

- Q.28 What are the different types of cast iron? Explain any three types. (CO2)
- Q.29 Write a short note on ferrous metal. (CO7)
- Q.30 Write a short note on powder metallurgy? (CO10)
- Q.31 Explain the different processes and operations involved in making powder metallurgy parts(CO10)
- Q.32 Explain different types of corrosion based on environment. (CO11)
- Q.33 Write a short note on pollution related to industrial environment. (CO12)
- Q.34 Write a short note on thermosetting plastics. (CO9)
- Q.35 What is impact test? Explain the different types of impact test methods. (CO6)

#### SECTION-D

- Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)
- Q.36 What are the differences between destructive testing and non-destructive testing? Explain Dye penetration test and Ultrasonic rays test in non-destructive testing. (CO6)
- Q.37 What are bearing metals and alloys? Explain Characteristics and Application of some Common Bearing Materials. (CO7)
- Q.38 What is the iron ore? Explain the manufacturing of pig iron with a neat sketch of blast furnace. (CO2)

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Roll No. ....

### 1st Year / Advance Diploma in Tool and Die Making Subject:- Material Science

Time : 3Hrs.

M.M. : 100

#### SECTION-A

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

- Q.1 Mild steel belongs to the following category (CO2)
- a) low carbon steel      b) medium carbon steel
- c) high carbon steel      d) alloy steel
- Q.2 The ability of material to resist fracture due to high impact loads is (CO3)
- a) toughness                      b) hardness
- c) brittleness                      d) malleability
- Q.3 Unit of strain in S.I. system is (CO3)
- a)  $N/m^2$                               b)  $N/m$
- c)  $N/m^3$                               d) none of the above
- Q.4 Silicon carbide is a \_\_\_\_\_ (CO8)
- a) polymer                              b) ceramic
- c) metal                                      d) none of the above
- Q.5 Hot working occurs when metal is deformed \_\_\_\_\_ its recrystallization temperature. (CO4)
- a) above                                      b) below
- c) equal to                                      d) none of the above

- Q.6 \_\_\_\_\_ is the example of impact testing. (CO6)  
 a) Izod test                      b) Brinell test  
 c) Rockwell test                d) Vicker's test
- Q.7 \_\_\_\_\_ is an example of non-ferrous metal. (CO7)  
 a) Steel                              b) Aluminium  
 c) Polymer                        d) Cast iron
- Q.8 How many number of atoms per unit cell of FCC crystal? (CO1)  
 a) 1                                      b) 2  
 c) 3                                      d) 4
- Q.9 Frenkel's defect is which type of crystal imperfection? (CO1)  
 a) Point imperfection    b) Line imperfection  
 c) Surface imperfection    d) Volume imperfection
- Q.10 Plastics are used in automobile because of their (CO9)  
 a) low melting point  
 b) high strength  
 c) capacity to be moulded with good finish  
 d) none of the above

### SECTION-B

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

- Q.11 Define hardness. (CO3)  
 Q.12 Brass is an alloy of copper and tin. (True/False) (CO7)  
 Q.13 Define stress. (CO3)  
 Q.14 Explain Gibb's phase rule. (CO1)

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- Q.15 What is non-metal? (CO1)  
 Q.16 Give the percentage of carbon in grey cast iron. (CO2)  
 Q.17 Define process annealing. (CO4)  
 Q.18 What is powder metallurgy? (CO10)  
 Q.19 What is corrosion? (CO11)  
 Q.20 Almost all plastic can be recycled.(True/False) (CO12)

### SECTION-C

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

- Q.21 What are the differences between metals and non-metals? (CO1)  
 Q.22 Explain the effects of the following elements on steel: (CO5)  
 a) Molybdenum                      b) Tungsten  
 c) Chromium  
 Q.23 Draw the stress-strain curve for tensile test of mild steel. Explain the prominent points of the curve. (CO3)  
 Q.24 What is cold working process? Explain its merits and demerits. (CO4)  
 Q.25 What is alloy steel? What are its different types? Explain briefly. (CO5)  
 Q.26 What is refractory material? Explain its different types. (CO8)  
 Q.27 What is plain carbon steel? Explain its different types briefly. (CO2)

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