

Notations :

- Options shown in **green** color and with ✓ icon are correct.
- Options shown in **red** color and with ✖ icon are incorrect.

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Actual Answer Key:	Yes
Calculator:	Scientific
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Ruler Required?:	No
Eraser Required?:	No
Scratch Pad Required?:	No
Rough Sketch/Notepad Required?:	No
Protractor Required?:	No
Show Watermark on Console?:	Yes
Highlighter:	No
Auto Save on Console?:	No

Question Shuffling Allowed : Yes

Question Number : 1 Question Id : 2310982701 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The enamels are refractory and have a viscous character when they are:

Options :

- ✓ high in feldspar content
- ✖ low in feldspar content
- ✖ low in quartz content

Question Number : 2 Question Id : 2310982702 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The use of which of the following must be avoided in any white ground coat?

Options :

1. ✖ Zirconium oxide

2. ✖ Antimony oxide

3. ✔ Tin oxide and titanium oxide

4. ✖ Zirconium oxide and antimony oxide

Question Number : 3 Question Id : 2310982703 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which oxide may not be present on the iron to be pickled?

Options :

1. ✖ $\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$

2. ✔ FeO

3. ✖ Fe_2O_3

4. ✖ Fe_3O_4

Question Number : 4 Question Id : 2310982704 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The enamels are difficult to smelt and fire if the:

Options :

2. ✖ feldspar content is low

3. ✖ quartz content is low

4. ✔ quartz content is high

Question Number : 5 Question Id : 2310982705 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In case of ground coats, borax causes:

Options :

1. ✔ short firing range

2. ✖ long firing range

3. ✖ refractoriness

4. ✖ matt surface

Question Number : 6 Question Id : 2310982706 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The adhering property is improved by the addition of:

Options :

1. ✖ chromium oxide

2. ✖ zinc oxide

4. ✔ cobalt oxide

Question Number : 7 Question Id : 2310982707 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The blistering of enamels in the furnace atmosphere may be caused by the presence of:

Options :

1. ✖ carbon dioxide

2. ✔ water vapour

3. ✖ oxygen

4. ✖ nitrogen

Question Number : 8 Question Id : 2310982708 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The blue sign enamels are also similar in composition to the ground coats, but they contain about:

Options :

1. ✔ 5% cobalt oxide

2. ✖ 10% cobalt oxide

3. ✖ 15% cobalt oxide

4. ✖ 20% cobalt oxide

Question Number : 9 Question Id : 2310982709 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The total sodium oxide added by soda ash and soda nitrate in enamels' compositions must not be excessive, because this leads to the:

Options :

1. ✖ coloured surface
2. ✔ pimply surface
3. ✖ rough surface
4. ✖ matty surface

Question Number : 10 Question Id : 2310982710 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is used for making of jewellery enamel frits?

Options :

1. ✖ Hearth smelter
2. ✖ Rotary smelter
3. ✖ Electric smelter
4. ✔ Crucible smelter

Question Number : 11 Question Id : 2310982711 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3 Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is used for pickling?

Options :

1. ✖ Stainless steel tank
2. ✔ Acid-proof stoneware tank

4. ✖ Aluminum tank

Question Number : 12 Question Id : 2310982712 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The materials that keep enamel frit particles uniformly under suspension in enamel slip are called:

Options :

1. ✔ floating agents

2. ✖ opacifiers

3. ✖ electrolytes

4. ✖ colorants

Question Number : 13 Question Id : 2310982713 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The neutralising solutions consist of:

Options :

1. ✖ saltpeter

2. ✖ lime stone

3. ✖ red lead

4. ✔ soda ash

Question Number : 14 Question Id : 2310982714 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The operation that promotes adherence is called:

Options :

1. ✖ pickling
2. ✖ neutralising
3. ✔ nickle dips
4. ✖ acid rinsing

Question Number : 15 Question Id : 2310982715 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In de-enameling by the alkaline solution method, the material used is:

Options :

1. ✖ sodium carbonate
2. ✔ sodium hydroxide
3. ✖ sodium nitrate
4. ✖ sodium silicate

Question Number : 16 Question Id : 2310982716 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In the process of de-enameling by acid method, the chromic acid is used in the hot solutions in approximate amount (in percentage) of:

Options :

1. ✖ 15%
2. ✖ 20%

4. ✔ 40%

Question Number : 17 Question Id : 2310982717 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The process of scaling is closely related to:

Options :

1. ✖ tempering

2. ✔ annealing

3. ✖ sintering

4. ✖ firing

Question Number : 18 Question Id : 2310982718 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In ground coats, quartz causes:

Options :

1. ✔ long firing range

2. ✖ refractoriness

3. ✖ matt surface

4. ✖ short firing range

Question Number : 19 Question Id : 2310982719 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The mill additions for enamels can be classified into _____ groups.

Options :

1. ✓ 4

2. ✗ 5

3. ✗ 6

4. ✗ 7

Question Number : 20 Question Id : 2310982720 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The pyrometric cones have a:

Options :

1. ✓ triangular base and a defined dimension and size

2. ✗ rectangular base and a defined dimension and size

3. ✗ square base and a defined dimension and size

4. ✗ conical base and a defined dimension and size

Question Number : 21 Question Id : 2310982721 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Silica refractories are those materials that contain SiO_2 that is:

Options :

1. ✗ lower than 93%

2. ✓ greater than 93%

4. ✖ lower than 95%

Question Number : 22 Question Id : 2310982722 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Theoretically, the MgO percentage in magnesite is:

Options :

1. ✖ 48.6

2. ✔ 47.6

3. ✖ 46.6

4. ✖ 45.6

Question Number : 23 Question Id : 2310982723 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The free quartz present in a fired silica refractory is termed as residual quartz (RQ) and, for any application, the RQ value should be:

Options :

1. ✔ less than 10%

2. ✖ less than 15%

3. ✖ less than 20%

4. ✖ less than 25 %

Question Number : 24 Question Id : 2310982724 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

In general, the fireclay refractories contain:

Options :

1. ✖ 25–35 wt% of alumina
2. ✔ 25–45 wt% of alumina
3. ✖ 20–45 wt% of alumina
4. ✖ 20–35 wt% of alumina

Question Number : 25 Question Id : 2310982725 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The insulating castable are useful for petrochemical industries if they have alumina content from:

Options :

1. ✖ 10 to 50 wt%
2. ✔ 15 to 50 wt%
3. ✖ 20 to 50 wt%
4. ✖ 25 to 50 wt%

Question Number : 26 Question Id : 2310982726 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is a very common repair technique mostly used in the iron and steel industries?

Options :

1. ✔ Gunning
2. ✖ Ramming

4. ✖ Plastic mass

Question Number : 27 Question Id : 2310982727 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The bulk density of silicon carbide refractories is:

Options :

1. ✖ less than 2.0 g/cc

2. ✖ more than 3.5 g/cc

3. ✔ less than 3.0 g/cc

4. ✖ more than 3.0 g/cc

Question Number : 28 Question Id : 2310982728 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The oxidation of MgO–C refractory by gaseous components is mainly due to:

Options :

1. ✔ oxygen and carbon dioxide

2. ✖ oxygen

3. ✖ carbon dioxide

4. ✖ nitrogen

Question Number : 29 Question Id : 2310982729 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Zircon is a silicate of zirconium, containing:

Options :

1. ✖ 33% zirconia and 67% silica
2. ✔ 67% zirconia and 33% silica
3. ✖ 65% zirconia and 35% silica
4. ✖ 35% zirconia and 65% silica

Question Number : 30 Question Id : 2310982730 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The specific gravity value of zirconia refractory is:

Options :

1. ✖ 5.1
2. ✔ 6.1
3. ✖ 4.1
4. ✖ 3.1

Question Number : 31 Question Id : 2310982731 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The most common ceramic fiber systems, from the options, are:

Options :

1. ✔ Alumina, Alumina-Silica and Zirconia
2. ✖ Magnesia, Alumina-Zirconia and Silica

4. ✖ Zirconia, Alumina-Silica and Magnesia

Question Number : 32 Question Id : 2310982732 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For the refractory industries, the purer variety of dolomite is used with a:

Options :

1. ✖ max. magnesia content of 10% and combined calcia + magnesia content of max. 52%

2. ✖ max. magnesia content of 15% and combined calcia + magnesia content of min. 50%

3. ✔ min. magnesia content of 20% and combined calcia + magnesia content of min. 52%

4. ✖ min. magnesia content of 25% and combined calcia + magnesia content of max. 50%

Question Number : 33 Question Id : 2310982733 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following refractories has a wide gap between its RUL and PCE values?

Options :

1. ✖ Silica

2. ✔ Magnesia

3. ✖ Alumina

4. ✖ Dolomite

Question Number : 34 Question Id : 2310982734 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The lowest temperature of liquid formation for pure fireclay is approximately:

Options :

1. ✓ 1587 °C

2. ✗ 1577 °C

3. ✗ 1567 °C

4. ✗ 1597 °C

Question Number : 35 Question Id : 2310982735 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following refractory materials shows a high RUL value, close to its PCE?

Options :

1. ✗ Dolomite

2. ✗ Fireclay

3. ✗ Magnesite

4. ✓ Silica

Question Number : 36 Question Id : 2310982736 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For silica refractory applications where tridymite phase is stable, firing is done between:

Options :

1. ✗ 1400 °C and 1420 °C

2. ✓ 1420 °C and 1430°C

4. ✖ 1410 °C and 1420 °C

Question Number : 37 Question Id : 2310982737 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The specific load maintained for the RUL test is:

Options :

1. ✖ 0.02 MPa

2. ✔ 0.2 MPa

3. ✖ 0.01 MPa

4. ✖ 0.1 MPa

Question Number : 38 Question Id : 2310982738 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The silicate _____ are the most important compounds, which are responsible for the strength of hydrated cement paste.

Options :

1. ✖ C₃A and C₂S2. ✔ C₃S and C₂S3. ✖ C₃S and C₃A4. ✖ C₄AF and C₃A

Question Number : 39 Question Id : 2310982739 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Which of the following reacts with gypsum to form calcium sulphoferrite?

Options :

1. ✖ C_3S

2. ✖ C_2S

3. ✖ C_3A

4. ✔ C_4AF

Question Number : 40 Question Id : 2310982740 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The hydration reactions are _____ in nature.

Options :

1. ✖ endothermic

2. ✔ exothermic

3. ✖ hydrolysis

4. ✖ isotherm

Question Number : 41 Question Id : 2310982741 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The percentage of gypsum usually interground with clinker is:

Options :

1. ✔ 5 (Approx.)

2. ✖ 10 (Approx.)

4. ✖ 20 (Approx.)

Question Number : 42 Question Id : 2310982742 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The clinkers are:

Options :

1. ✖ 25-40 μm diameter nodules

2. ✖ 25-40 mm diameter nodules

3. ✖ 5-25 μm diameter nodules

4. ✔ 5-25 mm diameter nodules

Question Number : 43 Question Id : 2310982743 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Pure calcite contains:

Options :

1. ✖ 80% calcium carbonate

2. ✖ 90 % calcium carbonate

3. ✖ 95% calcium carbonate

4. ✔ 100% calcium carbonate

Question Number : 44 Question Id : 2310982744 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Options :

1. ✖ 50 μm 2. ✔ 75 μm 3. ✖ 100 μm 4. ✖ 150 μm

Question Number : 45 Question Id : 2310982745 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The argillaceous material in the manufacturing of Portland cement is:

Options :

1. ✖ shale

2. ✖ lime stone

3. ✔ clay

4. ✖ dolomite

Question Number : 46 Question Id : 2310982746 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The fineness of the cement is determined with the help of the _____ test.

Options :

1. ✖ tread

2. ✖ tube

4. ✔ sieve

Question Number : 47 Question Id : 2310982747 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The final setting time for Portland cement should be about:

Options :

1. ✖ 5 hours

2. ✔ 10 hours

3. ✖ 15 hours

4. ✖ 20 hours

Question Number : 48 Question Id : 2310982748 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following options represents Alite?

Options :

1. ✖ C_4AF 2. ✖ C_3A 3. ✖ C_2S 4. ✔ C_3S

Question Number : 49 Question Id : 2310982749 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The soundness of the cement is the result of:

Options :

1. ✖ combined lime
2. ✔ free lime
3. ✖ combined silica
4. ✖ free silica

Question Number : 50 Question Id : 2310982750 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The soundness of the cement is determined with the help of:

Options :

1. ✖ Vicat apparatus
2. ✖ Hydraulic press
3. ✔ Le Chatelier apparatus
4. ✖ screw press

Question Number : 51 Question Id : 2310982751 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The C_3S content in the rapid hardening Portland is:

Options :

1. ✔ higher
2. ✖ lower

4. ✖ nil

Question Number : 52 Question Id : 2310982752 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

HAC is highly satisfactory in resisting sulphate attack, which is mainly due to the absence of _____ in the products of hydration.

Options :

1. ✖ $\text{Mg}(\text{OH})_2$

2. ✔ $\text{Ca}(\text{OH})_2$

3. ✖ $\text{Al}(\text{OH})_3$

4. ✖ NaOH

Question Number : 53 Question Id : 2310982753 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The oxide in the least percentage of a typical Portland cement is:

Options :

1. ✖ CaO

2. ✖ Al_2O_3

3. ✔ MgO

4. ✖ SiO_2

Question Number : 54 Question Id : 2310982754 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Which of the following is a belite?

Options :

1. ✖ C_3A

2. ✖ C_3S

3. ✔ C_2S

4. ✖ C_4AF

Question Number : 55 Question Id : 2310982755 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The grey colour of the ordinary Portland cement is generally due to the presence of:

Options :

1. ✖ sodium

2. ✔ iron

3. ✖ magnesium

4. ✖ calcium

Question Number : 56 Question Id : 2310982756 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The calcium aluminate cement shows approximately _____ percentage of Al_2O_3 .

Options :

1. ✖ 30

2. ✔ 40

4. ✖ 60

Question Number : 57 Question Id : 2310982757 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following applications is NOT based on ionic conduction?

Options :

1. ✖ Solid oxide fuel cell

2. ✔ Thermistor

3. ✖ Sodium- sulfur battery

4. ✖ Zirconia oxygen sensor

Question Number : 58 Question Id : 2310982758 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The degree of polarisability of a material is identified by the term:

Options :

1. ✖ dielectric strength

2. ✖ dielectric loss

3. ✔ relative dielectric constant

4. ✖ dissipation factor

Question Number : 59 Question Id : 2310982759 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following materials exhibits the Meissner effect?

Options :

1. ✓ Superconductor

2. ✗ Semiconductor

3. ✗ Conductor

4. ✗ Insulator

Question Number : 60 Question Id : 2310982760 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following materials is NOT a pyroelectric crystal?

Options :

1. ✗ Barium titanate

2. ✗ Tourmaline

3. ✗ Lithium sulphate

4. ✓ Tantalum pentoxide

Question Number : 61 Question Id : 2310982761 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The critical temperature for $\text{YBa}_2\text{Cu}_3\text{O}_7$ superconductor is:

Options :

1. ✗ 88 K

2. ✓ 90 K

4. ✖ 94 K

Question Number : 62 Question Id : 2310982762 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The curie point for nickel ferrite is:

Options :

1. ✔ 590°C

2. ✖ 520°C

3. ✖ 455°C

4. ✖ 453°C

Question Number : 63 Question Id : 2310982763 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In yttrium iron garnet ($\text{Y}_3\text{Fe}_5\text{O}_{12}$) structure, yttrium ions occupy:

Options :

1. ✖ octahedral sites

2. ✔ dodecahedral sites

3. ✖ tetrahedral sites

4. ✖ octahedral and tetrahedral sites

Question Number : 64 Question Id : 2310982764 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is incorrect regarding BaTiO_3 ?

Options :

1. ✖ It is ferroelectric ceramic
2. ✖ Each titanium ion has six oxygen ions in octahedral coordination
3. ✔ Each large barium ion is surrounded by ten nearest-neighbour of oxygen ions
4. ✖

As the temperature of BaTiO_3 is lowered slightly below 120°C , a displacive transformation occurs

Question Number : 65 Question Id : 2310982765 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A superconducting material in a superconducting state is:

Options :

1. ✔ diamagnetic
2. ✖ paramagnetic
3. ✖ ferromagnetic
4. ✖ ferrimagnetic

Question Number : 66 Question Id : 2310982766 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT used to reduce the Curie temperature in barium titanate?

Options :

1. ✖ SrTiO_3

3. ✖ CaSnO_3

4. ✔ Al_2O_3

Question Number : 67 Question Id : 2310982767 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

LiTaO_3 retains its pyroelectric behaviour up to the temperature of:

Options :

1. ✔ 609 °C

2. ✖ 559 °C

3. ✖ 649 °C

4. ✖ 499 °C

Question Number : 68 Question Id : 2310982768 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The pre-sintering of hexagonal materials takes place at:

Options :

1. ✔ 1000-1250°C

2. ✖ 900-1000°C

3. ✖ 800-900°C

Question Number : 69 Question Id : 2310982769 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The spark plug insulators for automobiles are fabricated from:

Options :

1. ✔ high alumina

2. ✖ high zirconia

3. ✖ high magnesia

4. ✖ high titania

Question Number : 70 Question Id : 2310982770 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The improvement in the grain size and microstructure of PTC is also done by:

Options :

1. ✔ Ca

2. ✖ Mn

3. ✖ Fe

4. ✖ Cu

Question Number : 71 Question Id : 2310982771 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

To use hexagonal ferrites as a ceramic magnet, it is necessary to keep the grain size as:

Options :

2. ✗ 5-10 μm

3. ✗ 10-15 μm

4. ✗ 10-25 μm

Question Number : 72 Question Id : 2310982772 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which element is added in the BaTiO₃ ceramic to enhance the PTC effect?

Options :

1. ✗ Si

2. ✗ Sr

3. ✗ Y

4. ✓ Fe

Question Number : 73 Question Id : 2310982773 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The actual microstructure of ZnO varistor have spinel particle with the formula:

Options :

1. ✗ Zn₅SbO₁₂

2. ✓ Zn₇Sb₂O₁₂

3. ✗ Zn₂Sb₅O₁₂

Question Number : 74 Question Id : 2310982774 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT the application of the ion conducting ceramics?

Options :

1. ✖ As oxygen sensor

2. ✖ As oxygen pump

3. ✔ As sensor

4. ✖ As lithium battery

Question Number : 75 Question Id : 2310982775 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For the production of BaTiO_3 ceramics, according to the liquid phase sintering, which additive is generally used?

Options :

1. ✖ MgO

2. ✖ Bi_2O_3

3. ✔ LiF

4. ✖ CaO-SiO_2

Question Number : 76 Question Id : 2310982776 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The materials that produce heat by combustion are termed as:

Options :

2. ✗ nuclear fuels

3. ✗ gas

4. ✗ energy

Question Number : 77 Question Id : 2310982777 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a secondary fuel?

Options :

1. ✓ Coal

2. ✗ Fuel oil

3. ✗ Kerosene

4. ✗ Coke oven gas

Question Number : 78 Question Id : 2310982778 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a fossils fuel found in the crust of earth?

Options :

1. ✗ Coal

2. ✗ Petroleum

4. ✔ Chemical

Question Number : 79 Question Id : 2310982779 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The calorific value of charcoal is:

Options :

1. ✖ 5,500-6,000 kcal/kg

2. ✖ 6,000-7,500 kcal/kg

3. ✔ 7,500-8,000 kcal/kg

4. ✖ 8,000-8,500 kcal/kg

Question Number : 80 Question Id : 2310982780 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following information is determined from the proximate analysis of coal?

Options :

1. ✔ Moisture, volatile matter, ash and fixed carbon

2. ✖ Carbon, hydrogen, nitrogen, oxygen and sulphur

3. ✖ Hydrogen, nitrogen, ash and fixed carbon

4. ✖ Fixed carbon, volatile matter, oxygen and sulphur

Question Number : 81 Question Id : 2310982781 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Options :

1. ✖ - 8 + 16 mesh

2. ✔ -16 + 30 mesh

3. ✖ -30 + 45 mesh

4. ✖ -45 + 60 mesh

Question Number : 82 Question Id : 2310982782 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The octane number is a property of _____, which is used in a spark ignition engine and expresses its knocking characteristics.

Options :

1. ✖ diesel

2. ✔ gasoline

3. ✖ fuel oil

4. ✖ kerosene

Question Number : 83 Question Id : 2310982783 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When the fuel air mixture undergoes very fast or intermittent combustion inside the combustion chamber of an internal combustion engine, then a sort of rattling noise develops from the combustion chamber. This noise is called:

Options :

1. ✖ cetane number

3. ✖ anti-knocking

4. ✔ detonation

Question Number : 84 Question Id : 2310982784 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The calorific value of producer gas is:

Options :

1. ✔ 1,250-1,550 kcal/Nm³2. ✖ 1,500-2,000 kcal/Nm³3. ✖ 2,000- 2,500 kcal/Nm³4. ✖ 2,500-2,800 kcal/Nm³

Question Number : 85 Question Id : 2310982785 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a _____, the stock enters or is pushed in from charging end of the furnace, and it travels countercurrent to the hot flue gasses to the discharge end.

Options :

1. ✖ batch type furnace

2. ✖ recuperative furnace

3. ✖ regenerative furnace

Question Number : 86 Question Id : 2310982786 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT an important furnace auxiliary?

Options :

1. ✓ Charge

2. ✗ Damper

3. ✗ Fan

4. ✗ Burner

Question Number : 87 Question Id : 2310982787 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Sensible heat losses in the flue gases, while leaving the chimney, _____ of the heat input to the furnace.

Options :

1. ✗ carry 10-25%

2. ✗ carry 25-45%

3. ✓ carry 35-55 %

4. ✗ carry 55-70%

Question Number : 88 Question Id : 2310982788 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

More heat recovery is achieved by:

Options :

2. ✔ counter flow recuperator

3. ✖ cross flow recuperator

4. ✖ alternate flow recuperator

Question Number : 89 Question Id : 2310982789 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A metallic recuperator cannot be used at temperatures higher than:

Options :

1. ✖ 500 °C

2. ✖ 600 °C

3. ✔ 700 °C

4. ✖ 800 °C

Question Number : 90 Question Id : 2310982790 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The thermal conductivity of air at 100°C is:

Options :

1. ✖ 358 kcal/ hr m °C

2. ✖ 1.19 kcal/ hr m °C

4. ✔ 0.25 kcal/ hr m °C

Question Number : 91 Question Id : 2310982791 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

At higher temperatures, which of the following heat transfer techniques is/are predominant?

Options :

1. ✖ Conduction

2. ✖ Convection

3. ✔ Radiation

4. ✖ Convection and conduction

Question Number : 92 Question Id : 2310982792 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In radiation, a perfect radiator must have:

Options :

1. ✖ an absorptivity of unity and reflectivity unity

2. ✖ an absorptivity of zero and reflectivity unity

3. ✖ an absorptivity of zero and reflectivity less than unity

4. ✔ an absorptivity of unity and reflectivity of zero

Question Number : 93 Question Id : 2310982793 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Options :

1. ✓ chrome magnesite bricks
2. ✗ fire clay bricks
3. ✗ silica bricks
4. ✗ fused alumina bricks

Question Number : 94 Question Id : 2310982794 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Rotary kilns are used for calcinations of:

Options :

1. ✓ limestone and dolomite
2. ✗ aluminium hydroxide
3. ✗ clay and talc
4. ✗ quartz and feldspar

Question Number : 95 Question Id : 2310982795 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following raw material is NOT used in Indian blast furnace?

Options :

1. ✗ Iron ore lump
2. ✗ Coke

4. ✔ Magnetite

Question Number : 96 Question Id : 2310982796 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The refractory lining used in a rotary lime kiln for 0 to 1.5 m is:

Options :

1. ✔ high grog fireclay bricks

2. ✖ mag-chrome bricks

3. ✖ high alumina bricks

4. ✖ magnesia bricks

Question Number : 97 Question Id : 2310982797 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The bright red colour in the kiln corresponds to the temperature of:

Options :

1. ✖ 700 °C

2. ✖ 800 °C

3. ✔ 1,000 °C

4. ✖ 1,200 °C

Question Number : 98 Question Id : 2310982798 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Pyrosopes are made by:

Options :

1. ✓ ceramic materials
2. ✗ polymer materials
3. ✗ metallic materials
4. ✗ smart materials

Question Number : 99 Question Id : 2310982799 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Seeger's Cone pyroscope works on the principle of:

Options :

1. ✗ expansion
2. ✗ shrinkage
3. ✓ sagging
4. ✗ melting

Question Number : 100 Question Id : 2310982800 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The holdcroft pyroscope test pieces are made in the:

Options :

1. ✗ cone form
2. ✓ bar form

4. ✖ ring form

Question Number : 101 Question Id : 2310982801 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Bullers rings are used to measure the _____ of the ware in the biscuit ovens and also to check the progress of the firing in the different parts of the oven during firing.

Options :

1. ✖ expansion

2. ✔ contraction

3. ✖ sagging

4. ✖ melting

Question Number : 102 Question Id : 2310982802 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The thermoelectric pyrometer is based on the principle of:

Options :

1. ✔ seebeck effect

2. ✖ resistance effect

3. ✖ hall effect

4. ✖ piezoelectric effect

Question Number : 103 Question Id : 2310982803 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

'The total radiation emitted by a hot body varies directly as the difference of the fourth power of the absolute temperature between the hot body and the cold surroundings'. This statement is associated with.

Options :

1. ✗ Planck's Law
2. ✗ Kirchhoff's law
3. ✓ Stefan-Boltzmann law
4. ✗ Einstein law

Question Number : 104 Question Id : 2310982804 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Above _____, the energy radiated from the hot body is partially visible as light and partially invisible as heat.

Options :

1. ✓ 500 °C
2. ✗ 600 °C
3. ✗ 700 °C
4. ✗ 800 °C

Question Number : 105 Question Id : 2310982805 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In the Fery Radiation Pyrometer, the heat rays are received on a _____ and brought to focus on a small thermocouple.

Options :

1. ✗ convex mirror

3. ✗ flat mirror

4. ✗ plano-convex mirror

Question Number : 106 Question Id : 2310982806 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The resistance pyrometer wire is made up of:

Options :

1. ✓ platinum

2. ✗ copper

3. ✗ bronze

4. ✗ iron

Question Number : 107 Question Id : 2310982807 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Wedgwood Pyroscope works on the principle of:

Options :

1. ✓ contraction

2. ✗ fusion

3. ✗ expansion

Question Number : 108 Question Id : 2310982808 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following instruments is used to measure the temperature inside the furnace in the radiation pyrometer?

Options :

1. ✖ Voltmeter

2. ✖ Ammeter

3. ✖ Rotameter

4. ✔ Galvanometer

Question Number : 109 Question Id : 2310982809 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

When a junction of two different metals is heated, _____ is developed at the junction.

Options :

1. ✖ PTC

2. ✔ EMF

3. ✖ NTC

4. ✖ STP

Question Number : 110 Question Id : 2310982810 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

A/An _____ is defined as an infinite array of points in three dimensions in which every point has surroundings identical to that of every other point in the array.

Options :

2. ✗ bravais lattices

3. ✗ crystal

4. ✗ unit cell

Question Number : 111 Question Id : 2310982811 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

What is the effective number of lattice points in a BCC unit cell?

Options :

1. ✗ 1

2. ✓ 2

3. ✗ 3

4. ✗ 4

Question Number : 112 Question Id : 2310982812 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

How many lattice parameters are required to completely specify the unit of the triclinic crystal system?

Options :

1. ✗ 2

2. ✗ 3

4. ✔ 6

Question Number : 113 Question Id : 2310982813 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The typical interatomic spacing in crystals is:

Options :

1. ✖ 0.5-1 Å

2. ✔ 2-3 Å

3. ✖ 3-4 Å

4. ✖ 4-5 Å

Question Number : 114 Question Id : 2310982814 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Ionic crystals with multivalent ions have generally stronger bonds and hence have _____ than crystals with univalent ions.

Options :

1. ✔ higher melting points

2. ✖ lower melting points

3. ✖ higher ionic conductivity

4. ✖ higher dielectric properties

Question Number : 115 Question Id : 2310982815 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Which of the following structures is NOT a rock salt structure?

Options :

1. ✖ NaCl

2. ✖ MgO

3. ✖ CaO

4. ✔ BeO

Question Number : 116 Question Id : 2310982816 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following structures is NOT a wurtzite structure?

Options :

1. ✖ ZnO

2. ✖ SiC

3. ✖ ZnTe

4. ✔ CoSe

Question Number : 117 Question Id : 2310982817 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following structures is NOT a perovskite structure?

Options :

1. ✖ CaTiO₃

2. ✖ SrTiO₃

4. ✗ BaTiO₃

Question Number : 118 Question Id : 2310982818 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following minerals does NOT have a sheet structure?

Options :

1. ✗ Clays

2. ✗ Talcs

3. ✗ Micas

4. ✓ Olivine

Question Number : 119 Question Id : 2310982819 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The melting point of MgO is:

Options :

1. ✓ 2,852 °C

2. ✗ 2,050 °C

3. ✗ 2,013 °C

4. ✗ 2,135 °C

Question Number : 120 Question Id : 2310982820 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

To measure the melting point of solids, the simplest method is probably to use:

Options :

1. ✓ a DTA

2. ✗ an SEM

3. ✗ a TEM

4. ✗ an HRTEM

Question Number : 121 Question Id : 2310982821 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Melting is a/an:

Options :

1. ✓ endothermic process

2. ✗ exothermic process

3. ✗ decomposition process

4. ✗ oxidation process

Question Number : 122 Question Id : 2310982822 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

An oxide layer is protective when the Pilling-Bedworth ratio is:

Options :

1. ✓ 1

2. ✗ 2

4. ✖ 4

Question Number : 123 Question Id : 2310982823 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The enthalpies of formation of Schottky and Frenkel defects in alkali halides fall in the range of:

Options :

1. ✖ 0 to 150 kJ/mol

2. ✔ 100 to 250 kJ/mol

3. ✖ 200 to 350 kJ/mol

4. ✖ 300 to 450 kJ/mol

Question Number : 124 Question Id : 2310982824 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

For an edge dislocation, the Burgers vector is always _____ to the dislocation line.

Options :

1. ✖ parallel

2. ✔ perpendicular

3. ✖ angular

4. ✖ tilted

Question Number : 125 Question Id : 2310982825 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In a phase diagram, at triple point, the degree of freedom becomes:

Options :

1. ✓ 0

2. ✗ 1

3. ✗ 2

4. ✗ 3

Question Number : 126 Question Id : 2310982826 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The Nernst-Einstein relation is particularly useful in considering the mobility of charged particles, and the relationship between diffusion coefficients and:

Options :

1. ✓ electrical conductivity

2. ✗ thermal conductivity

3. ✗ mechanical property

4. ✗ optical property

Question Number : 127 Question Id : 2310982827 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

In sintering, a matter is transported from the grain boundary to the neck by:

Options :

1. ✓ lattice diffusion

2. ✗ surface diffusion

4. ✖ liquid transport

Question Number : 128 Question Id : 2310982828 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is wrong?

Options :

1. ✖

In order to reduce the electron-electron repulsive energy, the number of electrons of the same spin in p, d or f states should be maximum

2. ✖ The momentum and the position of an electron cannot be specified precisely

3. ✖ No two electrons can have the same set of quantum numbers

4. ✔ The momentum and the position of an electron can be specified precisely

Question Number : 129 Question Id : 2310982829 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following elements does NOT act as a glass former in chalcogenide glasses?

Options :

1. ✖ S

2. ✖ Se

3. ✖ Te

4. ✔ PB

Which one in the following oxides is used as fluxing agent in the commercial glass manufacturing?

Options :

1. ✓ Soda

2. ✗ Alumina

3. ✗ Chrome oxide

4. ✗ Silica

Question Number : 131 Question Id : 2310982831 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following oxides is the most efficient fining agent from glass melts?

Options :

1. ✓ Arsenic oxides

2. ✗ Magnesium oxides

3. ✗ Aluminium oxides

4. ✗ Copper oxides

Question Number : 132 Question Id : 2310982832 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The absence of which of the following oxides can seriously affect the efficiency of arsenic and antimony oxides as fining agents?

Options :

1. ✓ Basic oxides

3. ✖ Amphoteric oxides

4. ✖ Acidic oxides and amphoteric oxides

Question Number : 133 Question Id : 2310982833 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following statements is not associated to the Zachariasen's Rules for Glass Formation?

Options :

1. ✖ Each oxygen atom is linked to no more than two cations.

2. ✔ Oxygen polyhedra share only edges or faces.

3. ✖ Oxygen polyhedra share corners and not edges or faces.

4. ✖ The oxygen coordination number of the network cation is small.

Question Number : 134 Question Id : 2310982834 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The viscosity of glass forming melts at the Littleton Softening Point is:

Options :

1. ✔ $10^{6.6}$ Pa s2. ✖ 10^3 Pa s3. ✖ $10^{11.3}$ Pa s

Question Number : 135 Question Id : 2310982835 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The fiber elongation viscometer method can be used to measure viscosity in the range:

Options :

1. ✖ 1 to 10^4 Pa s

2. ✖ 1 to 10^6 Pa s

3. ✔ 10^5 to 10^{12} Pa s

4. ✖ 10^8 to 10^{13} Pa s

Question Number : 136 Question Id : 2310982836 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following techniques is NOT used to measure viscosity?

Options :

1. ✖ Beam-bending

2. ✔ Crown method

3. ✖ Rotation of a spindle

4. ✖ Falling sphere

Question Number : 137 Question Id : 2310982837 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following is NOT a flat glass?

Options :

2. ✖ Sheet glasses

3. ✔ Container glasses

4. ✖ Plate glasses

Question Number : 138 Question Id : 2310982838 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Which of the following materials is/are widely used for thermal insulation, fire resistant textiles, and reinforcing fibers for composites?

Options :

1. ✔ Glass fibers

2. ✖ Refractories

3. ✖ Tiles

4. ✖ Clay

Question Number : 139 Question Id : 2310982839 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Insulation fibers are produced from modified soda-lime-silica compositions, which contain more _____ than container glasses.

Options :

1. ✔ alumina and iron

2. ✖ magnesia and silica

4. ✖ magnesia and silica

Question Number : 140 Question Id : 2310982840 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The E glass is used for:

Options :

1. ✔ high electrical resistivity

2. ✖ high thermal resistivity

3. ✖ high mechanical resistivity

4. ✖ high chemical resistivity

Question Number : 141 Question Id : 2310982841 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The container glasses are used for:

Options :

1. ✖ windows

2. ✖ mirrors

3. ✖ automotive applications

4. ✔ incandescent lamps

Question Number : 142 Question Id : 2310982842 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Options :

1. ✓ borosilicate glasses
2. ✗ fibre glasses
3. ✗ soda-lime-silica glasses
4. ✗ glass ceramics

Question Number : 143 Question Id : 2310982843 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which option represents the composition of commercial borosilicate glasses for labware?

Options :

1. ✗ SiO_2 -73%, Na_2O -25%, Al_2O_3 -1%, B_2O_3 -1%
2. ✓ SiO_2 -81%, Na_2O -4%, Al_2O_3 -2%, B_2O_3 -13%
3. ✗ SiO_2 -45%, Na_2O -25%, Al_2O_3 -10%, B_2O_3 -20%
4. ✗ SiO_2 -71%, Na_2O -13%, Al_2O_3 -2%, B_2O_3 -14%

Question Number : 144 Question Id : 2310982844 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

The most common _____ are based on either lithium, sodium or magnesium aluminosilicate systems.

Options :

1. ✗ borosilicate glasses
2. ✗ fibre glasses

4. ✗ soda-lime-silica glasses

Question Number : 145 Question Id : 2310982845 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Many applications of glass-ceramics are based on their superior resistance to failure due to:

Options :

1. ✓ thermal shock

2. ✗ thermal conductivity

3. ✗ density

4. ✗ viscosity

Question Number : 146 Question Id : 2310982846 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following composition is correct for a soda-lime-silicate glass?

Options :

1. ✗ 25% soda, 20% lime, and 55% silica

2. ✗ 15% soda, 30% lime, and 55% silica

3. ✗ 15% soda, 15% lime, and 70% silica

4. ✓ 15% soda, 10% lime, and 75% silica

Question Number : 147 Question Id : 2310982847 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical
Correct Marks : 2 Wrong Marks : 0.66

Which of the following materials is not glass ceramics?

Options :

1. ✖ Cordierite
2. ✖ Corningware
3. ✖ Cookware
4. ✔ Borosilicate

Question Number : 148 Question Id : 2310982848 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Vitreous silica is one of the only few glasses that displays a _____ over a limited temperature range, with a minimum in-thermal expansion between 200 and 250 K.

Options :

1. ✔ negative thermal expansion coefficient
2. ✖ positive thermal expansion coefficient
3. ✖ glass transformation temperature
4. ✖ fracture toughness

Question Number : 149 Question Id : 2310982849 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

Alumina serves as a glass former in aluminate glasses, but is considered a _____ in most silicate glasses.

Options :

1. ✔ property modifier
2. ✖ fluxing agent

4. ✖️ ☐ colorant agent

Question Number : 150 Question Id : 2310982850 Question Type : MCQ Option Shuffling : Yes Negative Marks Display Text : 2/3
Option Orientation : Vertical

Correct Marks : 2 Wrong Marks : 0.66

The rate of removal of bubbles is proportional to the square of:

Options :

1. ✔️ ☒ bubble radius2. ✖️ ☐ viscosity3. ✖️ ☐ density4. ✖️ ☐ porosity