



the pressure equipment safety authority

REFERENCE SYLLABUS

For

UPGRADE EXAMINATION

from

FOURTH CLASS TO NEW FOURTH CLASS

AB-54a

Edition 1, Revision 1, 2017-09



REFERENCE SYLLABUS
For
FOURTH CLASS TO NEW FOURTH CLASS
POWER ENGINEER'S
CERTIFICATE OF COMPETENCY
UPGRADE EXAMINATION

GENERAL INFORMATION

Introduction:

This Syllabus is intended to assist candidates studying to upgrade from the Fourth Class to the New Fourth 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 Fourth Class to New Fourth 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 upgrade examination consists of one (1) examination paper with 75 multiple-choice questions, 3 hours duration.

To pass an Upgrade examination from an Old Fourth Class Certificate to a New Fourth Class Certificate of Competency, a candidate must obtain at least 65% of the total marks allotted.

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;
- 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.



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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.

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**3 Hours
Multiple Choice Examination**

1. Knowledge of the Safety Codes Act and the Regulations under the Act
2. Handling and Storage of Gases, and Handling of Hydrocarbon Fluids
3. Hydrogen Sulfide Safety
4. Confined Space Entry
5. WHIMS:
Classification of Controlled Products
Labeling of Controlled Products
Material Safety Data Sheets
6. Engineering Materials
7. Welding Methods:
Welding Terms and Inspection
8. Oil and Gas burners for Heating Boilers
9. Warm Air heating System and Equipment
10. Warm Air Furnace; Components and Maintenance
11. Ventilation and Air Filters
12. Infrared and Electric Heating
13. Electric, Electronic and Pneumatic controls for Heating Systems
14. Buildings: Safety, Water Supply, lighting, and Sanitary Drainage Systems
15. Absorption Refrigeration Systems, and Operation and Maintenance
16. Psychometric Properties of Air, and Application of Psychometric Chart
17. Air Conditioning:
Systems
Heat Recovery Systems
Controls
Ducts, Fans, Humidification and Distribution Systems
18. Environmental Introduction:
Gaseous and Noise Pollution
Potential Environmental Impact of Operating Facilities
Potential Environmental Impact of Liquids and Vapours
Solid and Liquid Pollutants