Q.32 What do you mean by mechanical properties of a material? Explain any four. (CO1)

Q.33 Explain Oil and Gas Fired Furnaces. (CO2)

Q.34 Derive an expression for the atomic radius of face centred cubic structure. (CO2)

Q.35 Write the properties of ceramics. (CO6)

SECTION-D

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

Q.36 Explain the effects of following elements on steel:

i) Chromium ii) molybdenum

iii) Tungsten (CO3)

Q.37 i) Define stress. What are its types of? Explain.

ii) Define strain. What are its types? Explain. (CO2)

Q.38 Explain iron carbon equilibrium diagram. (CO1)

Roll No. .....

2nd Sem / Mech. Engg. (MSIL)

Subject:- Materials and Metallurgy

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 The property of a material by virtue of which it can be drawn due to tension to asmaller section is called (CO1)

a) Malleability b) Ductility

c) Plasticity d) Toughness

Q.2 Cast iron has the property of (CO1)

a) ductility b) plasticity

c) brittleness d) malleability

Q.3 Hook's law holds good upto (CO2)

a) limit of proportionality

b) elastic limit

c) yield point

d) breaking point

Q.4 Fatigue results in (CO2)

a) brittle fracture b) ductile fracture

c) yield point d) none of the above

Q.5 The highest percentage of carbon that an iron carbon allow can have is (CO3)

a) 2% b) 6.67%
c) 4.7% d) none of the above

Q.6 The purest form of iron is (CO3)
a) pig iron b) cast iron
c) steel d) wrought iron

Q.7 While hardening of steel, the component is cooled in (CO4)
a) still air b) water or oil
c) furnace d) none of the above

Q.8 Nitriding is a process for (CO4)
a) annealing b) normalizing
c) case hardening d) none of the above

Q.9 Glass wool is (CO7)
a) good insulator of heat
b) good insulator of electricity
c) not affected by moisture
d) all of the above

Q.10 Thermosetting and thermoplastic polymers differ in (CO6)
a) mechanical behavior
b) thermal behavior
c) glass transition temperature
d) none of the above

SECTION-B

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

Q.11 Define extrinsic semi-conductors. (CO1)

Q.12 Define primitive unit cell. (CO2)

Q.13 What is allotropy? (CO3)

Q.14 Classify stainlesss annealing. (CO3)

Q.15 What is process annealing? (CO4)

Q.16 Give some examples of heat insulating materials. (CO6)

Q.17 Name two types of plastics. (CO5)

Q.18 Define refractory materials. (CO7)

Q.19 Define cyaniding. (CO4)

Q.20 Define creep. (CO1)

SECTION-C

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

Q.21 Differentiate between intrinsic and extrinsic semi-conductors. (CO1)

Q.22 What is Dipping and Vacuum Coating? (CO5)

Q.23 Name seven crystal systems. (CO2)

Q.24 Write the properties of white cast iron. (CO3)

Q.25 Write the purposes of tempering. (CO4)

Q.26 What is silicon steel? Write its properties. (CO3)

Q.27 Differentiate between ferrous and non-ferrous metals. (CO1)

Q.28 Differentiate between plastic and plastic deformation. (CO2)

Q.29 Write the uses of mild steel. (CO3)

Q.30 Write the properties of Copper. (CO3)

Q.31 What are the various nuclear energy metals? (CO7)