

Code No: 56037

Set No. 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

III B.Tech. II Sem., II Mid-Term Examinations, April – 2014

MATERIAL SCIENCE FOR CHEMICAL ENGINEERING

Objective Exam

Name: _____ Hall Ticket No.

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The unit of the diffusion coefficient D is []
A) m/S^2 B) m^2/S^2 C) m^2/S D) m^2S
2. The fatigue strength of mild steel is []
A) Equal to its tensile strength B) more than its tensile strength
C) Equal to its yield strength D) lower than its yield strength
3. Covalent and ionic solids are not suitable as structure components, because []
A) they have weak bonds B) they are ductile
C) they are brittle D) they have high elastic moduli
4. The unit of fracture toughness is []
A) $J.m^2$ B) J/m^2 C) J/m D) $J.m$
5. The most desirable method of increasing the yield strength of mild steel is []
A) grain refinement B) annealing C) Solute addition D) precipitation hardening
6. In the Griffith equation, the fracture stress is proportional to []
A) \sqrt{c} B) $1/\sqrt{c}$ C) $1/c$ D) $1/2c$
7. Pore –free coating is required when []
A) coating is noble with respect to the protected metal
B) coating is base with respect to the protected metal
C) coating has the same potential as the protected metal
D) none of these
8. In the base SI units, tesla is expressed as []
A) $NA^{-1} m^{-1}$ B) $NA^{-1} m^{-3}$ C) $kg m^{-2} s^{-2} A^{-2}$ D) $kg s^{-2} A^{-1}$
9. The transition from the ferromagnetic to the paramagnetic state is named after []
A) Curie B) Curie-weiss C) Neel D) Debye
10. In Stainless steel (18-8), composition 18wt% corresponds to []
A) Ni B) Fe C) Cr D) Mo

Cont.....2

II Fill in the blanks

11. In Hall-Petch equation the yield strength of a poly crystalline material is a function of its _____
12. A linear combination of a Maxwell and a voigt-Kelvin element is a _____ parameter model
13. If the melting point of polyethylene is 140°C , it will not creep at _____ temperature
14. The residual stresses in the interior of a tempered glass are _____
15. If the activation energy for oxidation is 100kJ/mol , the ratio of oxidation rate at 800°C and 500°C is _____
16. The units of magnetic permeability are _____
17. The curie temperature of cobalt is _____
18. The rate of plastic deformation is proportional to _____
19. The garnet crystal used in a microprocessor has the formula _____
20. To make the Mn atom ferromagnetic by alloying, the ratio of its atomic radius-to-3d radius should be. _____

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Set No. 2

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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Objective Exam

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. The unit of fracture toughness is []
A) J.m^2 B) J/m^2 C) J/m D) J.m
2. The most desirable method of increasing the yield strength of mild steel is []
A) grain refinement B) annealing C) Solute addition D) precipitation hardening
3. In the Griffith equation, the fracture stress is proportional to []
A) \sqrt{c} B) $1/\sqrt{c}$ C) $1/c$ D) $1/2c$
4. Pore –free coating is required when []
A) coating is noble with respect to the protected metal
B) coating is base with respect to the protected metal
C) coating has the same potential as the protected metal
D) none of these
5. In the base SI units, tesla is expressed as []
A) $\text{NA}^{-1} \text{m}^{-1}$ B) $\text{NA}^{-1} \text{m}^{-3}$ C) $\text{kg m}^{-2} \text{s}^{-2} \text{A}^{-2}$ D) $\text{kg s}^{-2} \text{A}^{-1}$
6. The transition from the ferromagnetic to the paramagnetic state is named after []
A) Curie B) Curie-weiss C) Neel D) Debye
7. In Stainless steel (18-8), composition 18wt% corresponds to []
A) Ni B) Fe C) Cr D) Mo
8. The unit of the diffusion coefficient D is []
A) m/S^2 B) m^2/S^2 C) m^2/S D) m^2S
9. The fatigue strength of mild steel is []
A) Equal to its tensile strength B) more than its tensile strength
C) Equal to its yield strength D) lower than its yield strength
10. Covalent and ionic solids are not suitable as structure components, because []
A) they have weak bonds B) they are ductile
C) they are brittle D) they have high elastic moduli

Cont.....2

II Fill in the blanks

11. The residual stresses in the interior of a tempered glass are _____
12. If the activation energy for oxidation is 100kJ/mol, the ratio of oxidation rate at 800⁰ c and 500⁰ c is _____
13. The units of magnetic permeability are _____
14. The curie temperature of cobalt is _____
15. The rate of plastic deformation is proportional to _____
16. The garnet crystal used in a microprocessor has the formula _____
17. To make the Mn atom ferromagnetic by alloying, the ratio of its atomic radius-to-3d radius should be. _____
18. In Hall-Petch equation the yield strength of a poly crystalline material is a function of its _____
19. A linear combination of a Maxwell and a voigt-Kelvin element is a _____ parameter model
20. If the melting point of polyethylene is 140⁰ c, it will not creep at _____ temperature

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Set No. 3

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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MATERIAL SCIENCE FOR CHEMICAL ENGINEERING

Objective Exam

Name: _____ Hall Ticket No.

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. In the Griffith equation, the fracture stress is proportional to []
A) \sqrt{c} B) $1/\sqrt{c}$ C) $1/c$ D) $1/2c$
2. Pore –free coating is required when []
A) coating is noble with respect to the protected metal
B) coating is base with respect to the protected metal
C) coating has the same potential as the protected metal
D) none of these
3. In the base SI units, tesla is expressed as []
A) $NA^{-1} m^{-1}$ B) $NA^{-1} m^{-3}$ C) $kg m^{-2} s^{-2} A^{-1}$ D) $kg s^{-2} A^{-1}$
4. The transition from the ferromagnetic to the paramagnetic state is named after []
A) Curie B) Curie-weiss C) Neel D) Debye
5. In Stainless steel (18-8), composition 18wt% corresponds to []
A) Ni B) Fe C) Cr D) Mo
6. The unit of the diffusion coefficient D is []
A) m/S^2 B) m^2/S^2 C) m^2/S D) m^2S
7. The fatigue strength of mild steel is []
A) Equal to its tensile strength B) more than its tensile strength
C) Equal to its yield strength D) lower than its yield strength
8. Covalent and ionic solids are not suitable as structure components, because []
A) they have weak bonds B) they are ductile
C) they are brittle D) they have high elastic moduli
9. The unit of fracture toughness is []
A) $J.m^2$ B) J/m^2 C) J/m D) $J.m$
10. The most desirable method of increasing the yield strength of mild steel is []
A) grain refinement B) annealing C) Solute addition D) precipitation hardening

Cont.....2

II Fill in the blanks

11. The units of magnetic permeability are _____
12. The curie temperature of cobalt is _____
13. The rate of plastic deformation is proportional to _____
14. The garnet crystal used in a microprocessor has the formula _____
15. To make the Mn atom ferromagnetic by alloying, the ratio of its atomic radius-to-3d radius should be. _____
16. In Hall-Petch equation the yield strength of a poly crystalline material is a function of its _____
17. A linear combination of a Maxwell and a voigt-Kelvin element is a _____ parameter model
18. If the melting point of polyethylene is 140°C , it will not creep at _____ temperature
19. The residual stresses in the interior of a tempered glass are _____
20. If the activation energy for oxidation is 100kJ/mol , the ratio of oxidation rate at 800°C and 500°C is _____

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Set No. 4

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

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MATERIAL SCIENCE FOR CHEMICAL ENGINEERING

Objective Exam

Name: _____ Hall Ticket No.

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Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.

I Choose the correct alternative:

1. In the base SI units, tesla is expressed as []
A) $\text{NA m}^{-1} \text{ s}^{-1}$ B) $\text{NA m}^{-1} \text{ s}^{-3}$ C) $\text{kg m}^{-2} \text{ s}^{-2} \text{ A}^{-2}$ D) $\text{kg s}^{-2} \text{ A}^{-1}$
2. The transition from the ferromagnetic to the paramagnetic state is named after []
A) Curie B) Curie-weiss C) Neel D) Debye
3. In Stainless steel (18-8), composition 18wt% corresponds to []
A) Ni B) Fe C) Cr D) Mo
4. The unit of the diffusion coefficient D is []
A) m/S^2 B) m^2/S^2 C) m^2/S D) m^2S
5. The fatigue strength of mild steel is []
A) Equal to its tensile strength B) more than its tensile strength
C) Equal to its yield strength D) lower than its yield strength
6. Covalent and ionic solids are not suitable as structure components, because []
A) they have weak bonds B) they are ductile
C) they are brittle D) they have high elastic moduli
7. The unit of fracture toughness is []
A) J.m^2 B) J/m^2 C) J/m D) J.m
8. The most desirable method of increasing the yield strength of mild steel is []
A) grain refinement B) annealing C) Solute addition D) precipitation hardening
9. In the Griffith equation, the fracture stress is proportional to []
A) \sqrt{c} B) $1/\sqrt{c}$ C) $1/c$ D) $1/2c$
10. Pore –free coating is required when []
A) coating is noble with respect to the protected metal
B) coating is base with respect to the protected metal
C) coating has the same potential as the protected metal
D) none of these

Cont.....2

II Fill in the blanks

11. The rate of plastic deformation is proportional to _____
12. The garnet crystal used in a microprocessor has the formula _____
13. To make the Mn atom ferromagnetic by alloying, the ratio of its atomic radius-to-3d radius should be. _____
14. In Hall-Petch equation the yield strength of a poly crystalline material is a function of its _____
15. A linear combination of a Maxwell and a voigt-Kelvin element is a _____ parameter model
16. If the melting point of polyethylene is 140°C , it will not creep at _____ temperature
17. The residual stresses in the interior of a tempered glass are _____
18. If the activation energy for oxidation is 100kJ/mol , the ratio of oxidation rate at 800°C and 500°C is _____
19. The units of magnetic permeability are _____
20. The curie temperature of cobalt is _____