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222022

2nd Year / Advance Diploma in Tool and Die Making

Subject : Material Science and Heat Treatment

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Hematite is an ore of (CO1)

a) Copper b) Iron

c) Tin d) Zinc

Q.2 The full form of F.C.C is (CO2)

a) Full centred Cubic b) Face Centred Cubic

c) False Centred Cubic d) Form Centred Cubic

Q.3 Hypo-eutectoid steel contains carbon _____ 0.8% (CO3)

a) Equal to b) more than

c) less than d) None of these

Q.4 Lower critical temperature in Fe-C diagram is (CO4)

a) 523°C b) 723°C

c) 823°C d) 1155°C

Q.5 Tempering of hardened steel is done to increase (CO5)

a) Toughness b) Grain size

c) Surface condition d) Carbon content

Q.6 Which of the following is a heat treatment process:- (CO6)

a) Annealing b) Coating

c) Plating d) All of these

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define Malleability. (CO1)

Q.8 Define space lattice. (CO2)

Q.9 Define Non-ferrous metals. (CO3)

Q.10 Define Work Hardening. (CO5)

Q.11 Define Annealing. (CO6)

Q.12 Give composition of H.S.S. (CO7)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define any four mechanical properties of material. (CO1)

Q.14 Discuss the dendritic solidification of pure metals. (CO2)

Q.15 Draw labeled diagram of stress-Strain curve for steel. (CO3)

Q.16 Write any five applications of composite materials. (CO5)

Q.17 Give any four comparison between thermosetting and thermoplastic materials. (CO5)

Q.18 Name the various heat treatment defects, explain any two. (CO6)

Q.19 Define heat treatment and write its any four objectives. (CO6)

Q.20 Explain quenching and its types. (CO6)

Q.21 Describe cast iron and its types. (CO7)

Q.22 Write any four advantages of alloying elements. (CO7)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Describe iron carbon diagram in detail. (CO4)

Q.24 Explain surface hardening and its types. (CO6)

Q.25 Explain briefly the effect of various alloying elements on steel. (CO7)