

No. of Printed Pages : 4

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**4th Sem. / Mechanical Engg./
Auto/ Prod./Mech. (CAD / CAM)**

Subject : Material and Metallurgy Mat. Sc.

Time : 3 Hrs.

M.M. : 100

SECTION-A

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

Q.1 Define fatigue.

Q.2 Define Wrought iron.

Q.3 Define metalloids.

Q.4 Name any two semi conductors.

Q.5 Define amorphous solids

Q.6 In BCC structure $r =$ _____

Q.7 Define Atomic packing factor.

Q.8 Define atomic radius.

(1)

120342/30342

Q.9 Write full form of HCP.

Q.10 Bronze is alloys of _____ and _____.

SECTION-B

Note:Very short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

Q.11 Name types of line defects.

Q.12 Define Peritectic

Q.13 Write few examples of solid solution on alloys.

Q.14 Name any two iron ores.

Q.15 Define Curie point.

Q.16 Name different types of high speed steel.

Q.17 Define twinning.

Q.18 Define annealing.

Q.19 Write the applicants of carburizing.

Q.20 Name types of pyrometers.

(2)

120342/30342

Q.21 Define thermoplastic.

Q.22 Name any two synthetic rubber.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. 8x5=40

Q.23 Write the uses of bio materials

Q.24 Write the advantages semi conductors.

Q.25 Calculate number of atoms per unit cell in HCP structure.

Q.26 Calculate atomic radius is FCC structure.

Q.27 Define screw dislocation.

Q.28 Differentiate between slip and twinning.

Q.29 Define dendritic solidification of pure metal.

Q.30 Explain the various properties of solid solution alloys.

Q.31 Explain the basic steel for general purpose.

Q.32 Define the various properties of rubber.

SECTION-D

Note: Long answer type questions. Attempt any three questions out of four questions. 3x10=30

Q.33 Explain the various types of cast iron with uses and properties.

Q.34 Explain the effects of various alloying elements in steel.

Q.35 Explain Aluminum alloys with uses and properties

Q.36 Explain tempering heat treatment process.