

**238512(38)**

**Diploma in Engg. (Fifth Semester)**

**Examination, Nov.-Dec. 2018**

**(Old Scheme)**

**(Branch : Metallurgy)**

**INDUSTRIAL METALLURGY & SAFETY  
ENGINEERING**

*Time Allowed : Three hours*

*Maximum Marks : 100*

*Minimum Pass Marks : 35*

*Note : Attempt any five questions. Marks allotted against the questions. Draw neat diagrams where necessary.*

- 1. (a) What is welding and explain in details electric arc welding. 12
- (b) Explain different types of gas welding flames with neat sketch. 8

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**PTO**

- 2. (a) What is powder metallurgy? Discuss its advantages, disadvantages and limitations over other forming methods. 10
- (b) What are the different secondary operations used after sintering in powder metallurgy? 10
- 3. (a) What are the direct and indirect losses associated with an accident? 8
- (b) Discuss the importance and objective of safety in metallurgical and other industries. 7
- (c) Define injury frequency rate and injury severity rate. 5
- 4. (a) Describe various working conditions prevailing in industries. What are their effects and how can it improved? 10
- (b) How to classify the accidents? Explain in short. 10

**Or**

What are the causes of fire? Explain fire extinguishers for each kind of fire.

5. (a) Write safety rules for (any two) : 10
- (i) Blast furnace
  - (ii) Cranes
  - (iii) Steel melting shops

(b) What are the electric hazards and how it is prevented? 10

6. (a) Explain principle, application and equipment used : 10

Laser Beam Welding

Or

Friction welding

(b) Explain the function of electrode coating. 5

(c) How does the weld ability of steel change as the steel carbon content increases? Why? 5

7. Write short notes on : (any four) 4×5=20

(i) Welding defects and its remedies

(ii) TIG welding

- (iii) Difference between welding, soldering and brazing
- (iv) Fire detector
- (v) Production of cemented carbide tool
- (vi) Heat affected zone