the following fuel has the highest calorific value.....?
 - a) Producer gas b) Coal gas
 - c) CNG gas d) Blast furnace gas
- Q.3 A bomb calorimeter is used for finding the..... of solid and liquid fuels.
 - a) Dew point b) Calorific value
 - c) Melting point d) Strength
- Q.4 Air contains _____% of nitrogen by volume
 - a) 21% b) 78%
 - c) 23% d) 15%
- Q.5 Petrol is _____ fuel.
 - a) Solid b) liquid
 - c) gas d) none

(1) 180435/120435/030435
/94741

SECTION-D

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

- Q.36 Explain frit making process.
Q.37 Discuss lead glaze and leadless glaze.
Q.38 Name different type of non plastic raw materials. Explain any one.

No. of Printed Pages : 4

Roll No. 180436/120436/030436

3rd Sem. / Ceramic Engg.

Subject : Ceramic Raw Materials

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 The raw material quartz is-
a) Plastic b) Non plastic
c) Both (a) and (b) d) None of these
- Q.2 The word ceramic meant-
a) Burnt material b) Soft material
c) Hard material d) Dry material
- Q.3 One of the raw material of silica is _____
a) Sand stone b) Kaolin
c) China clay d) Calcite
- Q.4 Example of non plastic raw material is
a) Feldspar b) Clay
c) Bentonite d) All of these
- Q.5 Fusion point of refractory clay
a) 400°C b) 4000°C
c) 1600°C d) None of these

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(1) 180436/120436/030436

- Q.6 Ball clay is highly-
- a) Plastic clay b) Non plastic clay
c) Both (a) & (b) d) none of these
- Q.7 Hardness of talc on Moh's scale
- a) 4 to 5 b) 6 to 7
c) 1 to 2 d) 8 to 9
- Q.8 Flint is found in-
- a) Pebbles b) Bubble
c) Trouble d) None of these
- Q.9 Silica is major component of ceramic body-
- a) Earthen ware b) Stone ware
c) Porcelain ware d) All of these
- Q.10 Chrome Oxide imparts _____ color of glaze-
- a) Red b) White
c) Green d) All of these

SECTION-B

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

- Q.11 Sodium carbonate is used as a deflocculant in glazed. (T/F)
- Q.12 Formula of chrome oxide is Cr_2O_3 . (T/F)
- Q.13 The formula of Kyanite is Al_2O_3 , SiO_2 (T/F)
- Q.14 Frit is used to make glazed. (T/F)
- Q.15 Steatite mineral is very soft. (T/F)
- Q.16 Potash feldspar is used as flux. (T/F)
- Q.17 Ball clay is plastic raw material. (T/F)

- Q.18 Quartz is a one of the raw material of silica. (T/F)
- Q.19 Raw of glaze is made from frit. (T/F)
- Q.20 Formula of quartz is SiO_2 . (T/F)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Differentiate ball clay and china clay.
- Q.22 Name different type of fluxes.
- Q.23 Differentiate between plastic clay and non plastic clay.
- Q.24 Discuss Silica with properties and uses.
- Q.25 Write properties and uses of sillimanite.
- Q.26 Explain fire clay.
- Q.27 List five coloring Oxide used in ceramic glaze.
- Q.28 Why fritting is done?
- Q.29 List raw material of glaze.
- Q.30 Discuss on-glaze decoration.
- Q.31 Explain ground coat enameling.
- Q.32 Differentiate between transparent & opaque glaze.
- Q.33 List glaze application method.
- Q.34 Discuss spraying and dipping method of glaze.
- Q.35 Discuss under glaze decoration.

- Q.28 Differentiate ball clay and china clay.
 Q.29 Define coating. Write its purpose.
 Q.30 Explain purposes of making frit.
 Q.31 Define crazing and peeling.
 Q.32 What are the pin holes? Write its causes and remedies.
 Q.33 List types of decorations. Explain any one.
 Q.34 Explain preparation of glaze.
 Q.35 How you will prepares base metal before enamelling?

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
 Q.36 Explain application method of enamel and glazes.
 Q.37 Enlist different glaze defects. Explain causes and remedies of crazing and peeling
 Q.38 Explain frit making process

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 Roll No.

180441/120441

4th Sem / Ceramic Engineering Subject : Ceramics Coating Technology

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Which of the following is Ceramic coating?
 a) Rubber Coating b) Glaze
 c) Wall putty d) Lime water
- Q.2 Salt glaze is also known as _____ glaze.
 a) Lead b) Crystalline
 c) Glaze d) Vapour
- Q.3 Nepheline Syenite contain
 a) Soda feldspar b) Potash feldspar
 c) Both A&B d) None of the above
- Q.4 _____ is form of silica.
 a) Kyanite b) Sillimanite
 c) Soda feldspar d) Sandstone
- Q.5 Which of the following clay has highest plasticity
 a) Bentonite b) China clay
 c) Ball clay d) Alumina Clay

- Q.6 Drying rate does not depends on
 a) Temperature b) size of ware
 c) Humidity d) Flow of air
- Q.7 Before enamelling the metal surface should be free from
 a) Dirt b) Lusture
 c) Pin holes d) All of the above
- Q.8 Which of the following are defects of enamel?
 a) Under fired b) Rolling
 c) Cracking d) All of the above
- Q.9 Peeling is the results of mismatch of _____ of body and glaze.
 a) TSR b) CTE
 c) RI d) All of the above
- Q.10 Which of the following is not decoration method
 a) Painting or Brushing
 b) Stamping
 c) Stencilling
 d) Pouring

SECTION-B

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

- Q.11 Ball clay is _____ in nature. (Plastic. non plastic)

- Q.12 Fluxes _____ the maturing temperature of body. (Reduce, Increase)
- Q.13 Fritting is done to convert soluble material in to insoluble form. (True/False)
- Q.14 Stamping is one type of _____ method. (Decoration / Glazing)
- Q.15 Spraying method of enamelling is used for large ware. (True/False)
- Q.16 Vapour glaze is one type of enamel. (True/False)
- Q.17 In crazing surface cracks are formed. (True/False)
- Q.18 Porcelain glaze is single fired glaze. (True/False)
- Q.19 Fluxing agent _____ maturing temperature of ceramic wares.
- Q.20 Peeling is one type of glaze defect. (True/False)

SECTION-C

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

- Q.21 Discuss vapour glaze.
- Q.22 How raw materials for glazes are selected? Explain.
- Q.23 Explain ground coat enamelling.
- Q.24 Explain role of feldspar in glaze.
- Q.25 How raw materials of glazes are selected?
- Q.26 Differentiate lead glaze and leadless glaze.
- Q.27 Discuss role of silica and fluxes in glazes.

- Q.5 Which one of the following is fluxing material
- a) Quartz b) Feldspar
c) Kyanite d) None of these
- Q.6 $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ is the formula of
- a) Plaster of Paris b) Gypsum
c) Quartz d) None of these
- Q.7 Major raw material of whiteware is
- a) Clay b) Quartz
c) Feldspar d) None of these
- Q.8 _____ is one type of electrolyte
- a) Sodium silicate b) Silicate
c) Silica d) None of these
- Q.9 Deflocculants are used in casting slip to _____
- a) Removing of water
b) Removing of iron particles
c) Prevent settling of slip
d) None of these
- Q.10 Example of continuous kiln is
- a) Tunnel Kiln b) Roller Kiln
c) Both a & b d) None of these

(2) 180442/120442/30442

SECTION-B

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

- Q.11 Water absorption stoneware body is _____. (1-5%, 0-0.5%)
- Q.12 The formula of clay is _____.
- Q.13 The formula of Kyanite is $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ (True/False)
- Q.14 Al_2O_3 is also called _____.
- Q.15 Translucency of Bonechina body is moderate. (True/False)
- Q.16 Drying rate do not depend on humidity. (True/False)
- Q.17 Drying is the process of removing _____. (Water, gas)
- Q.18 Terracotta body is _____ (glazed/Unglazed).
- Q.19 _____ is example of defluccoulent. (Silica, Sodium silicate)
- Q.20 Hot floor is an example of _____ dryer. (Batch, continuous)

SECTION-C

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

- Q.21 How bone ash is prepared? Explain
- Q.22 Describe process of demagnetization.

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- Q.23 Explain basic refractories.
- Q.24 Discuss preparation of chromite refractory.
- Q.25 Explain fusion cast refractories.
- Q.26 Explain Fire clay
- Q.27 Explain Quartzite
- Q.28 Explain Permanent liner change
- Q.29 Explain phase diagram.
- Q.30 List the composition of chromite refractory
- Q.31 list the used of carbon refractory.
- Q.32 Differentiate between true porosity and apparent porosity.
- Q.33 Explain Mullite.
- Q.34 Discuss Permeability.
- Q.35 Explain Magnesium-Chrome refractories.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. $2 \times 10 = 20$
- Q.36 Explain the manufacturing process of Carbon refractory and also list the properties and uses of it.
 - Q.37 Describe the Al_2O_3 - SiO_2 phase diagram with help of neat sketch.
 - Q.38 Describe the testing method of determination of refractoriness of a given sample of refractory.

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No. of Printed Pages : 4
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4th Sem / Ceramic Engg. Subject : Ceramic Refractory Technology-I

Time : 3 Hrs. M.M. : 100

SECTION-A

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

- Q.1 Examples of Basic refractory is
 - a) Fire clay refractory
 - b) Silica refractory
 - c) Alumina refractory
 - d) Magnesite refractory
- Q.2 Examples of special refractory is _____
 - a) Dolomite refractory b) Quartz refractory
 - c) Zirconia refractory
 - d) Mag-chrom refractory
- Q.3 In which test we observe the strength of refractory
 - a) Permeabilty b) PCE
 - c) CCS d) Bulk Density
- Q.4 The refractory are neither attacked by acid slag nor by basic slag is called
 - a) Acid refractory b) Basic refractory
 - c) Neutral refractory d) None

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- Q.5 PCE stands for_____.
- Pyrometric cone equivalent
 - Pyrometric cylinder equivalent
 - Pyrometric card equivalent
 - Pyrometric care equivalent
- Q.6 Which of the following is an example of super refractory
- Alumina
 - Dolomite
 - Fire clay
 - Silicon carbide
- Q.7 Thermal conductivity is related with_____
- High density
 - High specific gravity
 - High porosity
 - none
- Q.8 Basic refractories are not attacked by
- Basic Slag
 - Acid slag
 - Magnesite
 - Dolomite
- Q.9 Zirconium found in Kerala as_____
- Beach sand
 - Quartzite
 - Silica sand
 - None
- Q.10 The percentage of Alumina in fused alumina refractory is-
- 20-30%
 - 40-50%
 - 0-10%
 - 85-90%

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SECTION-B

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

- Q.11 Formula of dolomite is_____
- Q.12 Dolomite refractories are basic in nature. (T/F)
- Q.13 Drying of refractories are done in hot chamber.(T/F)
- Q.14 Spray test determines the _____ of refractories.
- Q.15 _____ is a neutral refractory.
- Q.16 Drum test determines the _____ of refractories.
- Q.17 Magnesia content in dolomite refractory can be_____ percent.
- Q.18 Porosity of insulating refractory brick should be low. (T/F)
- Q.19 Refractoriness of carbon bricks is about_____ °C.
- Q.20 The main purpose of using Refractory material to retain heat in furnace. (T/F)

SECTION-C

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

- Q.21 Classify the refractories
- Q.22 Explain density.

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- Q.5 Which metal oxide gives red colour to the glass
 a) Cuprous oxide b) Iron oxide
 c) Fire oxide d) Antimony oxide
- Q.6 Which of the following furnace is used for melting of glass_
- a) kiln b) dryer
 c) tank d) none
- Q.7 How does the addition of magnesia and alumina affect soda lime glass?
- a) Enhances mechanical strength
 b) Reduces porosity
 c) Increases softening temperature
 d) Improves chemical durability
- Q.8 What is the chemical formula of phosphorous pentoxide?
- a) P_2O_5 b) PO
 c) P_3O_4 d) PO_4
- Q.9 The refractive index of a particular type of glass depends on its_____.
- a) colour
 b) composition and on the wavelength of the light
 c) textutre d) critical point
- Q.10 As a consequence, light energy travels glass instead of being absorbed and reflected, so that glass is
- a) Bend b) opaque
 c) transparent d) weak

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SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 Hardness of glass can be measured by_____.
- Q.12 Glass is _____ cooled material.
- Q.13 Alumina increases devitrification tendency of glass. (True/False)
- Q.14 Crow of tank fornace is made up of silica brick. (True/False)
- Q.15 The bottom surface of the pot has elliptical shape. (True/False)
- Q.16 Increase in soda in glass decreases the viscosity of glass. (True/False)
- Q.17 The capacity of tank is 180 tans of glass per day. (True/False)
- Q.18 Refining is achieved by adding chemical refining agents such as_____.
- Q.19 The melting temperature are controlled by pyrometers. (True/False)
- Q.20 Waste glass and broken and bad wares are known as cullet. (True/False)

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Explain the function of glass making oxides.
- Q.22 Explain network modifier.

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- Q.23 How slip density is determined during production controls in tile industry.
- Q.24 Explain in brief ways to avoid accidents in ceramic industry.
- Q.25 How green density changes with increase in pressing pressure? Explain.
- Q.26 Describe in brief solid casting.
- Q.27 Explain development of electrical double layer.
- Q.28 Differentiate alpha and beta plaster of paris.
- Q.29 Explain upstream measures to reduce pollution.
- Q.30 Explain mixing of plaster of paris with water.
- Q.31 Make a list of controls employed in body preparation department?
- Q.32 Tell press department controls.
- Q.33 Explain how applied weight of glaze can be determined?
- Q.34 Discuss different pollutants found in raw materials of bodies.
- Q.35 Discuss how accidents can be avoided in Ceramic Industry.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 Write and explain different steps used to make plaster of paris moulds.
- Q.37 Explain effect of pressure and temperature on properties of ceramic wares.
- Q.38 Explain mould making process.

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No. of Printed Pages : 4
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5th Sem./ Ceramic Engineering Subject : Ceramic Processing Technology

Time : 3 Hrs.

M.M. : 100

SECTION-A

- Note:** Multiple choice questions. All questions are compulsory (10x1=10)
- Q.1 In case of pressing the physical state of body is
a) Fluid suspension b) Plastic mass
c) Damp powder d) Dry powder
- Q.2 Which of the following is not types of press?
a) Toggle b) Tableting
c) Screw d) Injection
- Q.3 In double acting pressing pressure is applied from _____ sides.
a) All b) Top and Bottom
c) Top d) None of these
- Q.4 Which casting method (shaping) does not involve use of plaster of paris moulds
a) Solid casting b) Hollow casting
c) Tape casting d) All of these

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- Q.5 Ford cup is used to determine _____ of glaze slip.
- a) Viscosity b) Density
c) Applied weight d) All of these
- Q.6 Which increase in moulding pressure green density _____
- a) Increase b) Decrease
c) Remain same
d) First increase then decreases
- Q.7 Which of the following is not Binder
- a) Polyvinyl Alcohol
b) Carboxy Methyl Cellulose
c) Starches
d) Sodium silicate
- Q.8 With increase in moulding pressure firing shrinkage _____
- a) Increases b) Decreases
c) Remain same
d) First increases then decreases
- Q.9 Strength _____ as the volume fraction of pores increases.
- a) Increases b) Decreases
c) Remain same d) First increase then decreases
- Q.10 After ejection of shaped ware from die the size of piece _____
- a) Increases b) Decreases
c) Remain same
d) First increases then decreases

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SECTION-B

- Note:** Objective Completion type questions. All questions are compulsory. (10x1=10)
- Q.11 Doctor blade process is used to shape thin sheets. (True/False)
- Q.12 In dry pressing of non plastic materials _____ is usually added. (Binder/Ethanol)
- Q.13 Poly vinyl alcohol is used as _____. (Binder/Lubricant)
- Q.14 Residue control is employed in body preparation department. (T/F)
- Q.15 Bag filters are used to control _____ in gaseous emissions. (Dust/Poisonous gas)
- Q.16 Doctor blade process is also called _____. (Hollow casting/ Tape casting)
- Q.17 Lubricants are used to _____ between ceramic particles and die.
- Q.18 Compaction ratio is the ratio of fill room height to _____.
- Q.19 Craze resistance is checked for finished product. (True/False)
- Q.20 To make pottery moulds _____ plaster is used. (alpha, beta)

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 How pressing takes place explain.
- Q.22 Explain role of lubricant in ceramic shaping.

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SECTION-D

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

- Q.36 Describe the manufacturing process of floor tiles and its properties.
- Q.37 Explain about health and safety parameters in ceramic industry.
- Q.38 Write causes and prevention of pinholes and peeling.

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Roll No. 180452/120452/030452

5th Sem./ Ceramic Engg.

Subject : Ceramic Whiteware Tech.- II

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Bricks ware example are
a) Soda lime brick b) Blue brick
c) Both a & b d) None of these
- Q.2 Heavy clay ware includes-
a) Brick ware b) insulator
c) Wall tile d) Table ware
- Q.3 Stone ware bodies are -
a) Opaque b) Dense
c) Both a & b d) None of these
- Q.4 Sanitary ware body can be -
a) Bone china b) Stone ware
c) Single charge d) None of these
- Q.5 Floor tiles type are -
a) Full body vitrified
b) Double charge vitrified
c) Both a & b
d) None of these

- Q.6 Bone china ware have -
 a) Low translucency
 b) Moderate translucency
 c) High translucency
 d) None of these
- Q.7 L.O.I stands for -
 a) Loss on ignition b) Loss of ignition
 c) Loss or ignition d) None of these
- Q.8 Denting can occur in -
 a) Glaze b) Body
 c) Both a & b d) None of these
- Q.9 Pneumoconiosis result due to inhalation of -
 a) Carbon b) Silica dust
 c) Nitrogen d) None of these
- Q.10 Abrasion resistance can be checked by -
 a) Dryer b) Auto clave
 c) Moh's scale d) Vicat apparatus

SECTION-B

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

- Q.11 Crazeing is glaze defect. (T/F)
- Q.12 Dental porcelains are used for capping of teeth. (T/F)
- Q.13 Terracotta body is without glaze. (T/F)
- Q.14 Salt glazed pipes are used for sewage applications. (T/F)
- Q.15 In low tension insulator steatite is used. (T/F)

- Q.16 Drum test is used to determine abrasion resistance. (T/F)
- Q.17 Peeling defect is glaze defect. (T/F)
- Q.18 Sand blast test is used to determine abrasion resistance. (T/F)
- Q.19 Vitrified tiles have low water absorption. (T/F)
- Q.20 Hotel ware are opaque. (T/F)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Define Stone ware body.
- Q.22 Explain terracotta body.
- Q.23 Explain determination of loss on ignition.
- Q.24 Describe porosity.
- Q.25 How salt glazed pipe made.
- Q.26 Compare wall tile and floor tile.
- Q.27 Write procedure of testing water of plasticity.
- Q.28 Explain classification of brick ware.
- Q.29 Explain the disposal of hazardous materials.
- Q.30 Flow chart of bone china body.
- Q.31 How crazeing can be prevented.
- Q.32 Define abrasion resistance.
- Q.33 Define crawling.
- Q.34 Define denting. How it can be prevented.
- Q.35 Describe dental porcelain.

- Q.30 Write the uses of abrasives.
Q.31 List the uses of cermets .
Q.32 List the uses of fused aluminarefractory.
Q.33 Explain Mullite.
Q.34 Discuss Glass Tank furnace.
Q.35 Explain nuclear power plant.

SECTION-D

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

- Q.36 Describe the production, properties and uses of silicon carbide bricks.
Q.37 Explain the manufacturing process of insulating refractory and also list the properties and uses of it.
Q.38 Explain the manufacturing process of Zirconia, refractory and also list the properties and uses of it.

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5th Sem./ Ceramic Engg.

Subject : Ceramic Refractory Technology - II

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Sintering is process of _____
a) Densification b) Drying
c) Watering d) None
- Q.2 Silicon Carbide has chemical formal of _____
a) CaO b) SiC
c) SiCr d) FeO
- Q.3 Periclase refractory contains mainly
a) CaO b) Al₂O₃
c) MgO d) BeO
- Q.4 Roof of a basic open hearth furnace is lined with _____ bricks
a) Graphite b) Fire clay
c) Silica d) Alumina
- Q.5 Examples of special refractory is _____
a) Dolomite refractory
b) Quartz refractory
c) Zirconia refractory

- d) Magnesite refractory
- Q.6 The fusion point of Magnesia is
 a) 1000° c b) 2800° c
 c) 900° c d) 1400° c
- Q.7 Which is required in an insulating refractory?
 a) Low permeability
 b) High specific gravity
 c) Low porosity
 d) High Porosity
- Q.8 What is hearth in a furnace?
 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.9 Tank furnace is used to make
 a) Steel b) iron
 c) glass d) tile
- Q.10 In high alumina Mullite refractories, the alumina content is
 a) 72% b) 23%
 c) 86% d) 48%

SECTION-B

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

- Q.11 Formula of Thoria is _____
- Q.12 Mullite refractories are _____ refractory.
- Q.13 Refractories of a typical silica brick corresponds

to segar cone number, '34', which is equivalent to a temperature of _____°C.

- Q.14 Softening point of zirconia bricks is about _____°C.
- Q.15 Refractory bricks having lower porosity have good strength. (True/False)
- Q.16 SiC refractories are used in making of cutting wheels. (True/False)
- Q.17 CaO content in dolomite refractory can be _____ percent
- Q.18 Porosity of insulating refractory brick should be high. (T/F)
- Q.19 TSR stands for _____.
- Q.20 Lead content in silica refractory can be as high as _____ percent

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 List the uses of mag - chrome refractory.
- Q.22 List the properties of fused alumina.
- Q.23 List the uses of saggars.
- Q.24 Discuss preparation of Ceramic fibre refractory.
- Q.25 Explain Insulating castables.
- Q.26 Explain glass wool.
- Q.27 Explain Laddles.
- Q.28 Explain composite material.
- Q.29 Explain Reheating furnace.

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- Q.26 Write composition of optical glass.
- Q.27 Explain attack of water on glass.
- Q.28 Discuss bad workmanship in glass industry.
- Q.29 Explain importance of optical fibre.
- Q.30 How will you determine softening of glass?
- Q.31 Explain density of glass.
- Q.32 Differentiate between plate glass and hollow glass.
- Q.33 Explain gobfeeder.
- Q.34 Discuss blowing.
- Q.35 Explain refractive index of glass.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Describe the determination of viscosity of glass specimen.
 - Q.37 Describe defects in glass with their remedies.
 - Q.38 Describe process of glass working by fourcault process.

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5th Sem./ Ceramic Engg.

Subject : Glass Technology - II

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 At what temperature are raw materials inserted into the furnace
 - a) 1000°C
 - b) 1500°C
 - c) 2000°C
 - d) 3000°C
- Q.2 Which forming method is used for the production of hollow glasses?
 - a) Blowing
 - b) Pressing
 - c) Drawing
 - d) Casting
- Q.3 The temperature at which a non-crystalline material transforms from a supercooled liquid to rigid glass is _____
 - a) Melting point
 - b) Glass transition temperature
 - c) Boiling point
 - d) Crystalline temperature
- Q.4 How much SiO₂ does borosilicate contain?
 - a) 70%
 - b) 73%

- Q.23 Give application of super conductors.
- Q.24 Give the name and working of fuel elements in nuclear reactor.
- Q.25 Give applications of soft ferrites.
- Q.26 Explain in brief manufacture of bioceramics.
- Q.27 Give classification of bio-ceramics materials.
- Q.28 Explain properties of Barium Titanate.
- Q.29 Explain the phenomenon of piezoelectric.
- Q.30 Explain the crystal structure of superconductor.
- Q.31 Describe electro-optic ceramics.
- Q.32 Explain the working of Resistors.
- Q.33 Give the applications of Bio-ceramics.
- Q.34 Explain the properties of super conductor.
- Q.35 Explain the use of ceramic raw material in piezo electric.

SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. 2x10=20
- Q.36 Explain phenomenon, properties and uses of superconductors.
- Q.37 Explain manufacture of multilayer ceramics.
- Q.38 Explain manufacture of Ferrites .

No. of Printed Pages : 4

Roll No. 180455/120455/030455

5th Sem./ Ceramic Engg

Subject : Modern Ceramics

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

- Q.1 Modern ceramics are made from
 a) Pure material b) normal material
 c) Impure material d) None of these
- Q.2 Modern Ceramics material are used in
 a) Space b) Automobile
 c) Nuclear reactors d) all of these
- Q.3 Superconductors can be used in
 a) Transmission b) Power generation
 c) mobile towers d) All of these
- Q.4 Function of control rod in nuclear reactor is to
 a) Start nuclear reactor
 b) Stop reactor
 c) Absorb electrons
 d) All of these

- Q.5 Varistors are electronic components used to protect electronic circuit against _____
 a) Water b) Temperature
 c) air d) over voltage
- Q.6 Which sensor is used to protect devices from over voltage?
 a) Thermistors b) Resistors
 c) Pyroelectric d) Variastors
- Q.7 Hard ferrites have
 a) Low power loss b) Low resonance
 c) Low coercivity d) high coercivity
- Q.8 Nuclear energy can be obtained by
 a) Nuclear conductivity
 b) Nuclear insulator
 c) Nuclear resistance
 d) Nuclear fission
- Q.9 Which of the following product is not modern ceramics
 a) Wall tiles b) Floor tiles
 c) Sanitary ware d) All of these
- Q.10 Bio ceramics are materials which are used for _____diseased body parts.
 a) Repair b) reconstruction
 c) Both A & B d) None of these

SECTION-B

- Note:** Objective Completion type questions. All questions are compulsory. 10x1=10
- Q.11 Thermistor is temperature sensitive resistor. (True/False)
- Q.12 Sensor is resistor. (True/False)

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- Q.13 Speed of fast moving neutrons is controlled by moderators. (True/False)
- Q.14 Superconductor is a perfect diamagnetic material. (True/False)
- Q.15 Ferrite is a example of modern ceramic material (True/False)
- Q.16 Pyroelectric material produce voltage when they are heated or cooled. (True/False)
- Q.17 Isostatic pressing is used to shape ceramic materials. (True/False)
- Q.18 Dielectric materials have high thermal conductivity. (True/False)
- Q.19 Soft ferrites are anti-ferromagnetic material. (True/False)
- Q.20 Pure materials are used to make modern ceramic products. (True/False)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions.

12x5=60

- Q.21 Explain the difference between newer and conventional ceramic materials?
- Q.22 Name ceramics materials used in various parts of nuclear reactors?

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