



Professional Engineers
Ontario

To: Candidates Writing December 2011 National Technical Exams
From: Exam Centre
Email Contacts: acarincilio@peo.on.ca , smcneil@peo.on.ca, ssookdeo@peo.on.ca
Date: October 14, 2011
Subject: Information for the Guidance of Candidates

1. **December 2011 Timetable of Exams - Enclosed**

Exams will be held simultaneously at all centres; the morning exams begin at 9:30 a.m. and the afternoon exams begin at 2:00 p.m. All exams are of three-hour duration except BS-2, Probability and Statistics, which is a two-hour exam. Candidates are expected to arrive at the assembly area outside the exam room fifteen minutes before the starting time, to consult seating lists, etc. **Candidates who arrive late for the exam will be admitted up to one-half hour after the start, but no time extension will be allowed. No candidate may leave the exam room within the first half-hour of the exam period. Candidates are responsible for finding the location centre and arriving on time to write the exams, including during bad weather. Please note if required during the exam period only one washroom or personal break is allowed alert the proctor in charge and the break cannot be more than 2 – 5 minutes the proctor will indicate on the attendance sheet that you left the exam room briefly. Note, no cellular telephones, pagers, palm organizers etc. are permitted for the duration of the examination.**

Please note candidates must show one piece of recent picture identification at the examination centre. (i.e., driver's licence, current passport, health card with picture, etc.)

2. **Examiners' Advice to Candidates**

Applicants should write in ink (ballpoint) rather than pencil. A paper written in ink is much easier to read.

If a candidate believes that there is an error on the exam, typographical or otherwise, the candidate must state an assumption regarding the error and continue with the exam. **Put your comments directly to the attention of the examiner in your written answer book. Even if you believe the question(s) asked was outside the scope of the current syllabus not the suggested textbook(s).**

All applicants who are writing a Basic Studies exam should be aware that these exams correspond to 2nd or 3rd year level engineering courses and should not infer that because they are termed "Basic" that they are simple.

Carefully complete the outside cover of your exam book. If more than one book is used, number each book by showing its number in the series; i.e., 1 of 3, 2 of 3, and so on. **Indicate the questions you want marked on the front-page cover. This will clearly display to the examiner the questions you want marked.**

Read the paper through, including its title page; make any notes that occur to you on the left-hand (rough work) page of the exam book. Identify your rough work by Question Number. Start with the question you can answer best, first reading it again with care to ensure that you understand it. Identify it by its number. The sequence in which you attempt questions is at your choice.

Budget your time. Answer, if possible, the total number of questions that are required to be attempted. Spare time should be devoted to a review.

3. **List of Aids Permitted – Enclosed**

Format 1 - No calculator permitted. The exam may be **Closed** or **Open Book**.

Format 2 - There are two calculator models permitted for this format: either a Casio or Sharp model. The exam may be **Closed** or **Open Book**. **Note, any alpha letters that immediately follows the calculator model number is fine except for the letter ‘s’ which means the calculator is programmable. If the letter ‘s’ is in combination with other alpha letters then the calculator is acceptable i.e. ‘ms’.** (Please note that “none” in the list of aids represents no further instructions for this exam.)

Format 3 - Any non-communicating calculator will be permitted. The exam will be an **Open Book** exam. Candidates will identify the calculator used on the inside left-hand sheet of the exam workbook; i.e., name and model designation. (Please note that “none” under aids and instructions represents that you may bring as many textbook(s) or notes etc. into the exam there is no restrictions with this format 3 exam.) Please note space allocated to candidates writing open book exams will be the same as closed book exams. Therefore you will need to limit the number of textbooks brought into the exam room.

Closed Book - Only pens, pencils, and drawing instruments may be brought into the room. "If format 2 is selected, candidates are permitted to bring any approved Casio or Sharp calculator into the exam room."

Open Book - Any notes, textbooks, materials, etc. may be brought into the exam centre. (Where the examiner has specified only certain material, this is noted.)

Closed Book with Specified Aids - For some exams, a single, precisely identified aid is allowed. This is noted on the list under aids and instructions.

4. **Location of Exam Centres and Rooms - Enclosed**

5. **Results of Exams**

Exam results will be mailed 45 working days after the last exam has been written (February 9, 2012). No results will be communicated by fax, telephone, email or in person.

If a candidate disagrees with an exam mark, they may request a re-read. There is a fee of \$275.00 for every exam written for this service. There is no guarantee that a re-read will result to the favour of the candidate. The re-read mark will then be the final mark and the original mark can go up or down. Note: Failed papers are re-read by the examiner. A re-read request must be submitted within 30 days after receipt of results (not when results are received). The re-read grading will take eight weeks or longer. **If you do request a re-read and do not receive a confirmation in writing from the Exam Centre within two weeks of submittal of payment you must contact the Exam Centre immediately to confirm receipt of re-read request.**

Exam papers will not be returned to the candidate or seen by the candidate, nor are the answers available. The passing mark is 50.

6. **The Following Are Not Allowed**

Use of notes on exams where none are permitted
Communicating with another candidate
Employment of another person to write an exam

7. **Leaving an Exam Room without Writing**

A candidate who appears in the exam room and then decides not to write the exam, must place the signed exam book in the envelope provided, sign the outside of the envelope, and hand it to the invigilator. Any such candidate is given a mark of **Zero** for the exam.

8. **No Show**

Candidates who apply to write technical exams and do not attend the sitting(s) will be marked “**No Show**.” They will forfeit the exam fee, i.e., **no refund or credit**. A “**No Show**” is not considered a failure. Such candidates **must forward a letter/email to the Exam Centre explaining the reason(s) why they did not write**. Upon receipt of this written correspondence, their file will be reviewed to determine if they may still remain active in the exam program. Note: A “No Show” is better than writing an exam you do not feel prepared to write and might fail, even if it means having this current file closed. The correspondence must be received in the Exam Centre no later than two weeks after the technical exam sitting.

Basic Exams

Nov 28, am - 04-BS-1, Mathematics
Nov 29, am - 04-BS-2, Probability and Statistics (2hrs)
Nov 29, am - 04-BS-3, Statics and Dynamics
Nov 29, am - 04-BS-4, Electric Circuits and Power
Nov 28, am - 04-BS-5, Advanced Mathematics
Nov 28, pm - 04-BS-6, Mechanics of Materials
Nov 29, pm - 04-BS-7, Mechanics of Fluids
Nov 30, am - 04-BS-9, Basic Electromagnetics
Nov 30, am - 04-BS-10, Thermodynamics
Nov 30, pm - 04-BS-11, Properties of Materials
Dec 2, am - 04-BS-12, Organic Chemistry
Dec 1, am - 04-BS-14, Geology

Complementary Exams

Dec 1, pm - 98-CS-1, Engineering Economics
Nov 28, am - 98-CS-2, Engineering in Society
Nov 29, pm - 98-CS-3, Management Concepts for Engineers

Agricultural Exams

Nov 29, am - 04-Agric-A3, Heat Engineering
Nov 30, am - 04-Agric-A7, Chemistry and Microbiology of Foods
Nov 29, pm - 04-Agric-B2, Structural Design for Agricultural, Biosystems, and Food Industries

Biomedical Exams

Nov 30, pm - 04-Bio-A1, Biomaterials and Biocompatibility

Building Exams

Nov 28, pm - 07-Bld-A3, Construction Engineering
Nov 28, pm - 07-Bld-A6, Geotechnical Materials and Analysis
Dec 2, am - 07-Bld-B9, Building Services

Chemical Exams

Nov 28, pm - 04-Chem-A1, Process Balances & Chemical Thermodynamics

Nov 30, pm - 04-Chem-A2, Mechanical & Thermal Operations

Nov 28, am - 04-Chem-A3, Mass Transfer Operations

Nov 28, pm - 04-Chem-A4, Chemical Reactor Engineering

Nov 30, am - 04-Chem-A5, Chemical Plant Design & Economics

Nov 30, am - 04-Chem-A6, Process Dynamics & Control

Nov 28, am - 04-Chem-B2, Environmental Engineering

Nov 30, pm - 04-Chem-B6, Petroleum Refining and Petrochemicals

Civil Exams

Nov 30, am - 98-Civ-A1, Elementary Structural Analysis

Dec 1, am - 98-Civ-A2, Elementary Structural Design

Nov 29, pm - 98-Civ-A3, Municipal Engineering

Nov 28, pm - 98-Civ-A4, Geotechnical Materials and Analysis

Nov 28, pm - 98-Civ-A5, Hydraulic Engineering

Dec 2, am - 98-Civ-A6, Transportation Planning and Engineering

Nov 29, pm - 98-Civ-B1, Advanced Structural Analysis

Nov 29, pm - 98-Civ-B2, Advanced Structural Design

Nov 30, pm - 98-Civ-B3, Geotechnical Design

Nov 30 am - 98-Civ-B4, Engineering Hydrology

Dec 1, am - 98-Civ-B5, Water Supply & Wastewater Treatment

Nov 30, am - 98-Civ-B6, Urban and Regional Planning –

Nov 30, pm - 98-Civ-B7, Highway Engineering

Nov 29, pm - 98-Civ-B8, Management of Construction

Nov 30, pm - 98-Civ-B10, Traffic Engineering

Computer Exams

Nov 29, am - 98-Comp-A4, Program Design and Data Structures

Nov 29, am - 98-Comp-B3, Data Bases and File Systems

Nov 29, pm - 98-Comp-B5, Computer Communications

Electrical Exams

Dec 2, am - 07-Elec-A1, Circuits
Dec 1, pm - 07-Elec-A2, Systems and Control
Nov 29, am - 07-Elec-A3, Signals and Communications
Nov 28, pm - 07-Elec-A4, Digital Systems & Computers
Nov 30, pm - 07-Elec-A5, Electronics
Nov 29, pm - 07-Elec-A6, Power Systems and Machines
Nov 29, am - 07-Elec-A7, Electromagnetics
Dec 1, am - 07-Elec-B1, Digital Signal Processing
Nov 28, am - 07-Elec-B2, Advanced Control Systems
Nov 28, am - 07-Elec-B4, Information Technology Networks
Nov 28, pm - 07-Elec-B5, Advanced Electronics
Dec 1, am - 07-Elec-B6, Integrated Circuit Engineering
Nov 30, pm - 07-Elec-B7, Power Systems Engineering
Dec 1, pm - 07-Elec-B8, Power Electronics & Drives
Nov 30, pm - 07-Elec-B10, Electro-Optical Engineering

Environmental Exams

Nov 29, am - 04-Env-A1, Principles of Environmental Engineering
Nov 29, pm - 04-Env-A4, Water & Wastewater Engineering
Nov 28, pm - 04-Env-A5, Air Quality & Pollution Control Engineering
Nov 30, am - 04-Env-A6, Solid Waste Engineering and Management
Nov 28, am - 04-Env-B1, Environmental Assessment & Management Systems
Dec 1, pm - 04-Env-B5, Industrial & Hazardous Waste Management
Nov 29, pm - 04-Env-B9, Environmental Chemistry & Microbiology

Forestry Exams

Nov 28, am - 04-For-A1, Forest Engineering Operations
Dec 2, am - 04-For-A5, Forest Hydrology
Nov 29, pm - 04-For-B1, Structural Analysis & Design

Geological Exams

Nov 29, am - 04-Geol-A2, Hydrogeology

Dec 1, am - 04-Geol-A6, Soil Mechanics

Nov 30, pm - 04-Geol-B3, Site Investigation

Industrial Exams

Nov 30, am - 98-Ind-A2, Analysis & Design of Work

Nov 29, pm - 98-Ind-A3, Facilities Planning

Nov 28, pm - 98-Ind-A4, Production Management

Nov 30, pm - 98-Ind-A5, Quality Planning, Control & Assurance

Dec 1, pm - 98-Ind-B2, Manufacturing Process

Nov 28, am - 98-Ind-B4, Design of Information Systems

Nov 29, am - 98-Ind-B7, Financial and Managerial Accounting

Mechanical Exams

Nov 29, pm - 07-Mec-A1, Applied Thermodynamics & Heat Transfer

Dec 1, am - 07-Mec-A2, Kinematics and Dynamics of Machines

Nov 28, pm - 07-Mec-A3, System Analysis and Control

Dec 2, am - 07-Mec-A4, Design and Manufacture of Machine Elements

Dec 1, am - 07-Mec-A5, Electrical and Electronics Engineering

Nov 28, am - 07-Mec-A6-1, Fluid Machinery

Nov 30, am - 07-Mec-A6-2, Advanced Strength of Materials

Dec 2, am - 07-Mec-B1, Advanced Machine Design

Nov 28, am - 07-Mec-B2, Environmental Control in Buildings

Dec 2, am - 07-Mec-B3, Energy Conversion and Power Generation

Dec 1, am - 07-Mec-B4, Integrated Manufacturing Systems

Nov 28, pm - 07-Mec-B5, Product Design & Development

Dec 2, am - 07-Mec-B6, Advanced Fluid Mechanics

Dec 1, am - 07-Mec-B7, Aero and Space Flight

Nov 30, am - 07-Mec-B9, Advanced Engineering Structures

Nov 30, pm - 07-Mec-B10, Finite Element Analysis

Metallurgical Exams

Dec 2, am - 98-Met-A5, Mechanical Behaviour and Processing and Performing of Materials

Nov 30, am - 98-Met-B5, Metal Fabrication

Manufacturing Exams

Dec 1, pm - 08-Mfg-A2, Manufacturing Process

Nov 28, pm - 08-Mfg-A3, Production Management

Nov 30, am - 08-Mfg-A4, Analysis & Design of Work

Nov 29, pm - 08-Mfg-A5, Facilities Planning

Nov 30, pm - 08-Mfg-A6, Quality Planning, Control & Assurance

Nov 28, pm - 08-Mfg-B4, Product Design & Development

Nov 28, am - 08-Mfg-B10, Tolling, Jigs, & Fixture Design

Mineral Exams

Nov 29, am - 09-MMP-A2, Underground Mining Methods and Design

Dec 1, pm - 09-MMP-A3, Mineral Processing

Dec 1, am - 09-MMP-A4, Mine Valuation and Mineral Resource Estimation

Dec 1, am - 09-MMP-A5, Surface Mining Methods & Design

Nov 29, pm - 09-MMP-B8, Mine Management & Systems Analysis

Petroleum Exams

Dec 1, pm - 98-Pet-A5, Petroleum Production Operations

Physical Exams

Nov 29, am - 98-Phys-B4, Signals and Communications

Dec 1, pm - 98-Phys-B5, Systems and Control

Structural Exams

Nov 30, am - 07-Str-A1, Elementary Structural Analysis

Nov 28, pm - 07-Str-A3, Geotechnical Materials and Analysis

Nov 29, pm - 07-Str-A4, Advanced Structural Analysis

Nov 29, pm - 07-Str-A5, Advanced Structural Design

Nov 30, pm - 07-Str-B1, Geotechnical Design

Nov 28, am - 07-Str-B5, Foundation Engineering

Transportation Exams

Nov 30, pm - 07-Tra-A2, Highway Design

Water Resources Exams

Nov 29, pm - 07-WRSE-A6, Municipal Engineering

Dec 1, am - 07-WRSE-B3, Water Supply & Wastewater Treatment

Nov 28, am - 07-Wrse-B4, Open Channel Hydraulics

December 2011 Technical Location Sheet
November 28, 29, 30, December 1, 2, 2011

City	Location	Report To:
HAMILTON	Mohawk College, 135 Fennell Avenue W, Hamilton ON L8N 3T2 Room C066. http://www.peo.on.ca/registration/PPE/Mohawk.pdf	Aileen Price
KINGSTON	Royal Military College, Dept of Civil Engineering, Room G232, signs will be posted (check guard house if lost)	Steve Vanvolkingburgh
KIRKLAND LAKE	Northern College, Kirkland Lake Campus; 140 Government Rd E; College Boardroom Room A107	Glenna Johnston
LAKEHEAD THUNDERBAY	Lakehead University, University Centre Building; Office of the Registrar, Room UC1004	Lorrie Sabatini
LONDON	University of Western Ontario, Thomson Engineering Building (TEB) 234	Ahmed El-Dyasti
NIAGARA DIST. ST.CATHARINES	Brock University, December 1, 2011 – Academic South Room 201 December 2, 2011 Welch Hall, Room 204	George Melvin
OTTAWA	University of Ottawa, Colonel By Hall; Faculty of Engineering, 161 Louis Pasteur; go to the main foyer for further instructions.	Manon Racine
PETERBOROUGH	G.E. Consumer & Industrial; 107 Park Street N.; go to Visitor entrance at Park St. and enter through main doors check reception area for exact room number.	Sean Dunne
SARNIA	Lambton College, 1457 London Road, Room M104 Sarnia ON N7S 6K4	Connie Byrns
SUDBURY	Laurentian University, 935 Ramsey Lake Rd. Engineering School Office report to room F232	Antti V. Saari
TORONTO	Victoria College 73 Queen's Park Cres. First Floor, Room 112, exit from Museum subway station on east side of Queens Park and walk east on Charles St. to Victoria College (Circular Red Building in centre of campus) turn South down driveway between Bader Theatre and Burwash Dining Hall. Note Parking available on Charles St. or on corner of Bay St. and St. Mary St. (entrance from St. Joseph St north side) for a cost.	Peter Gladysz
WINDSOR	St. Clair College, 2000 Talbot Road, South Campus, (Room 111 is an office) please check this location area for <u>posted</u> directions where the exam is scheduled to be written.	Todd Shaw

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Basic Studies	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-BS-1, Mathematics	1	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
04-BS-2, Probability and Statistics (2hrs)	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae. Note; statistical tables will be provided
04-BS-3, Statics and Dynamics	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae. The aid sheet must be submitted with the written exam paper.
04-BS-4, Electric Circuits and Power	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
04-BS-5, Advanced Mathematics	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
04-BS-6, Mechanics of Materials	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae. Note, no example or solution problems allowed. The aid sheet must be submitted with the written exam paper.
04-BS-7, Mechanics of Fluids	2	CLOSED	NONE
04-BS-9, Basic Electromagnetics	2	CLOSED	NONE
04-BS-10, Thermodynamics	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
04-BS-11, Properties of Materials	2	CLOSED	NONE
04-BS-12, Organic Chemistry	2	CLOSED	NONE
04-BS-14, Geology	2	CLOSED	NONE

Format 1, No Calculators Permitted;

Format 2, One of two calculators is permitted any Casio or Sharp approved models;

Format 3, Any non-communicating calculator is permitted

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Complementary Studies	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-CS-1, Engineering Economics	3	OPEN	NONE
98-CS-2, Engineering in Society- Health, Safety and the Environment	1	CLOSED	NONE
98-CS-3, Management Concepts for Engineers	1	CLOSED	NONE

Name of Subject Agricultural	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-Agric-A3, Heat Engineering	1	OPEN	NONE
04-Agric-A7, Chemistry & Microbiology of Foods	2	CLOSED	NONE
04-Agric-B2, Structural Design for Agricultural, Biosystems & Food Industries	3	OPEN	NONE

Name of Subject Biomedical	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-Bio-A1, Biomaterials and Biocompatibility	3	OPEN	NONE

Name of Subject Building	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
07-Bld-A3, Construction Engineering	2	CLOSED	NONE
07-Bld-A6, Geotechnical Materials & Analysis	2	CLOSED	NONE
07-Bld-B9, Building Services	2	OPEN	NONE

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Chemical	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-Chem-A1, Process Balances and Chemical Thermodynamics	3	OPEN	NONE
04-Chem-A2, Mechanical & Thermal Operations	3	OPEN	NONE
04-Chem-A3, Mass Transfer Operations	3	OPEN	NONE
04-Chem-A4, Chemical Reactor Engineering	3	OPEN	Candidates should use any edition of the Fogler reaction Engineer text. The textbook may have handwritten notes in the margins of the text but no loose notes permitted. Candidates should also have a basic unit conversion chart and periodic table.
04-Chem-A5, Chemical Plant Design & Economics	3	OPEN	NONE
04-Chem-A6, Process Dynamics & Control	3	OPEN	NONE
04-Chem-B2, Environmental Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" written on both sides containing notes and formulae.
04-Chem-B6, Petroleum Refining and Petrochemicals	2	CLOSED	NONE

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Civil	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-Civ-A1, Elementary Structural Analysis	2	CLOSED	NONE
98-Civ-A2, Elementary Structural Design	2	CLOSED	However, candidates may bring into the exam room any textbooks of their choice as well as handbook manuals but no loose notes or written notations in any of the textbooks or manuals. Note the solutions for Standards of, Steele, Concrete & Timber must come from the latest manual editions.
98-Civ-A3, Municipal Engineering	2	OPEN	NONE
98-Civ-A4, Geotechnical Materials and Analysis	2	CLOSED	NONE
98-Civ-A5, Hydraulic Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" written on both sides containing notes and formulae.
98-Civ-A6, Transportation Planning and Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
98-Civ-B1, Advanced Structural Analysis	2	CLOSED	NONE
98-Civ-B2, Advanced Structural Design	2	CLOSED	However, candidates may bring into the exam room any textbooks of their choice as well as handbook manuals but no loose notes or written notations in any of the textbooks or manuals. Note the solutions for Standards of, Steele, Concrete & Timber must come from the latest manual editions.
98-Civ-B3, Geotechnical Design	3	OPEN	It is to the candidates' advantage to bring the Canadian Foundation Manual.
98-Civ-B4, Engineering Hydrology	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
98-Civ-B5, Water Supply & Wastewater Treatment	3	OPEN	NONE
98-Civ-B6, Urban & Regional Planning	2	CLOSED	NONE
98-Civ-B7, Highway Engineering	3	OPEN	NONE
98-Civ-B8, Management of Construction	2	CLOSED	NONE
98-Civ-B10, Traffic Engineering	3	OPEN	NONE

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Computer	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-Comp-A4, Program Design and Data Structures	1	CLOSED	NONE
98-Comp-B3, Data Bases and File Systems	2	CLOSED	NONE
98-Comp-B5, Computer Communications	2	CLOSED	NONE

Name of Subject Electrical	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
07-Elec-A1, Circuits	2	CLOSED	NONE
07-Elec-A2, Systems and Control	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae. Also, relevant graphs can be photocopied and glued to the aid sheet as well. The aid sheet must be submitted with the written exam paper.
07-Elec-A3, Signals & Communications	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" written on both sides containing notes and formulae.
07-Elec-A4, Digital Systems & Computers	2	CLOSED	NONE
07-Elec-A5, Electronics	2	CLOSED	NONE
07-Elec-A6, Power Systems and Machines	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing formulae only. Note, no example or solution problems & no figures allowed. The aid sheet must be submitted with the written exam paper.
07-Elec-A7, Electromagnetics	2	CLOSED	NONE
07-Elec-B1, Digital Signal Processing	2	CLOSED	NONE
07-Elec-B2, Advanced Control Systems	2	CLOSED	NONE
07-Elec-B4, Information Technology Networks	2	CLOSED	NONE
07-Elec-B5, Advanced Electronics	2	CLOSED	NONE
07-Elec-B6, Integrated Circuit Engineering	2	CLOSED	NONE
07-Elec-B7, Power Systems Engineering	3	OPEN	NONE
07-Elec-B8, Power Electronics and Drives	3	OPEN	NONE
07-Elec-B10, Optical Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Environmental	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-Env-A1, Principles of Environmental Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.
04-Env-A4, Water and Wastewater Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.
04-Env-A5, Air Quality & Pollution Control Engineering	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.
04-Env-A6, Solid Waste Engineering and Management	2	OPEN	NONE
04-Env-B1, Environmental Assessment & Management Systems	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.
04-Env-B5, Industrial & Hazardous Waste Management	2	OPEN	NONE
04-Env-B9, Environmental Chemistry & Microbiology	2	CLOSED	NONE

Name of Subject Forestry	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-For-A1, Forest Engineering Operations	1	CLOSED	NONE
04-For-A5, Forest Hydrology	2	CLOSED	NONE
04-For-B1, Structural Analysis & Design	3	OPEN	NONE

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Geological	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
04-Geol-A2, Hydrogeology	3	OPEN	NONE
04-Geol-A6, Soil Mechanics	2	CLOSED	NONE
04-Geol-B3, Site Investigation	3	OPEN	NONE

Name of Subject Industrial	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-Ind-A2, Analysis & Design of Work	2	CLOSED	NONE
98-Ind-A3, Facilities Planning	2	CLOSED	NONE
98-Ind-A4, Production Management	2	CLOSED	NONE
98-Ind-A5, Quality Planning, Control & Assurance	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
98-Ind-B2, Manufacturing Processes	2	CLOSED	NONE
98-Ind-B4, Design of Information Systems	1	CLOSED	NONE
98-Ind-B7, Financial & Managerial Accounting	2	CLOSED	NONE

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Mechanical	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
07-Mec-A1, Applied Thermodynamics & Heat Transfer	3	OPEN	It is to the candidate's advantage to use Thermodynamics and Heat Transfer textbooks
07-Mec-A2, Kinematics and Dynamics of Machines	3	OPEN	NONE
07-Mec-A3, System Analysis & Control	2	CLOSED	NONE
07-Mec-A4, Design & Manufacture of Machine Elements	3	OPEN	NONE
07-Mec-A5, Electrical and Electronics Engineering	2	CLOSED	NONE
07-Mec-A6-1, Fluid Machinery	2	CLOSED	Note: It is to your advantage to bring your own Drawing Tools.
07-Mec-A6-2, Advanced Strength of Materials	3	OPEN	NONE
07-Mec-B1, Advanced Machine Design	2	OPEN	However, candidates are allowed to bring one textbook of their choice plus unlimited loose sheets containing notes and formulae.
07-Mec-B2, Environmental Control in Buildings	3	OPEN	It is to the candidates' advantage to use environmental books and tables, refrigerant tables, pressure drop tables, HVAC books.
07-Mec-B3, Energy Conversion & Power Generation	2	CLOSED	NONE
07-Mec-B4, Integrated Manufacturing Systems	3	OPEN	NONE
07-Mec-B5, Product Design & Development	1	OPEN	NONE
07-Mec-B6, Advanced Fluid Mechanics	3	OPEN	Note, copies of previous sample exams are not allowed to be brought into the exam room any other notes and textbooks are permitted.
07-Mec-B7, Aero & Space Flight	3	OPEN	NONE
07-Mec-B9, Advanced Engineering Structures	3	OPEN	NONE
07-Mec-B10, Finite Element Analysis	3	OPEN	NONE

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Metallurgical	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-Met-A5, Mechanical Behaviour and Processing and Performing of Materials	2	CLOSED	NONE
98-Met-B5, Metal Fabrication	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.

Name of Subject Manufacturing	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
08-Mfg-A2, Manufacturing Process	2	CLOSED	NONE
08-Mfg-A3, Production Management	2	CLOSED	NONE
08-Mfg-A4, Analysis & Design of Work	2	CLOSED	NONE
08-Mfg-A5, Facilities Planning	2	CLOSED	NONE
08-Mfg-A6, Quality Planning, Control & Assurance	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.
08-Mfg-B4, Product Design & Development	1	OPEN	NONE
08-Mfg-B10, Tooling, Jigs & Fixture Design	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11"hand-written on both sides containing notes and formulae.

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Mining and Mineral	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
09-MMP-A2, Underground Mining Methods and Design	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
09-MMP-A3, Mineral Processing	2	CLOSED	NONE
09-MMP-A4, Mine Valuation and Mineral Resource Estimation	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
09-MMP-A5, Surface Mining Methods and Design	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
09-MMP-B8, Mine Management & Systems Analysis	2	CLOSED	NONE

Name of Subject Petroleum	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-Pet-A5, Petroleum Production Operations	3	OPEN	It is to the candidate's advantage to bring the suggested textbook.

Name of Subject Physics	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
98-Phys-B4, Signals and Communications	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae.
98-Phys-B5, Systems and Control	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" hand-written on both sides containing notes and formulae. Also, relevant graphs can be photocopied and glued to the aid sheet as well. The aid sheet must be submitted with the written exam paper.

EXAM FORMAT AND AIDS PERMITTED FOR THE DECEMBER 2011 NATIONAL TECHNICAL SESSION

Name of Subject Transportation	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
07-Str-A1, Elementary Structural Analysis	2	CLOSED	NONE
07-Str-A3, Geotechnical Materials and Analysis	2	CLOSED	NONE
07-Str-A4, Advanced Structural Analysis	2	CLOSED	NONE
07-Str-A5, Advanced Structural Design	2	CLOSED	However, candidates may bring into the exam room any textbooks of their choice as well as handbook manuals but no loose notes or written notations in any of the textbooks or manuals. Note the solutions for Standards of, Steele, Concrete & Timber must come from the latest manual editions.
07-Str-B1, Geotechnical Design	3	OPEN	It is to the candidates' advantage to bring the Canadian Foundation Manual.
07-Str-B5, Foundation Engineering	3	OPEN	NONE

Name of Subject Transportation	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
07-Tra-A2, Highway Design	3	OPEN	NONE

Name of Subject Water Resources	Format 1,2, or 3	Closed or Open Book	Aids/Instructions to the Candidates
07-Wrse-A6, Municipal Engineering	2	OPEN	NONE
07-Wrse-B4, Open Channel Hydraulics	2	CLOSED	Candidates are allowed to bring ONE aid sheet 8.5" X 11" written on both sides containing notes and formulae.