Q.27 What do you mean by physical properties of a material? Name any four. (CO1)

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

Q.29 Derive an expression for the atomic radius of face centered cubic structure. (CO2)

Q.30 What are point defects? What are its various types? (CO2)

Q.31 Write the properties of grey cast iron (any five). (CO3)

Q.32 Write the uses of dead mild steel (any five). (CO3)

Q.33 Write the purposes of hardening. (CO5)

Q.34 Give the classification of bearing alloys. (CO5)

Q.35 Write any five application of composite materials. (CO6)

SECTION-D

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

Q.36 Explain tensile test for a specimen of mild steel. (CO2)

Q.37 Explain iron carbon equilibrium diagram. (CO4)

Q.38 What is rubber? What are its different types? Explain (CO5)

(**Note:** Course outcome/CO is for office use only)

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Roll No. .....

3rd Sem / Mechanical Engineering
Subject:- Materials and Metallurgy

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Cast iron has the property of (CO1)

a) Ductility c) Brittleness

b) Meleability d) None

Q.2 The ability of the material to deform without breaking is called. (CO1)

a) Resistance b) Creep

c) Plasticity d) Fatigue

Q.3 The ability of the material to resist fracture due to high impact loads is. (CO2)

a) Toughness b) Hardness

c) Brittleness d) None of these

Q.4 The mass per unit volume of a material is called (CO2)

a) Specific volume b) Density

c) Specific gravity d) None of these

Q.5 Crystal structure of zinc is (CO3)

a) F.C.C. b) B.C.C

c) S.C d) H.C.P

Q.6 Fatigue results in (CO3)

a) Brittle fracture b) Ductile fracture

c) Elongation d) None of these

Q.7 Hooke's law holds good upto (CO3)

a) Limit of Proportionality

b) Elastic limit

c) Yield point

d) Breaking point

Q.8 Plastic deformation may take place due to (CO4)

a) Slip only b) Twinning only

c) Slip or Twinning d) None of these

Q.9 Which of the following is an example of solid solution alloy? (CO4)

a) Au-Ag b) Au-Pt

c) Cu-Ni d) All of these

Q.10 The highest percentage of carbon that an iron carbon alloy can have is (CO5)

a) 2% b) 6.67%

c) 4.70% d) 5.34%

SECTION-B

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

Q.11 Define density of a material. (CO1)

Q.12 Define ferrous metal. (CO1)

Q.13 Name any two metalloids. (CO1)

Q.14 Define a crystalline solid. (CO2)

Q.15 How many atoms are there in the unit cell of hexagonal close packed structure. (Co2)

Q.16 Name two types of solids. (CO2)

Q.17 Give two examples of non-ferrous metals. (CO3)

Q.18 Name any two iron ores. (CO3)

Q.19 Name one pyrometer. (CO5)

Q.20 Name types of abrasives. (CO6)

SECTION-C

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

Q.21 Define Non-Ferrous metals with one example. (CO1)

Q.22 Define toughness of a material. (CO1)

Q.23 Define fatigue. (CO1)

Q.24 Name two types of solids. (CO2)

Q.25 Define atomic packing factor. (CO2)

Q.26 Differentiate between intrinsic and extrinsic semi-conductors. (CO1)