**MET-306 IRON MAKING**

**BIFURICATION FOR UNIT TESTS**

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| **S.NO.** | **MAJOR TOPICS** | **SHORT TYPE** | **ESSAY TYPE** |
| **UNIT TEST-I** |
| 1 | Iron ores and their preparation | 2 | 1 |
| 2 |  Burden distribution | 1 | 1 |
| 3 | Blast furnace profile & reactions | 1 | 1 |
| 4 | Blast furnace plant & equipment | 1 | 1 |
| **UNIT TEST-II** |
| 5 | Blast furnace operation | 2 | 2 |
| 6 | Recent /Alternate Methods of pig iron production | 1 | 1 |
| 7 | Recent developments in iron making | 1 | 1 |
| 8 | Blast furnace burden calculations | 1 | 1 |

D.MET.E III SEMESTER

 IRON MAKING (C-14)

 MODEL UNIT TEST PAPER-1

 UNIT TEST – 1

 PART –A

Answer all the questions (3 x 2 = 6 m)

1. State the types of iron ores based on chemical composition?
2. State the importance of the burden distribution?
3. State the purpose of adding coke in blast furnace?

 PART-B

Answer any two questions (2 x 7 =14m)

1. Explain the construction and operation of Dwight Lloyd sintering machine?
2. Explain the reactions in various zones of blast furnace with reference to the descending column of raw materials?
3. Explain the charging methods of raw materials in blast furnace?

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 IRON MAKING (C-14)

 MODEL UNIT TEST PAPER-2

 UNIT TEST – 1

 PART –A

Answer all the questions (3 x 2 = 6 m)

1. Define agglomeration and different methods of agglomerations?
2. Define the term blast furnace burden?
3. State the raw materials required for blast furnace iron making?

 PART-B

Answer any two questions ( 2 x 7 =14m)

1. Explain the process of pelletising with disc pelletiser?
2. Explain the factors effecting burden distribution?
3. Explain the blast furnace profile
4. Throat
5. Stack
6. Bosh
7. hearth

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Model paper-1

**Unit Test-2**

Part-A

Answer all the questions 3x2=6 marks

1. State the Principle of Dust Catcher.
2. State the Irregularities in blast furnace operation.
3. Define a) Sponge Iron b) Percentage of reduction.

 Part-B 2x7=14 marks

Answer any 2 Questions.

1. Explain the construction and operation of Hot blast Stove.
2. Explain the method of Starting the Blast furnace operation.
3. Explain the following recent trends of Blast furnace operation. a) Oxygen enrichment

 and b) Humidification of Blast.

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Model UNIT TEST paper-2

**Unit Test-2**

Part-A

Answer any all the Questions 3x2=6 marks

1. State the principle of Electro static Precipitator.
2. State the methods of disposing Pig Iron.
3. Define a) Sponge Iron b) Degree of Metallisation.

 Part-B

Answer any 2 Questions 2x7=14 marks

1. Explaing the following irregularities in blast furnace operation and their remedies
2. Hanging b) Scaffolding.
3. Explain the production of DRI by rotary kiln Process.
4. Explain the following recent trends in Blast furnace.
5. High top Pressure operation
6. Fuel Injection through tuyeres.

BOARD DIPLOMA EXAMINATIONS

D.MET.E III SEMESTER (C-14)

MODEL PAPER-1

TOTAL MARKS: 80

 PART-A

ANSWER ALL QUESTIONS.

Q1) State the types of iron ores based on chemical composition?

Q2) Define agglomeration and different methods of agglomerations?

Q3) Define the term blast furnace burden.

Q4) Define direct and indirect reduction.

Q5) State the principle of dust cater

Q6) State the composition of pig iron

Q7) State the function of blast furnace lab.

Q8) Define sponge iron and percentage of reduction

Q9) State the recent trends of blasts furnace.

Q10) Calculate the analysis of hot metal from the following quantities of burden

1. Iron ore - fe2o3-60%, Sio2-25%, Al203-15%
2. Coke- 80% carbon, rest ash

PART-B

Answer any five questions 5x10=50 marks

Q11) Explain the construction and operation of Dwight Lloyd sintering machine.

Q12) Explain the factors affecting burden distribution.

Q13) Explain the profile of Blast furnace with a sketch.

Q14) Explain the construction and operation of hot blast stove.

Q15) Explain the method of starting the blast furnace operation.

Q16) Explain any four irregularities in Blast furnace operation.

Q17) Explain the production of direct reduction iron by rotary kiln process.

Q18) Explain the following recent trends in blast furnace operation

1. High top pressure operation
2. Fuel injection through tuyers.

BOARD DIPLOMA EXAMINATIONS

D.MET.E III SEMESTER (C-14)

MODEL PAPER-2

TOTAL MARKS:80

 PART-A

ANSWER ALL QUESTIONS.

Q1) Define Agglomeration and state the agglomeration.

Q2) Define sintering and state the types of sinters.

Q3) State the importance of burden distribution.

Q4) State the raw materials required for blast furnace iron making.

Q5) State the principle of scrubber.

Q6) State the function of blast furnace slag.

Q7) State the method of disposing pig iron.

Q8) Define degree of metallisation and sponge iron.

Q9) State the recent trends of blast furnace.

 Q10) Calculate the analysis of hot metal from the following quantities of burden

1. Iron ore - fe2o3-55%, Sio2-30%, Al203-15%
2. Coke- 70% carbon, rest ash

PART-B

Answer any five questions 5x10=50 marks

Q11) Explain the pelletising of iron ores using disc pelletiser.

Q12) Explain the charging methods of raw materials in blast furnace.

Q13) Explain the reactions in various zones of blast furnace with reference to the descending column of raw materials.

Q14) Explain the operation of a) dust catcher, b) Electrostatic precipitator.

Q15) Explain the method of starting the blast furnace operation.

Q16) Explain any four irregularities in blast furnace operation with remedies.

Q17) Explain the production of direct reduction iron by Midrex process.

Q18) Explain the following recent trends of blast furnace a) Oxygen enrichment of blast b) Fuel injection through tuyeres.