



the pressure equipment safety authority

REFERENCE SYLLABUS

For

UPGRADE EXAMINATION

from

FIREMAN TO FIFTH CLASS

AB-55a

Edition 1, Revision 1, 2017-09



**REFERENCE SYLLABUS
For
FIREMAN TO FIFTH CLASS
POWER ENGINEER'S
CERTIFICATE OF COMPETENCY
UPGRADE EXAMINATION**

GENERAL INFORMATION

Introduction:

This Syllabus is intended to assist candidates studying to upgrade from the Fireman Class to the Fifth Class Engineers Certificate of Competency.

The requirements to qualify for this upgrade examination are outlined in the Safety Codes Act, Power Engineers Regulation – AR 85/2003.

Recommended Study Program:

Before undertaking the Upgrade examination from Fireman to Fifth Class, the candidate should complete the applicable Upgrade course offered through an Alberta Technical Institute.

In addition to the foregoing course, it is recommended that the candidate obtain and become familiar with the Safety Codes Act and Regulations.

Application to Undertake Examination:

A candidate must submit an application and the prescribed fee at least twenty-one (21) days before the date of examination.

Examination Instructions:

The examination consists of one (1) examination paper with 75 multiple-choice questions, 3 hours duration.

To pass an Upgrade examination from a Fireman's Certificate to a Fifth Class Certificate of Competency, a candidate must obtain at least 65% of the total marks allotted.

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A candidate is allowed to use the following items in the examination room:

- The Safety Codes Act and Regulations under the Safety Codes Act;
- CSA B51, Boiler, Pressure Vessel and Pressure Piping Code;
- CSA B52, Mechanical Refrigeration Code;
- Extract for CSA B51 and CSA B52 Codes;
- ASME Boiler & Pressure Vessel Codes except for Sections VI and VII;
- The 2007ASME Boiler & Pressure Vessel Code Academic Extract and Supplement produced by PanGlobal Training Systems;
- Handbook of Formulae and Physical Constants, Steam Tables and Refrigeration Tables are normally provided;
- A non-technical English language dictionary;
- Pens and pencils;
- Non-programmable calculator and
- Drawing instruments and drawing templates.

Note:

- The candidate must provide picture ID to the Examiner prior to the examination.
- No cell phone or any electronic communication devices are allowed to be brought into the examination room.
- The items referenced above must be shown to the examiner for approval.
- No other reference material is allowed.
- The information in the 1983 Edition of the ASME Boiler and Pressure Vessel Code Academic Extract is outdated. Using this 1983 Edition of the ASME Extract for any power engineering examination is not recommended. Besides using the 2007 Edition of the ASME Academic Extract and Supplement, candidates may use the current edition of the ASME Code.

1. Knowledge of the Safety Codes Act and the Regulations under the Act
2. Areas and Volumes of Solids
3. Simple Machines
4. Basic Mechanics
5. Basic Thermodynamics:
Thermodynamics of Steam
Thermodynamics of Refrigeration
6. Engineering Material
7. Welding Methods:
Welding Terms and Inspection
8. Refrigeration:
Refrigerants
Compression Systems and Compressors
Compression System Start-up, Operation and Shutdown
Heat Exchangers
Cooling Towers
Metering devices, capacity and Cycle Controls
Accessories
9. Air Compression
10. WHMIS:
Classification of Controlled Products
Labeling of Controlled Products
Material Safety Data Sheets
11. Buildings
Safety, Water Supply, Sanitary Drainage and Lighting Systems