

- Q.23 Write short notes on Creep and Fatigue.

Q.24 Explain Co-ordination number of various crystal systems.

Q.25 What is dendritic solidification of metals?

Q.26 Explain Phase Rule in detail.

Q.27 Write general characteristics and uses of composite material.

Q.28 Give classification of steel.

Q.29 What is hardening? Write its benefits.

Q.30 Describe the manufacturing of Cast iron in Cupola furnace.

Q.31 Write any five properties of High Speed Steel.

Q.32 Explain Phase diagram for stainless steel.

Q.33 Explain the purpose and procedure of the following

a) Annealing b) Surface Hardening

Q.34 Write short note on refractory materials.

Q.35 Explain briefly about Thermal insulating materials.

SECTION-D

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

- Q.36 Explain the difference between:

 - Elastic limit and proportional limit
 - Yield point and ultimate stress.

Q.37 Explain Iron-Carbon diagram with neat diagram.

Q.38 What is a Solid solution alloy? What are its different types? Explain.

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1st Year / Advance Diploma in Tool and Die Making

Subject:- Material Science

Time : 3Hrs.

M.M. : 100

SECTION-A

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

- Q.1 The property of the material by virtue of which it can be rolled into thin sheet is called
a) Malleability b) Plasticity
c) Ductility d) toughness

Q.2 No. of atoms per unit cell in S.C., F.C.C. and B.C.C. crystal structures are
a) 1,4,2 b) 1,2,4
c) 4,2,1 d) 1,2,3

Q.3 The value of co-ordination number for simple cubic structure is
a) 6 b) 8
c) 12 d) 14

Q.4 A physically homogenous distinct portion of a system is called
a) Component b) constituent
c) Phase d) all of the above

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Q.5 A thermal equilibrium diagram is also known as

- a) Phase diagram
- b) constitutional diagram
- c) both (a) and (b)
- d) Neither (a) nor (b)

Q.6 Which is the primary element used for making stainless steel alloy?

- a) Chromium
- b) Zirconium
- c) Vanadium
- d) Indium

Q.7 Which of the following is an alloy?

- a) Gold
- b) silver
- c) Aluminium
- d) brass

Q.8 Coal used in cupola is

- a) Charcoal
- b) Coke
- c) Cooking coal
- d) pulverized coal

Q.9 Pearlite steel has carbon content

- a) 0.8%
- b) 1.8%
- c) 2%
- d) 6.67%

Q.10 A steel with carbon _____ is called hypo eutectoid steel.

- a) 0.8%
- b) above 0.8%
- c) Below 0.8%
- d) none of the above

SECTION-B

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

Q.11 When a doped semiconductor contains excess free electrons, then it is called" _____ semiconductor"

Q.12 Conductors have very high electrical resistivity. (True/False)

Q.13 A _____ is the separation of an object or material into two or more pieces under the action of stress.

Q.14 The plastic deformation is the permanent deformation.

Q.15 A solid solution is a single phase system. (True/False)

Q.16 Hematite contains about _____ iron.

Q.17 The spring steels are used under compression, tension and torsion.

Q.18 The major alloying elements in stainless steels are _____ And _____.

Q.19 Full Annealing process is performed to refine grain structure. (True/False)

Q.20 Dolomite is a type of limestone that is high in _____

SECTION-C

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

Q.21 Explain how Plastic Deformation occurs?

Q.22 Explain any four electrical properties of materials.