

National Testing Agency

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Cornerstone Ideas in Metallurgical Engineering and Materials Sciences

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Cornerstone Ideas in Metallurgical Engineering and Materials Sciences

Section Id : 9095827
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Display Number Panel: Yes
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Sub-Section Number: 1
Sub-Section Id: 9095827
Question Shuffling Allowed : Yes

Question Number : 1 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

During our teaching, the classroom ambiance should be such that it

- (a) enables discussions between all learners.
- (b) enforces strict silence.
- (c) it makes the student self-conscious.

Options :

1. A

2. B

3. C

Question Number : 2 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Typical size of an atom is in the range of

- (a) Angstroms
- (b) Microns
- (c) Nanometers

Options :

- 1. A
- 2. B
- 3. C

Question Number : 3 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

We discussed a quote from Prof. Rustom Roy in this Swayam course. It went like this: "Materials science is a syncretic discipline..." What did Prof. Roy mean?

- (a) Materials science is an advanced field of study.
- (b) Materials science is investment heavy.
- (c) Materials science is an amalgamation of many disciplinary traditions – ceramics, metallurgy, solid state chemistry, and physics.

Options :

- 1. A
- 2. B
- 3. C

Question Number : 4 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"Metals tend to lose electrons when they react with non-metals." (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 5 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Learning ambiance needs to affirm the following:

- a. demands of the course, so that the rigor and stress of real life environments are simulated in class room.
- b. a positive environment, which offers opportunities for purposeful activities, and which also has some display of the learner's work

Options :

1. A
2. B

Question Number : 6 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pedagogy involves

- a. Methods and practice employed for instructing an academic discipline.
- b. Methods and practice employed for instructing adults.

Options :

1. A
2. B

Question Number : 7 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The college classroom experience can offer opportunities for

- a. critical and collective thinking, and cooperative learning.
- b. competition, the way is obvious in today's economy.

Options :

1. A
2. B

Question Number : 8 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When we say materials are classified, it means:

- a. they are sorted in categories based on some shared qualities they have.
- b. they are invented or discovered and kept in secret 'classifieds' listing.

Options :

1. A
2. B

Question Number : 9 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In an experiment you are overseeing as part of your undergraduate teaching, a student reports that for a polymer, s/he found a Young's modulus of 150 GPA.

What would be a good advice to give:

- Revisit the experiment please. The number seems too small.
- Revisit the experiment please. The number seems too large.
- Very nice. The number looks accurate.

Options :

- A
- B
- C

Question Number : 10 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A ceramic MX will be expected to have

- pure ionic bond
- pure covalent bond
- some mix of ionic and covalent bond

Options :

- A
- B
- C

Question Number : 11 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A material has a band gap of 1 eV. It is expected to be:

- translucent
- opaque
- transparent

Options :

- A
- B
- C

Question Number : 12 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Thermal and mechanical shock applications typically employ materials that belong to the following category:

- a. metals
- b. superconductors
- c. semiconductors

Options :

- 1. A
- 2. B
- 3. C

Question Number : 13 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Microelectronics is made possible due to transistor and diode action. This would not be possible without:

- a. conductors.
- b. insulators.
- c. semiconductors.

Options :

- 1. A
- 2. B
- 3. C

Question Number : 14 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A certain application requires cast ability at low temperatures. What material class would you look at as a reasonable prospect:

- a. metals
- b. ceramics
- c. polymers

Options :

- 1. A
- 2. B
- 3. C

Question Number : 15 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Many advanced aircrafts and aerospace vehicles increasingly rely on composites such as carbon reinforced polymers and Kevlar reinforced polymers.” This is due to the following properties of these composites:

- a. shock resistance, toughness, and good (strength to weight) ratio.
- b. tensile strength.
- c. compressive strength.
- d. thermal conductivity.

Options :

1. A
2. B
3. C
4. D

Question Number : 16 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following statements are true:

- a. Student learning cultures matter.
- b. Teacher is a role model, and leads the students through the learning process using a discussion-oriented, conversational approach.
- c. The teacher plays a leadership role, and creates a ‘learning community’ and knowledge sharing community in her/his class.
- d. All of the above.

Options :

1. A
2. B
3. C
4. D

Question Number : 17 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the phase diagram of a pure phase system, the coexistence of solid, liquid and gas will only happen:

- a. along a line in the phase diagram.
- b. at a point in the phase diagram.
- c. in 2-D area in the phase diagram.
- d. None of the above.

Options :

1. A
2. B
3. C

4. D

Question Number : 18 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the class, we discussed the cause of 'fusing' of the tungsten filament of an incandescent bulb. The cause was:

- a. thermal shock.
- b. creep.
- c. thermal expansion.
- d. chemical instability of the tungsten filament.

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 19 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The test that can be used for determining the Young's modulus of a sample is:

- a. Hall effect measurement
- b. Tensile stress test
- c. Impact test
- d. Hardness test

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 20 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The law that describes the linear relationship between stress and strain in the proportionality / linear regime is called

- a. Ohm's law
- b. Hooke's law
- c. Amagat's law
- d. Avagadro hypothesis

Options :

- 1. A
- 2. B

3. C

4. D

Question Number : 21 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Time dependent deformation of a material, which is sensitively dependent on the temperature, is called:

- a. elastic deformation
- b. plastic deformation
- c. shear
- d. creep

Options :

1. A

2. B

3. C

4. D

Question Number : 22 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Polymers can be made colored using:

- a. dyes and pigments
- b. hammering
- c. extrusion
- d. none of the above

Options :

1. A

2. B

3. C

4. D

Question Number : 23 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Hardness and elastic modulus are one and the same.” (True/False)

- a. True
- b. False

Options :

1. A

2. B

Question Number : 24 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Polymers usually have low densities (say 1-2 g/cc).” True / False

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 25 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Circuits used in optical communication often rely on photodiodes, LEDs, laser diodes, which are made using direct band gap materials.” True / False

- a. False
- b. True

Options :

- 1. A
- 2. B

Question Number : 26 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

‘The expression for true stress, takes into account the instantaneous cross section, of the sample under stress.’ True / False

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 27 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An ‘AB’ system, where A and B are dissimilar atoms, has a % ionicity that depends on

- a. electronegativity differences of A and B.
- b. electron affinity differences between A and B.
- c. difference in size of the atoms.
- d. None of the above.

Options :

- 1. A
- 2. B
- 3. C

4. D

Question Number : 28 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the coordination number of Si in elemental crystalline Silicon (say like the ones used in microelectronics)?

- a. 8
- b. 12
- c. 6
- d. 4

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 29 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many Bravais lattices and crystal systems exist?

- a. 7 and 14
- b. 14 and 7
- c. 7 and infinitely many

Options :

- 1. A
- 2. B
- 3. C

Question Number : 30 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“NaCl has a cubic crystal structure.” (True / False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 31 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Diffusion is a thermally activated process”. What would its value be at 0K?

- a. Infinity
- b. 0
- c. Indeterminate
- d. None of the above. It depends on the material and atom being considered.

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 32 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Diffusion is an important physico-chemical phenomena, relevant for many materials processes –such as synthesis, heat treatment etc.” (True / False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 33 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a certain answer given by your student, you have determined the scope for improvement in student response. Then you call the student and tell her/him: “Your answer is a reasonable starting point. I would like you to also consider achieving a fuller response by taking into account these pointers:”

Such an approach is an example of your use of:

- a. Formative assessment and feedback.
- b. Rubrics
- c. Bloom’s taxonomy
- d. None of the above

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 34 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Magnetic behavior of a material is temperature independent.” (True/False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 35 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Magnetism fundamentally requires a quantum mechanical explanation, since it involves spin.”

(True/False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 36 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A certain material has a band gap of around 6 eV. It is a

- a. conductor
- b. semiconductor
- c. insulator

Options :

- 1. A
- 2. B
- 3. C

Question Number : 37 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“A polymer can become conducting or semiconducting if it has alternating single and double bonds and hence resonance.”(True / False)

- a. True
- b. False
- c. This cannot be answered as of now

Options :

- 1. A
- 2. B
- 3. C

Question Number : 38 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Planck's law pertains to

- a. a perfect absorber.
- b. a perfect reflector.
- c. quantization of light (in the form of quanta/particle-like structures called photons, whose energy content is related only to the frequency of corresponding light).

Options :

- 1. A
- 2. B
- 3. C

Question Number : 39 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"In the class, we found that dielectric constant is a complex quantity."

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 40 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"Dielectric constant of vacuum is zero."

- a. True
- b. False
- c. Sometimes true
- d. None of the above

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 41 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Polymer based composites can have thermal conductivities that are superior to the corresponding constituent polymer phase.” (True/ False)

- a. False
- b. True

Options :

- 1. A
- 2. B

Question Number : 42 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Speed of light in any material is a universal constant”.

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 43 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Radius ratio rules hold true only for oxide ceramics.”

- a. False
- b. True

Options :

- 1. A
- 2. B

Question Number : 44 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Tree diagrams are helpful for representing the structure of information, the kind shared in a class room.”

- a. False
- b. True

Options :

- 1. A
- 2. B

Question Number : 45 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Vygotsky's approach encourages

- a. provision of all the information the student is supposed to know in a structured manner.
- b. offering a scaffold for enabling the student to fill the gaps by herself/himself.
- c. none of the above.

Options :

1. A
2. B
3. C

Question Number : 46 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

(Knowledge) Tree diagrams can be thought of as

- a. biological maps
- b. ontological maps

Options :

1. A
2. B

Question Number : 47 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Constructive alignment (by Prof. John B Briggs) is a principle helpful in devising learning and teaching related activities, and _____, that are oriented towards intended learning outcomes (ILOs). (Fill in the blank)

- a. entertainment
- b. classroom management
- c. assessment

Options :

1. A
2. B
3. C

Question Number : 48 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In this course, we learnt that 'materials classification' and rubrics for evaluation of answer sheets are both examples of

- a. important documents.
- b. tangible examples of schemas in operation.

Options :

1. A

2. B

Question Number : 49 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"When a measure becomes a target, it ceases to be a good measure." We discussed this statement in the context of using student's score as a target (teaching to the exam, for example). This statement is called the:

- a. Newton's law
- b. Goodhart's law
- c. Charles law

Options :

- 1. A
- 2. B
- 3. C

Question Number : 50 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"The strain in a solid is proportional to the applied stress within the elastic limit of that solid." This is statement of the following law:

- a. Charle's law
- b. Boyle's law
- c. Hooke's law

Options :

- 1. A
- 2. B
- 3. C

Question Number : 51 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

"As cross-linking increases, typically crystallinity decreases." (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 52 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Number averaged and weight averaged molecular weights of a polymer are the same.”

(True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 53 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

_____ is the term used to describe relative positioning of the same group along the length of a polymer. (Fill the blank)

- a. Tacticity
- b. Syndiotacticity
- c. Crystallinity

Options :

- 1. A
- 2. B
- 3. C

Question Number : 54 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Tacticity can strongly affect the glass transition temperature.”

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 55 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The lower limit the degree of supercooling is described through the _____ paradox.

- a. Fermi
- b. Kauzmann
- c. Literary
- d. Twin

Options :

1. A
2. B
3. C
4. D

Question Number : 56 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A co-polymer has _____ mers.

- a. 1
- b. 2
- c. 3
- d. 4

Options :

1. A
2. B
3. C
4. D

Question Number : 57 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Spherulites form _____ crosses.

- a. Maltese
- b. Greek
- c. Roman
- d. None of the above

Options :

1. A
2. B
3. C
4. D

Question Number : 58 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Orientation of spherulites in a polymer sample can be used to make an informed estimate / guess regarding the way in which it was melted and solidified.” (True/ False)

- a. True
- b. False

Options :

1. A
2. B

Question Number : 59 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Ductility is related to plastic deformation that can be introduced into the material.” (True/False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 60 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The fringed micelle model describes the polymer as a combination of crystalline regions / crystallites, embedded in an amorphous matrix (also made of the polymer).”

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 61 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Saturated polymers (i.e. those having single C-C bonds) are less stable than their unsaturated counterparts.”(True/False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 62 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“A polymer can have only one necking event, just like a metal, when subjected to tension.”

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 63 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Toughness values reported are specimen-specific. This is why toughness values are statistically described.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 64 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Molecular rearrangement in a polymer when subjected to stress, is invariant with respect to the temperature.”

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 65 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Polymer undergoes fatigue faster than metals since they are sensitive to localized heating which occurs during deformation”.

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 66 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

It was found that a certain material A has an electrical conductivity of 2 S/m . Which of the following categories describes the material the best?

- a. Conductor
- b. Semiconductor
- c. Insulator

Options :

- 1. A
- 2. B
- 3. C

Question Number : 67 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Teflon is a common polymer used in making handles of kitchen utensils. This is so because of it's:

- a. thermal and chemical stability
- b. corrosion resistance
- c. low thermal conductivity
- d. all of the above

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 68 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“During the final stages of polymer deformation, the crystalline segments are drawn farther from one another, and the otherwise amorphous fibers orient along the stress axis.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 69 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Most composites have isotropic properties”. (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 70 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Foams cannot be considered composites” True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 71 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Morphology of a dispersoid will play an important role in a composite’s structural and transport properties” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 72 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Foams are expected to be poor conductors of heat.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 73 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Based on Piaget’s cognitive development theory, a college educator may aim to ask questions to her/him students at the following level(s):

- (a) memory
- (b) understanding
- (c) application
- (d) all of the above

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 74 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The Socratic approach is helpful to teach the student, the art of critical thinking.” (True/ False)

- a. True
- b. False

Options :

- 1. A

2. B

Question Number : 75 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“While dealing with introverted students, it is helpful to empower them, offer some quiet time for their study, and perhaps even meet one-on-one to strategize their learning approaches, and offer meaningful feedback”. (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 76 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Atomic weights are always integers.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 77 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Metals have a propensity / tendency for oxidation.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 78 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Over justification effect is the phenomenon wherein previously existing intrinsic motivation suffers due to offer of extrinsic motivators (e.g. money, prizes, grades etc).” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 79 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“_____ is a term that refers to the individual and group differences that we see in a learning setting.”

- a. Learner diversity
- b. Cultural composition
- c. College setting
- d. Demographics

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 80 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The student development movement believes that (i) each student is a unique individual, (ii) the student’s environment should be taken into account and employed for education (iii) student has a _____ for getting educated.”

- a. privilege
- b. personal responsibility
- c. college
- d. none of the above

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 81 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“In engineering and science education, the student development movement need not be taken seriously.”
(True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 82 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Czikzhenmihalyi’s flow theory allows a design to get any worker or student into the zone of optimal _____ motivation.”

- a. extrinsic
- b. intrinsic

Options :

- 1. A
- 2. B

Question Number : 83 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The flow theory does provide a mechanism to do lesson planning, provided there is a constant feedback mechanism that lets the instructor know where the student’s current level of competence is.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 84 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The “experienced curriculum” is always same as the “planned” curriculum.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 85 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The process of curriculum development and evolution, as employed by any instructor has an element of _____ subjectivity. Here the teacher gets informed through her/his experience of the curriculum over the course of several delivery cycles.” (Fill the blank)

- a. no
- b. some
- c. random
- d. informed

Options :

- 1. A
- 2. B
- 3. C

4. D

Question Number : 86 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Curricular content” is a permanent aspect of any given course.

- (a) True
- (b) False

Options :

- 1. A
- 2. B

Question Number : 87 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Polymers are not castable.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 88 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Concrete, plywood, fiber glass are common examples of _____”. (Fill in the blank)

- a. metals
- b. ceramics
- c. composites
- d. polymers

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 89 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Nanomaterials can never be metallic”. (True/ False)

- a. True
- b. False

Options :

- 1. A

2. B

Question Number : 90 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Yield strength is the stress at which a material has undergone some arbitrarily chosen amount of permanent deformation, often 0.2 percent.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 91 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Tensile strength is the maximum tensile stress a material can withstand.” (True/ False)

- a. False
- b. True

Options :

- 1. A
- 2. B

Question Number : 92 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Materials in which the yield point phenomenon occurs exhibit a characteristic drop in the stress–strain curve at the end of the elastic (or mainly elastic) region. In most cases the subsequent plastic deformation takes place locally in deformation bands, often termed _____ bands.” (Fill blanks)

- a. Lüders
- b. Pascal’s
- c. Ohm’s
- d. Newton’s

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 93 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Fibers and rigid plastics are brittle materials.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 94 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

According to Carpentier (2010), the news weblog

- a. Engages in a different communicative endeavor to the dominant news practice
- b. Have a group of dedicated group of followers who form the audience and share similar interests
- c. Are an exciting new platform for articulating one’s view point.
- d. Engages in a different communicative behavior to the dominant news practice, making less of a claim to know what readers want or to know what an even means

Options :

- 1. A
- 2. B

Question Number : 95 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Heat of transformation is the:

- a. heat needed to increase temperature of an object by a unit degree C.
- b. heat needed to change the materials physical state.
- c. heat flow rate per unit area per unit temperature gradient.
- d. relative change in dimension per unit change in temperature.

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 96 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Thermal expansion coefficient is the:

- a. heat needed to increase temperature of an object by a unit degree C.
- b. heat needed to change the materials physical state.
- c. heat flow rate per unit area per unit temperature gradient.
- d. relative change in dimension per unit change in temperature.

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 97 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“The temperature at which a solid melts depends on the pressure applied on it.” (Yes/ No)

- a. No
- b. Yes

Options :

- 1. A
- 2. B

Question Number : 98 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Electrical resistivity is _____ of conductivity. (Fill in the blank)

- a. inverse
- b. dual
- c. twice that
- d. thrice that

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 99 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Dielectric constants and susceptibilities may be modeled to be complex quantities.” (Yes/ No)

- a. Yes
- b. No

Options :

1. A
2. B

Question Number : 100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Dielectric breakdown field is ill-defined for metals.” (Yes/ No)

- a. Yes
- b. No

Options :

1. A
2. B

Question Number : 101 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“A perfect dielectric medium would be lossless medium for electromagnetic field propagation”. (True/ False)

- a. True
- b. False

Options :

1. A
2. B

Question Number : 102 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Magnetic materials suffer from eddy current losses when they are placed in a.c field. This has to do with induced surface current in materials.” (True/ False)

- a. True
- b. False

Options :

1. A
2. B

Question Number : 103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Optical reflectivity, transmittivity, absorptivity are defined as the ratio of intensity of reflected, transmitted, and absorbed light, to that of the incident light” Yes/ No)

- a. Yes
- b. No

Options :

1. A
2. B

Question Number : 104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Refractive index, like the dielectric constant, is dispersive (i.e. dependent on frequency of excitation – light or AC field) (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Close packing of atoms is one of the reasons for the rather large density of ceramics and metals, when compared to polymers.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B

Question Number : 106 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Close packing of atoms is one of the reasons for the rather large density of ceramics and metals, when compared to polymers.” (True/ False)

- a. True
- b. False

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 107 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

_____ bond is responsible for the malleability and ductility of metals.

- a. Covalent
- b. Ionic
- c. Metallic
- d. Hydrogen

Options :

1. A
2. B
3. C
4. D

Question Number : 108 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Can all combinations of cations and anions make up a stable ceramic? (Yes/No)

- a. Yes
- b. No

Options :

1. A
2. B

Question Number : 109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

At 0 K, what happens to diffusion?

- a. It continues
- b. It completely stops.
- c. It becomes very high.
- d. It becomes lesser, but not zero.

Options :

1. A
2. B
3. C
4. D

Question Number : 110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Diffusion can never happen in polymers or glasses.” (True/False)

- a. True
- b. False

Options :

1. A
2. B

Question Number : 111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Could an atom doped into another material get preferentially ionized when compared to its neighboring atoms?” (Yes/No)

- a. No
- b. Yes

Options :

- 1. A
- 2. B

Question Number : 112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Can precise atomic arrangement be obtained using diffraction patterns? (Yes/No)

- a. Yes
- b. No

Options :

- 1. A
- 2. B

Question Number : 113 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Silicates are abundant in earth's crust. Are these ceramics?”

- a. No
- b. Yes

Options :

- 1. A
- 2. B

Question Number : 114 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“There are several technologies that use ceramics. Some of these are: glass products, ceramic engines, optical communication network, photo electrochemical devices, electrical insulators, water treatment, structural applications, magnetic memories, energy storage, energy generation (eg. fuel cells), sensors, light detectors and conductors, cutting tools, nozzles, valves, ball bearings, superconductors”.

- a. False
- b. True

Options :

- 1. A
- 2. B

Question Number : 115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If you are given the unit cell dimensions and constituents of a ceramic, can you find out the theoretical density of the solid? (Yes/No)

- a. No
- b. Yes

Options :

- 1. A
- 2. B

Question Number : 116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“All phase transformations require diffusion.” (Yes/No)

- a. No
- b. Yes

Options :

- 1. A
- 2. B

Question Number : 117 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Any mechanism that can impede dislocation motion can be used to strengthen a material”. (Yes/No)

- a. No
- b. Yes

Options :

- 1. A
- 2. B

Question Number : 118 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Planes in a crystal are labeled using:

- a. Miller indices
- b. Voigt notation
- c. Einstein notation
- d. Eulerian notation

Options :

- 1. A
- 2. B
- 3. C
- 4. D

Question Number : 119 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“In learning theory, schema is describes a pattern of thought or behavior that organizes categories of information and the relationships among them.” (Yes/No)

- a. Yes
- b. No

Options :

- 1. A
- 2. B

Question Number : 120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

“Constructive alignment is a principle used for devising teaching and learning activities, and assessment tasks, that directly address the intended learning outcomes (ILOs) in a way not typically achieved in traditional lectures, tutorial classes and examinations.”

- a. No
- b. Yes

Options :

- 1. A
- 2. B