

Code No: 07A3EC09

R07**Set No. 2**

II B.Tech I Semester Examinations, MAY 2011
METALLURGY AND MATERIAL SCIENCE
Common to Mechanical Engineering, Mechatronics, Production
Engineering, Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the outstanding properties of Cupronickel?
 (b) What is season cracking and how can it be avoided?
 (c) What is the effect of increasing Zn percentage on properties of copper? [4+6+6]
2. (a) Give the four basic types of stainless steels with composition range?
 (b) Why ferritic stainless steels are Non-heat treatable ?
 (c) Give the applications of ferritic and martensitic stainless steels?
 (d) How can intergranular susceptibility of slow cooled austenitic stainless steels be prevented? [4+4+4+4]
3. (a) Explain why normalized steels are stronger than annealed steels.
 (b) Compare and contrast flame hardening with induction hardening. [6+10]
4. (a) Differentiate between a single crystal and polycrystalline material?
 (b) Explain why fine grained materials have superior properties than coarse grained materials?
 (c) Explain the purpose of etching in metallographic examination? [6+6+4]
5. (a) What are two kinds of solid materials? Glass is not considered as true solid. Why?
 (b) How is metallic bond similar to both ionic and covalent bond?
 (c) Ionic solids are bad conductors of electricity but an aqueous or fused solution of them conducts electricity. Why? [4+6+6]
6. Write short notes on the following:
 - (a) Al-bronze
 - (b) Season cracking
 - (c) Cladding of Al-alloys
 - (d) Al-Li alloys [16]
7. (a) Alumina is one of the important oxide ceramic matrix material. Give reasons.
 (b) Explain briefly fabrication processes of ceramic matrix composites. [6+10]

Code No: 07A3EC09

R07

Set No. 2

8. (a) Many of the ceramic materials are indispensable for current day technology and societal needs, discuss.
- (b) Briefly discuss magnetic spinels. [10+6]

FIRSTRANKER

Code No: 07A3EC09

R07**Set No. 4**

II B.Tech I Semester Examinations, MAY 2011
METALLURGY AND MATERIAL SCIENCE
Common to Mechanical Engineering, Mechatronics, Production
Engineering, Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the outstanding properties of Cupronickel?
 (b) What is season cracking and how can it be avoided?
 (c) What is the effect of increasing Zn percentage on properties of copper? [4+6+6]
2. (a) What are two kinds of solid materials? Glass is not considered as true solid. Why?
 (b) How is metallic bond similar to both ionic and covalent bond?
 (c) Ionic solids are bad conductors of electricity but an aqueous or fused solution of them conducts electricity. Why? [4+6+6]
3. (a) Differentiate between a single crystal and polycrystalline material?
 (b) Explain why fine grained materials have superior properties than coarse grained materials?
 (c) Explain the purpose of etching in metallographic examination? [6+6+4]
4. (a) Many of the ceramic materials are indispensable for current day technology and societal needs, discuss.
 (b) Briefly discuss magnetic spinels. [10+6]
5. (a) Alumina is one of the important oxide ceramic matrix material. Give reasons.
 (b) Explain briefly fabrication processes of ceramic matrix composites. [6+10]
6. Write short notes on the following:
 - (a) Al-bronze
 - (b) Season cracking
 - (c) Cladding of Al-alloys
 - (d) Al-Li alloys [16]
7. (a) Give the four basic types of stainless steels with composition range?
 (b) Why ferritic stainless steels are Non-heat treatable ?
 (c) Give the applications of ferritic and martensitic stainless steels?
 (d) How can intergranular susceptibility of slow cooled austenitic stainless steels be prevented? [4+4+4+4]

Code No: 07A3EC09

R07

Set No. 4

8. (a) Explain why normalized steels are stronger than annealed steels.
(b) Compare and contrast flame hardening with induction hardening. [6+10]

FIRSTRANKER

Code No: 07A3EC09

R07**Set No. 1**

II B.Tech I Semester Examinations, MAY 2011
METALLURGY AND MATERIAL SCIENCE
Common to Mechanical Engineering, Mechatronics, Production
Engineering, Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Give the four basic types of stainless steels with composition range?
 (b) Why ferritic stainless steels are Non-heat treatable ?
 (c) Give the applications of ferritic and martensitic stainless steels?
 (d) How can intergranular susceptibility of slow cooled austenitic stainless steels be prevented? [4+4+4+4]
2. (a) Alumina is one of the important oxide ceramic matrix material. Give reasons.
 (b) Explain briefly fabrication processes of ceramic matrix composites. [6+10]
3. (a) Differentiate between a single crystal and polycrystalline material?
 (b) Explain why fine grained materials have superior properties than coarse grained materials?
 (c) Explain the purpose of etching in metallographic examination? [6+6+4]
4. (a) What are two kinds of solid materials? Glass is not considered as true solid. Why?
 (b) How is metallic bond similar to both ionic and covalent bond?
 (c) Ionic solids are bad conductors of electricity but an aqueous or fused solution of them conducts electricity. Why? [4+6+6]
5. (a) Explain why normalized steels are stronger than annealed steels.
 (b) Compare and contrast flame hardening with induction hardening. [6+10]
6. (a) What are the outstanding properties of Cupronickel?
 (b) What is season cracking and how can it be avoided?
 (c) What is the effect of increasing Zn percentage on properties of copper? [4+6+6]
7. (a) Many of the ceramic materials are indispensable for current day technology and societal needs, discuss.
 (b) Briefly discuss magnetic spinels. [10+6]
8. Write short notes on the following:
 - (a) Al-bronze
 - (b) Season cracking

Code No: 07A3EC09

R07

Set No. 1

- (c) Cladding of Al-alloys
- (d) Al-Li alloys

[16]

FIRSTRANKER

Code No: 07A3EC09

R07**Set No. 3**

II B.Tech I Semester Examinations, MAY 2011
METALLURGY AND MATERIAL SCIENCE
Common to Mechanical Engineering, Mechatronics, Production
Engineering, Automobile Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on the following:

- (a) Al-bronze
- (b) Season cracking
- (c) Cladding of Al-alloys
- (d) Al-Li alloys

[16]

2. (a) What are the outstanding properties of Cupronickel?

(b) What is season cracking and how can it be avoided?

(c) What is the effect of increasing Zn percentage on properties of copper? [4+6+6]

3. (a) What are two kinds of solid materials? Glass is not considered as true solid. Why?

(b) How is metallic bond similar to both ionic and covalent bond?

(c) Ionic solids are bad conductors of electricity but an aqueous or fused solution of them conducts electricity. Why? [4+6+6]

4. (a) Give the four basic types of stainless steels with composition range?

(b) Why ferritic stainless steels are Non-heat treatable ?

(c) Give the applications of ferritic and martensitic stainless steels?

(d) How can intergranular susceptibility of slow cooled austenitic stainless steels be prevented? [4+4+4+4]

5. (a) Many of the ceramic materials are indispensable for current day technology and societal needs, discuss.

(b) Briefly discuss magnetic spinels. [10+6]

6. (a) Explain why normalized steels are stronger than annealed steels.

(b) Compare and contrast flame hardening with induction hardening. [6+10]

7. (a) Differentiate between a single crystal and polycrystalline material?

(b) Explain why fine grained materials have superior properties than coarse grained materials?

(c) Explain the purpose of etching in metallographic examination? [6+6+4]

Code No: 07A3EC09

R07

Set No. 3

8. (a) Alumina is one of the important oxide ceramic matrix material. Give reasons.
(b) Explain briefly fabrication processes of ceramic matrix composites. [6+10]

FIRSTRANKER