Q.25 What are the effects of carbon, chromium and molybdenum on adding as alloying element in steel?

Q.26 Write the properties and uses of copper.

Q.27 What is heat insulating material? Give some desirable properties of it.

Q.28 What are the various properties of biomaterials?

Q.29 State the objectives of heat treatment of the iron.

Q.30 Draw and explain cooling curve for pure metal.

Q.31 What is carburising? State the various advantages of it.

Q.32 What are the various methods of manufacturing steel? Explain anyone.

Q.33 What is twinning deformation? Explain briefly.

Q.34 Enlist the various properties of rubber.

Q.35 Give the various applications of ceramics.

## SECTION-D

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

Q.36 Write the composition, properties and uses of any two alloy steels.

Q.37 Explain the various surface defects in crystals.

Q.38 Draw & Explain Iron-Carbon diagram.





Roll No. .....

**2nd Sem. / Mech. Engg. (MSIL)**

**Subject : Materials & Metallurgy**

Time : 3 Hrs. M.M. : 100

## SECTION-A

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

Q.1 Impact strength can be measured by

a) Tensile testing
b) Izod and Charpy test
c) Creep testing
d) None of above

Q.2 Solder is an alloy of

a) Tin and Lead
b) Copper and Zinc
c) Aluminium and Copper
d) Iron and Carbon

Q.3 The Iron ore which consists of highest percentage of Iron is

a) Hematite b) Magnetite
c) Limonite d) None of above

Q.4 Fatigue results in

a) Elongation b) Ductile fracture

c) Brittle fracture d) Crack formation

Q.5 The purest form of iron is

a) Cast Iron b) Steel

c) Wrought iron d) None of above

Q.6 The softness in iron is inducted by

a) Carbon b) Silicon

c) Chromium d) Nickel

Q.7 The least tenacious metal is

a) Tin b) Lead

c) Copper d) Aluminium

Q.8 The 100% transformation is not achieved practically in

a) Pearlitic transformation

b) Bainitic transformation

c) Martensitic transformation

d) None of these

Q.9 Which of the following is a nuclear energy metal?

a) Uranium b) Zirconium

c) Beryllium d) All of the above

Q.10 Hybroid composites have

(a) One type of fibre

(b) Two or more types of fibres

(c) Different matrix materials

(d) None of these



## SECTION-B

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

Q.11 Define solid solution.

Q.12 Define Slip.

Q.13 Define Atomic Packing Factor.

Q.14 Define Non-Metals.

Q.15 Define White cast Iron.

Q.16 P.V.C. is an example of thermosetting plastics (True/False)

Q.17 The Bakelite is the trade name of _____.

Q.18 Define Creep.

Q.19 18-4-1 stainless steel contains_____.

Q.20 The larger the size, grains have more hardenability. (True/False)

## SECTION-C

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

Q.21 Compare elastic deformation and plastic deformation.

Q.22 Give the various properties and uses of thermocole.

Q.23 Name the various physical properties of metals.

Q.24 What are the various properties of crystalline solid?