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170331

3rd Sem / Branch : Auto Mech.
Subject:- Materials & Metallurgy

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Which of the following is a type of Engineering Materials and is a Metal? (CO1)

a) Asbestos b) Ferrous Metals
c) Non-Ferrous Metals d) Both b & c

Q.2 How is the creep strength of ceramics when compared to other materials? (CO6)

a) Low b) High
c) Excellent d) Zero

Q.3 On which of the following materials the compressive test is done? (CO2)

a) Aluminium b) Thermocole
c) Cast iron d) Gold

Q.4 Which of the following term is used to define the temperature at which a substance changes its status from solid to liquid? (CO3)

a) Melting point b) Freezing point
c) Boiling point d) Condensation point

Q.5 Allotropes differ in which of the following properties: (CO3)

a) Atomic Number b) Atomic Mass
c) Crystal Structure d) Electronegativity

Q.6 Co-ordination number of a crystalline solid is: (CO2)

a) Number of particles in the unit cell
b) Number of nearest neighbours of a particle
c) Number of octahedral voids in a unit cell
d) Number of tetrahedral voids in the unit cell.

Q.7 A first solid phase results in a second solid phase another third solid phase on cooling during _____reaction. (CO4)

a) Eutectoid b) Peritectic
c) Eutectic d) Peritectoid

Q.8 What reactions come under supercooling? (CO4)

a) Peritectic
b) Eutectic and Peritectic
c) Eutectic and Eutectoid
d) Peritectic and Eutectoid

Q.9 Which of the following is not a non ferrous metal? (CO1)

a) Aluminium b) Lead
c) Zinc d) Iron

Q.10 The fabrication cost is_____for plastics (CO5)

a) High b) Low

c) Moderate d) Very high

SECTION-B

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

Q.11 What is non-metal? (CO1)

Q.12 Define fatigue. (CO1)

Q.13 Name the purest form of iron. (CO4)

Q.14 Define nitriding. (CO3)

Q.15 Name the materials used for heat insulation. (CO7)

Q.16 Define unit cell. (CO1)

Q.17 Define fracture. (CO2)

Q.18 Define melleability. (CO1)

Q.19 Name two synthetic rubber. (CO5)

Q.20 What are natural refractories. (CO6)

SECTION-C

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

Q.21 Write short note on biomaterials. (CO1)

Q.22 Differentiate between metals and non-metals. (CO1)

Q.23 What are the social issues of material usage. (CO1)

Q.24 Explain briefly grain boundary defects. (CO2)

Q.25 Explain type of fractures in metals. (CO2)

Q.26 Explain lever rule. (CO3)

Q.27 Write main uses of alloy steel. (CO4)

Q.28 Write the uses of mild steel. (CO4)

Q.29 What are the effects of various alloying elements on properties of steel. (CO5)

Q.30 Differentiate between iron & steel. (CO4)

Q.31 Explain electric furnace. (CO3)

Q.32 What is plastic coating? Give its types. (CO7)

Q.33 Give the main applications of plastics in domestic use. (CO5)

Q.34 Write uses of asbestos. (CO6)

Q.35 What should be the desired properties of bearing materials. (CO7)

SECTION-D

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

Q.36 Write uses of different types of plain carbon steel. (CO3)

Q.37 Describe process of cast iron production by cupola furnace. (CO4)

Q.38 What are heat insulation materials? Discuss the properties and uses of asbestos and glass wool. (CO7)