**C-14 scheme Mining Machinery - I(MNG-304)**

**Syllubus bifurcation**

UNIT TEST I (Syllubus**)**

**1.0 Understand the manufacture of wire ropes used in mines**

1.1 State the uses of wire ropes in mines

1.2 Classifies wire ropes basing on place of application and construction.

1.3 State the composition of material of wire ropes.

1.4 Explain the field tests to be conducted on wires in ropes

1.5 List stages of manufacturing of wires of ropes

1.6 Explain the stages of manufacturing of wires of ropes

1.7 Describe the constructional details of different types of ropes

1.8 Explain space factor, factor of safety, capacity factor bending factor

1.9 State the applicability of different types of wire ropes in Mining.

1.10 List the causes of deterioration of wire ropes

1.11 List the preventive measures against deterioration of ropes

1.12 State the formulae for finding the size, weight and strength wire ropes

1.13 Solve numerical problems related to the above formulae.

**2.0 Know Rope Capping**

2.1 Define the terms capping and recapping

2.2 List the different methods of capping the wire ropes

2.3 State the applicability of different recapping.

2.4 Describe the method of white metal capping

2.5 Describe methods of interlocking wedge capping

2.6 State the purpose of splicing of wire ropes

2.7 Describe the methods of splicing of wire ropes.

**3.0 Understand methods of rope haulage in underground mines**

3.1 State the purpose of transportation in mines

3.2 Give comprehensive classification of transportation systems in mines

3.3 Explain different methods of transportation by rope haulage in underground

3.4 List the types of rope haulage

3.5 State the applicability of each type of rope haulage

3.6 Describe the direct rope haulage system

3.7 List advantages and disadvantages of Direct rope haulage

* 1. List various safety devices required in direct rope haulage

3.9 Describe the endless rope haulage system including safety devices used.

UNIT TEST II (Syllubus**)**

3.10 List advantage and disadvantage of endless rope haulage

3.11 Explain over-rope and under-rope endless system including the applicability

3.12 Describe rope clips commonly used for under rope haulage and over rope haulage

3.13 State the necessity of tensioning arrangements

3.14 Describe tensioning arrangement for endless rope haulage

3.15 Describe the main and tail rope haulage system including safety devices used

3.16 List the advantages and disadvantages of main and tail rope haulage

3.17 List the factors influencing the size of the rope haulage engine, H.P.

3.18 List the factors governing the selection of system of rope haulage.

3.19 Solve simple problems in calculation of drawbar pull, number of tubs required for a given output and calculation of H.P of motor.

1. **Understand transportation in mines by conveyors, Locomotives & Aerial ropeways**
   1. Give the comprehensive classification of conveyors based on their applicability
   2. Explain the belt conveyors with their tensioning arrangements
   3. Explain safety devices on belt conveyors

4.4 State limitations of belt conveyor system

4.5 State the Merits Of Belt Conveyor

4.6 State the Demerits Of Belt Conveyors

4.7 Explain scraper chain conveyor system

4.8 State the merits, demerits of scraper chain conveyor

4.9 Simple problems to calculate the capacity of belt conveyor

4.10 Classify Locomotive haulage systems

4.11 State merits, demerits, applicability and limitations of diesel locomotives system

4.12 Explain exhaust conditioner and flame trap fitted to diesel locomotive

4.13 State merits, demerits, applicability and limitations of battery locomotives system

4.14 Simple numerical problems in calculation of tractive effort of locomotive

4.15 Classify aerial rope ways

4.15 List the applicability of mono cable aerial rope

4.16 State the applicability of BI-Cable aerial rope ways

**Understand various Pumps used in Mines**

5.1 Define various terms with regards to pumps a) Pump b) Head c) Static suction head

d) Static discharge head e) Total static head f) Friction head g) Monomeric head h) Effective head i) Internal head j) Hydraulic head

5.2 Give the comprehensive classification of mine pumps with their applicability

5.3 Explain the principle of working of reciprocating pump

5.4 Explain constructional details and working of reciprocating pump

5.5 Explain the purpose of air vessel

5.6 Define the terms a) Water hammer b) End thrust

5.7 Explain the constructional details and fittings of centrifugal pumps

5.8 Describe the working of centrifugal pumps

5.9 Describe the methods of starting and stopping of centrifugal pump

5.10 Explain the constructional details of turbine pump

5.11 Explain the working principles of turbine pump

5.12 Describe the method of starting and stopping of turbines pump

5.14 Describe the method of balancing end thrust - hydraulic balance disc

5.15 List the Characteristic curves of pumps

5.16 Explain the constructional details/fittings of submersible pump

5.17 List out the considerations for the selection of pumps.

5.18 List differences between reciprocating pump and centrifugal pump

5.19 Simple numerical problems on calculation of head, capacity and H.P of mine pumps

SET-I

**C14-MNG-304**

(STATE BOARD OF TECHNICAL EDUCATION AND TRAINING .,TS)

**DIPLOMA IN MINING ENGINEERING – III Semester**

**MINING MACHINERY - I**

**UNIT TEST-I**

(Time: 1 Hour ) **MAX.MARKS :20**

SECTION- A

**Answer ALL the questions** 3\*2=6

1. List stages of manufacturing of wires of ropes.
2. List the causes of deterioration of wire ropes.
3. List the classification of transportation systems in mines

SECTION- B

**Answer any TWO** 2\*7=14

4. Explain space factor, factor of safety, capacity factor bending factor

5. Describe methods of interlocking wedge capping

6. Describe the direct rope haulage system

3.

SET-II

**C14-MNG-304**

(STATE BOARD OF TECHNICAL EDUCATION AND TRAINING .,TS)

**DIPLOMA IN MINING ENGINEERING – III Semester**

**MINING MECHINERY - I**

**UNIT TEST-II**

(Time: 1 Hour ) **MAX.MARKS :20**

SECTION- A

**Answer ALL the questions** 3\*2=6

1. List the factors governing the selection of system of rope haulage

2. Define terms a) Pump b) Head

3. List the safety devices on belt conveyors

SECTION- B

**Answer any TWO** 2\*7=14

1. Explain scraper chain conveyor system
2. Explain exhaust conditioner and flame trap fitted to diesel locomotive
3. Explain the working principles of turbine pump