

**ANNEXURE-I**  
**SYLLABUS FOR EXAMINATION FOR WINDING ENGINEMAN'S FIRST CLASS**  
**CERTIFICATE OF COMPETENCY**  
**(UNDER METALLIFEROUS MINES REGULATIONS, 1961)**

1. General knowledge about apparatus under pressure of Compressed Air gas or steam; Knowledge of testing, Precautions and indicators for pressure.
2. Working and examination of machinery (Reg.176), knowledge of provisions laid down in this Regulation. Precautions regarding moving parts of machinery (Reg.174) knowledge of provisions laid down in this regulation.
3. Signalling: - Types of signal; Code of signal for man winding material winding and sinking shafts.
4. General ideas of Hoist (Function and Operation):- Steam; Air Compressor and electric, Direct and geared drives; Valve gear, Bearings, Couplings, type of drums; Operating levers, Reversing levers, Emergency safety levers and link motion.
5. General Ideas of Various Indicators and Recorders:- Pressure indicator; Ammeter; Voltmeter; Depth indicator; Speed indicator and recorder; Adjustment and marking where applicable.
6. Slow Banking: - Indicator and limit of speed man winding or material winding. Some knowledge of operation of the equipment for automatic retardation of speed.
7. Brakes:- Various types including power operated brakes, salient features of each type, their use, test and adjustment of brake lining, normal position when operated, safety in the event of failure of power supply.
8. Emergency Safety Devices: - Emergency stop, Trip levers etc., Emergency brakes.
9. Safety Contrivances: - Against over wind; Limit and test some knowledge of its operation, against over speed; For slow banking and limit for man winding and material winding; Knowledge of detaching hooks; Bell plate or box keeps, Dogs, Guides receivers etc., and Automatic indicator for keps at insets.
10. General Idea of Clutch: - Type, operation, examination, position with respect of brakes; interlocking devices.
11. General Idea of Electrical Circuits Breakers, Transformers, Controllers, Resistance and electric bells; working voltage; Interlocks and safety precautions (only in case of certificate valid for Electric Engines).
12. General Idea of Winding Ropes: - Relation to winding drum and pulleys; Examination of end attachment, Lubricant.
13. Working Hoist: - Key points for efficient and safe working, cause of jerks and how to avoid them.
14. Engineman's Duties: - Full knowledge of duties laid down in Regulation 54; General alertness and reaction to emergency.

