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**Technical  
and Professional  
Communications 12**

**January 2004**

**Course Code = TPC**

### Student Instructions

1. Place the stickers with your Personal Education Number (PEN) in the allotted spaces above. **Under no circumstance is your name or identification, other than your Personal Education Number, to appear on this booklet.**
2. Ensure that in addition to this examination booklet, you have an **Examination Response Form**. Follow the directions on the front of the Response Form.
3. **Disqualification** from the examination will result if you bring books, paper, notes or unauthorized electronic devices into the examination room.
4. When instructed to open this booklet, **check the numbering of the pages** to ensure that they are numbered in sequence from page one to the last page, which is identified by **END OF EXAMINATION**.
5. At the end of the examination, place your Response Form inside the front cover of this booklet and return the booklet and your Response Form to the supervisor.

**Question 1:**

1.

(4)

**Question 2:**

2.

(4)

**Question 3:**

3.

(2)

**Question 4:**

**Marker 1**

4.

(5)

**Marker 2**

5.

(5)

**Question 5:**

**Marker 1**

	Content	Design
6.	<input type="text"/>	<input type="text"/>
	(5)	(5)

**Marker 2**

	Content	Design
7.	<input type="text"/>	<input type="text"/>
	(5)	(5)

**TECHNICAL  
AND PROFESSIONAL  
COMMUNICATIONS 12**

**January 2004**

COURSE CODE = TPC

## GENERAL INSTRUCTIONS

1. Aside from an approved calculator, electronic devices, including dictionaries and pagers, are **not** permitted in the examination room.
2. All multiple-choice answers must be entered on the Response Form using an **HB pencil**. Multiple-choice answers entered in this examination booklet will **not** be marked.
3. For each of the written-response questions, write your answer in the space provided in this booklet.
4. Ensure that you use language and content appropriate to the purpose and audience of this examination. Failure to comply may result in your paper being awarded a zero.
5. This examination is designed to be completed in **two hours**. *Students may, however, take up to 30 minutes of additional time to finish.*

**TECHNICAL AND PROFESSIONAL COMMUNICATIONS 12  
PROVINCIAL EXAMINATION**

	<b>Value</b>	<b>Suggested Time</b>
1. This examination consists of <b>five</b> parts:		
PART A: Communication Concepts	10	8
PART B: Reading Comprehension	18	25
PART C: Editing	7	7
PART D: Design	20	20
PART E: Case Study	35	60
	<b>Total:</b>	
	<b>90 marks</b>	<b>120 minutes</b>

2. A hand-held calculator may be used for this examination; however, computers, calculators with a QWERTY keyboard, and electronic writing pads will not be allowed. Students must not bring any external devices to support calculators, such as manuals, printed or electronic cards, printers, memory expansion chips or cards, or external keyboards. Students may have more than one calculator available during the examination. Calculators may not be shared and must not have the ability to either transmit or receive electronic signals.
  
3. You may use a ruler or geometry set to create any graphics required for the Design and Case Study parts.

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## PART A: COMMUNICATION CONCEPTS

Value: 10 marks

Suggested Time: 8 minutes

**INSTRUCTIONS:** For each multiple-choice question, select the **best** answer and record your choice on the Response Form provided. Using an HB pencil, completely fill in the circle that has the letter corresponding to your answer.

Use the following information to answer questions 1 and 2.

“The functions of each part of the brain are...not always rigidly fixed.”

(Carter, 1996, p. 45)

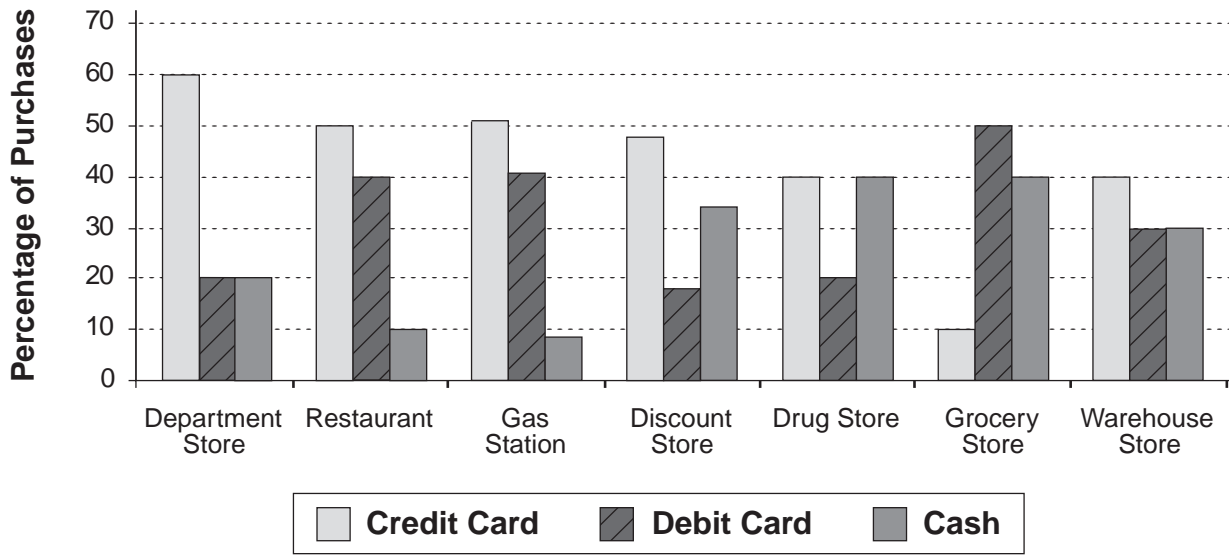
1. What does the ellipsis (...) indicate?
  - A. A pause is required.
  - B. Emphasis is required.
  - C. Words have been added.
  - D. Words have been omitted.
  
2. Which is the correct bibliographical entry for the citation above?
  - A. Carter, R. *Mapping the Mind*. Los Angeles: University of California Press, 1996.
  - B. R. Carter. *Mapping the Mind*. Los Angeles: University of California Press, 1996.
  - C. R. Carter. “Mapping the Mind.” Los Angeles: University of California Press, 1996.
  - D. Carter, R. “Mapping the Mind.” Los Angeles: University of California Press, 1996.

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3. When reporting to management on the consequences of closing a branch of your company, what organizational pattern should you use?
  - A. spatial
  - B. problem-solution
  - C. most important to least important
  - D. least important to most important

OVER

Use the following graph to answer questions 4 and 5.

Consumer Spending Trends 2003



4. What percentage of warehouse store purchases was made by credit card?
- A. 30%
  - B. 35%
  - C. 40%
  - D. 50%
5. Which conclusion about consumer spending is supported by the information in the graph?
- A. Consumers used cash more often than credit cards or debit cards.
  - B. Consumers are more likely to use cash at a grocery store than at a gas station.
  - C. Consumers used credit cards less often at department stores than at discount stores.
  - D. Consumers are equally as likely to use credit cards, debit cards, and cash at a drug store.



Use the following advertisement to answer questions 6 and 7.

## The Picture-Perfect Family Gift



Our new Family Warmth sweaters are quality-made for weekend outings, get-togethers, and those forever cherished family photos. Crafted from 100% pure lamb's wool, these soft sweaters will certainly be enjoyed by everyone for the long term. Available to fit the whole family—including a doggie version. Order them today and your family will thank you forever.

Go to [www.familywarmth.com](http://www.familywarmth.com) for a free catalogue.

6. Which strategy does the advertiser use to generate interest in the sweaters?
- A. technical data
  - B. supported claims
  - C. emotional appeal
  - D. product endorsement
7. Which statement about the sweaters is supported by the advertisement?
- A. They are handmade.
  - B. They are available in a range of sizes.
  - C. They are necessary for family outings.
  - D. They are available for purchasing online.

OVER

8. Which situation is considered plagiarism?
- A. writing a report with a partner
  - B. using a cited source in your report
  - C. submitting an English term paper taken from the Internet
  - D. using your sister's old exams to prepare for an upcoming exam
9. In which document would it be appropriate to use an emoticon (☺) ?
- A. résumé
  - B. cover letter
  - C. memorandum
  - D. personal e-mail
10. Which type of program would be most useful for creating a company newsletter?
- A. spreadsheet
  - B. multi-media
  - C. graphic imaging
  - D. word processing

## PART B: READING COMPREHENSION

Value: 18 marks

Suggested Time: 25 minutes

**INSTRUCTIONS:** Read the following article carefully. For questions 11 to 18, select the **best** answer and record your choice on the Response Form provided.

### The Physics of...Foam Bubble, Bubble

#### The toil and trouble of foam research reveals some magical results

(adapted)

**1** On any given day, visitors to Glynn Holt’s laboratory at Boston University are likely to see a peculiar sight: a single drop of foam suspended as if by magic in midair. What they can’t see are the sound waves that Holt uses to suspend the foam. By keeping the foam from touching the sides of a container, which would distort its shape and behaviour, Holt can get more accurate measurements of its properties.

**2** Holt is one of a growing number of researchers intrigued by foams and their unique qualities. Foams exist at all scales, from quantum gravitational bubbles in the fabric of space-time to the galactic structure of the cosmos itself. They are found throughout our daily lives, popping up in popular goods and beverages, personal grooming products, household soaps, and works of art.

**3** Sidney Perkowitz, professor of physics at Emory University and the author of *Universal Foam*, cites foams as examples of soft matter: they don’t flow freely like a true liquid, but neither are they a crystalline solid, like a diamond. “We’re very good at explaining hard matter like crystals; the entire semiconductor industry is based on them,” he says. “Soft matter seems to tell us a lot more about nature and biology.” Although particle physicists believe that a grand unified theory will rest on a more complete understanding of elementary particles, condensed-matter physicists think that the key lies in figuring out how physical laws evolve in complex systems like foam.

**4** The origins and macrostructure of foams are well understood. “We’re not discovering foam; it has existed for a very long time,” says Douglas Durian, a physicist at the University of California at Los Angeles. “We’re just trying to figure out how it works.” Most foams contain a *surfactant* (short for “surface active agent”), a group of complex molecules that collect at the bubbles’ surfaces. A surfactant—fats or proteins in edible foams, chemical additives in shaving cream—prevents a foam from collapsing under surface tension by keeping the bubbles separate and by repelling water from their surfaces, which keeps them from popping. Milk fat, which makes up 20 percent of heavy cream, acts as the surfactant in whipped cream. In nondairy varieties, milk fat is replaced by vegetable oil, which has an even higher fat content than cream.

**5** Scientists know a great deal about the individual bubbles in such foams and how they “talk” to one another through simple friction. But when many bubbles clump together to form a foam, the resulting material exhibits a host of unexpected properties and behaviours. Liquid foams, for instance, are composed of roughly 95 percent gas and 5 percent liquid, yet they tend to be far more rigid than these components. This is due to a phenomenon called jamming. Because the bubbles are so tightly packed, when a foam is pressed down, the bubbles can’t hop around one another. The more the bubbles are jammed together, the greater the pressure inside them grows—and, consequently, the more they take on the characteristics of a solid.

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Exercise care when tearing along perforations.**

**OVER**

**6** Then there's the matter of shape. A foam's properties are largely determined by the shape of its individual bubbles, but the exact nature of that shape is one of the oldest mathematical conundrums. In the 19<sup>th</sup> century, England's Lord Kelvin, of absolute-zero fame, came up with a shape called Lord Kelvin's cell—a complex figure with six square and eight hexagonal faces that Perkowitz describes as “a demented soccer ball.”

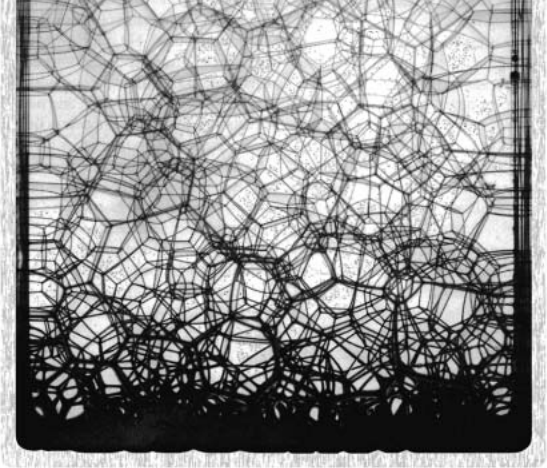


Figure 1.  
Bubbles in a soapy froth, held in a Plexiglas container.

Photograph courtesy of John Sullivan, Matt Fetterman, and Siggi Thoroddsen

**7** The biggest challenge facing sudsy scientists is to create models of foam rheology, that is, the way it deforms and flows over time. As foams age, gravity drains their liquid downward, and smaller bubbles are absorbed by larger ones, a process called coarsening. But until quite recently, our understanding of this process has been limited by the difficulties of studying such a material. Foams are fragile, and they usually have to be confined to a glass container to be studied, which itself alters their behaviour.

**8** Douglas Durian has taken a different approach. In 1990, while still with Exxon, he placed some shaving cream in a small glass cell, shone a laser beam through one end, and

measured the amount of light that emerged through the opposite side. Over time, he found, the light's intensity fluctuated as the bubbles both clumped and rapidly shifted position. As the foam shifted, its internal stresses grew, until groups of tightly packed bubbles suddenly snapped from one shape to another like a slow-motion avalanche. If Durian applied enough pressure, the bubbles would rearrange constantly, flowing like a liquid.

**9** It is this wide range of unique mechanical properties—from solid to fluid—that makes foams so useful for everyday application. Most recently, a new anti-terrorism foam was used to decontaminate government office buildings and mail rooms in Washington, D.C. Developed at Sandia National Laboratories, the foam neutralizes toxic chemical and biological agents such as anthrax and sarin nerve gas within minutes. The foam, sprayed from handheld canisters, expands to about 100 times its liquid volume as air is drawn into the spray. It fills crevices and other elusive hiding places, then collapses back to its compact liquid state a few hours later.

**10** The foam neutralizes toxic substances in much the same way a detergent removes stains from clothing. Its surfactants and mild oxidizing substances digest the chemical agent, seeking out the phosphate or sulfide bonds holding the molecules together and chopping them into bits. Sandia researchers aren't entirely sure how the foam kills bacterial spores, but they think the surfactants poke holes in the spores' protein armor, allowing the oxidizing agents to attack the genetic materials inside.

**11** As practical as foams can be, their true appeal to physicists lies in their unique behaviour. Ultimately, foam research may help explain the structure of plant cells and the ways in which biological systems emerge and evolve—subjects as complex as foam itself.

Jennifer Ouellette

11. Why did Holt suspend foam in mid-air?
- A. to research the fabric of space-time
  - B. to avoid contamination from containers
  - C. to make more precise measurements of foam
  - D. to learn about the impact of sound waves on foam
12. How do surfactants stop bubbles from collapsing?
- A. They attract water to the bubbles.
  - B. They keep bubbles separate from each other.
  - C. They increase the surface tension of the bubbles.
  - D. They remove a chemical additive from the bubbles.
13. In paragraph 5, the word “talk” is an example of
- A. slang.
  - B. jargon.
  - C. dialogue.
  - D. personification.
14. What happens during “jamming”?
- A. Foam melts.
  - B. Bubbles move.
  - C. Solid foams are sprayed.
  - D. Bubbles are compressed.
15. Why are foams difficult to study?
- A. They do not age.
  - B. They are made up of gas.
  - C. They change behaviour when confined.
  - D. They do not allow light to pass through.

16. In Durian’s experiments, what caused the foam to flow like a liquid?

- A. the natural force of gravity
- B. the light directed at the foam
- C. the use of a Plexiglas container
- D. the pressure applied to the foam

17. In paragraph 9, what does “elusive” mean?

- A. large
- B. small
- C. easy to find
- D. hard to find

18. Why is foam research considered important?

- A. Foams behave in unpredictable ways.
- B. It can be used as a defence against terrorism.
- C. Foams are found in commonly used products.
- D. It can provide insights into biology and nature.

**INSTRUCTIONS:** Answer questions 1 to 3 based on the article “The Physics of...Foam.” Complete sentences are not required.

1. From the article, identify **four** practical uses of foam.

**(4 marks)**

- A. \_\_\_\_\_
- B. \_\_\_\_\_
- C. \_\_\_\_\_
- D. \_\_\_\_\_

2. From the article, identify **four** qualities or behaviours of foams that scientists cannot fully explain. **(4 marks)**

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

3. Identify **two** ways that Figure 1 helps to support the information about foam bubbles presented in the article. **(2 marks)**

A. \_\_\_\_\_

B. \_\_\_\_\_

## PART C: EDITING

Value: 7 marks

Suggested Time: 7 minutes

**INSTRUCTIONS:** You are R. Powers. You have prepared the following e-mail to send to your manager. Before sending the message, edit for clarity and consistency. For questions 19 to 25, select the **best** answer and record your choice on the Response Form provided.

To: [danderson@a-1furniture.com](mailto:danderson@a-1furniture.com)  
From: [rpowers@a-1furniture.com](mailto:rpowers@a-1furniture.com)  
Subject: Simpson Appliances Order  
Cc:  
Bcc:  
X-Attachments:

- 1 Two weeks ago, on January 3<sup>rd</sup>, Mr. Simpson orders \$15 000 of office furniture: 10 desks, 20 chairs, and 5 filing cabinets.
- 2 The filing cabinets and chairs were all ready in stock, but the desks had to be ordered from our warehouse in Calgary. The warehouse supervisor assured me that they would arrive by the January 31<sup>st</sup> deadline.
- 3 Simpson Appliances will be moving into new office space on February 1<sup>st</sup>. It is important to note that we will forfeit a \$1 500 punctuality bonus if the desks do not arrive on time.
- 4 Some of the equipment will require assembly. If the shipment from Calgary does not arrive until the last minute; one assembly person will not be adequate. In fact, we may require as many as two additional workers. \_\_\_\_\_, I will not be able to confirm this until sometime next week.
- 5 I'm sure we'll manage to meet the deadline somehow! I know that Mr. Simpson is a long-time customer of A-1 Furniture. I'll keep you posted.

19. What type of error appears in paragraph 1?

- A. verb tense
- B. faulty parallelism
- C. improper punctuation
- D. improper use of numbers

20. Which part of the underlined sentence in paragraph 2 contains an error?

- A. The filing cabinets and chairs
- B. were all ready in stock,
- C. but the desks had to be ordered
- D. from our warehouse in Calgary.



21. Within the context of the entire e-mail, the **first** sentence of paragraph 3 should be
- A. deleted as redundant.
  - B. combined with paragraph 4.
  - C. rewritten in the passive voice.
  - D. moved to the beginning of paragraph 1.
22. In the second sentence of paragraph 4, the semicolon should
- A. be a dash.
  - B. be a period.
  - C. be a comma.
  - D. remain as written.
23. ~~Which word should be inserted in the underlined space in paragraph 4?~~
- A. ~~Although~~
  - B. ~~Additionally~~
  - C. ~~Consequently~~
  - D. ~~Unfortunately~~
24. Which word best describes the language in paragraph 5?
- A. formal
  - B. concise
  - C. technical
  - D. colloquial
25. What is the **main** purpose of this e-mail?
- A. to inform
  - B. to confirm
  - C. to describe
  - D. to apologize

**Organization and Planning**  
(this will not be marked)



	<b>1st</b>	<b>2nd</b>
<b>Design</b>		

## PART D: DESIGN

Value: 20 marks

Suggested Time: 20 minutes

**INSTRUCTIONS:** Read the situation below and create an appropriate product (complete with title). Use visual representation to enhance the message.

- underline words to indicate *italics*
-  words to indicate **bold**
-  use a box to indicate the look and placement of a graphic

4. You are Dan Johansson, a grade 12 student at Longford Park Secondary School. As part of your Leadership 12 class, you must lead a seminar on effective study skills for CAPP students. You have obtained the following information from *Study Smarts* by J. Kesselman-Turkel and F. Peterson. Create an effective handout that would be useful to students who want to improve their grades.

If you are tired, chances are you won't remember what you read when you were half-asleep. Study while you are still alert. Staying up late to cram for an exam will work against your memory. If you have a test the next day, go over the facts and ideas that you have studied, one at a time, right before you go to bed. Your brain will continue to reinforce your memories throughout the night while you are sleeping. It is best to get at least six hours of sleep. Try to study during daylight hours; it has been proven to be more effective than studying at night.

Study breaks are important. Let them be rewards for your efforts. It is best to take a ten-minute break in between studying for different subjects. These breaks will give your brain time to rest before learning something different. Be careful not to take too many breaks. This could be counter-productive. Take a two to five minute break in between reading a textbook and writing down notes or a summary. This will help you remember the information for a longer term.

Make a study schedule and stick to it. Figure out how many hours you want to study and then divide up the time between your different classes. It is better to study in many short sessions as opposed to fewer longer sessions. Remember to be realistic. If you are too ambitious, you may end up giving up on the study schedule altogether.

Study in a place where distractions will be at a minimum. Find a place where people are not constantly walking by. Avoid listening to music or watching television while studying because it interferes with the learning process. Keep snacks handy while studying to avoid urges to think about what to eat.

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**Organization and Planning**  
(this will not be marked)

## PART E: CASE STUDY

**Value: 35 marks (Content: 20 marks; Visual Design: 15 marks)      Suggested Time: 60 minutes**

**INSTRUCTIONS:** Read the scenario below and write a standard business memorandum. For ease of navigation, it is expected that you will include supporting visual design elements. For emphasis in your work

- underline words to indicate *italics*,
- **circle** words to indicate **bold**.

### 5. Scenario:

You are Julia Lee, a Marketing 12 student at Mountain Ridge High School. You and your classmate, Steve Markham, ran your own business for four weeks as part of your final project. The project is now finished and you must write a completion report to your teacher, Mr. Perry.

You and Steve operated a breakfast stand that opened from 7:30 to 8:15 a.m. on Monday, Wednesday, and Friday mornings. The idea came to the two of you one morning when you were both hungry. You had both skipped breakfast and were desperate for something to eat. However, all that the school offered was potato chips, candies, and soft drinks from the vending machines. The cafeteria was closed and did not open until noon. You realized at that point that what the school needed was a breakfast stand that offered healthier alternatives like muffins, bagels, juice, coffee, and hot chocolate. You decided to call your stand The Breakfast Club.

You and Steve purchased all the baked goods at The Bread Basket, a commercial bakery. Muffins and bagels were purchased at a cost of 100 for \$50. At a nearby warehouse, you purchased 4 large tubs of cream cheese for \$40; 200 juice boxes for \$100; 4 bags of coffee for \$40; and 5 cans of hot chocolate for \$55. Supplies cost \$100.

One problem that arose when you first started The Breakfast Club was that you could not make enough hot chocolate and coffee with your kettles and coffee machines. There were just too many orders coming in for the amount that you could make in one sitting. To solve this problem, you and Steve rented 2 coffee urns for \$80 from the cafeteria.

Initially, you had actually planned to do all the baking yourselves. In fact, you had planned to bake muffins, scones, and different kinds of breads. However, after trying to organize the baking, you both realized that baking is very time consuming and it does not always turn out well. Also, there was no way that you could bake enough food to meet the demand. All in all, you realized that it was far cheaper to buy commercially baked goods.

You opened The Breakfast Club on Monday, November 3, 2003. By the end of the four weeks, you had sold 400 bagels and muffins, 200 servings of juice, 100 servings of coffee, and 300 servings of hot chocolate. You charged \$1.25 for a muffin or bagel with cream cheese, and 75 cents for juice, coffee, or hot chocolate. The Breakfast Club was a great success and you received many compliments from teachers and students. Many people were sad to see The Breakfast Club close on Friday, November 28, 2003.

### **Task:**

Write a project completion report to Mr. Perry, describing the project. Include a summary of the project events and a list of revenues and expenses. Date your correspondence January 26, 2004.

**You may detach this page for convenient reference.  
Exercise care when tearing along perforations.**

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## **ACKNOWLEDGEMENTS**

Adapted from “The Physics of...Foam” by Jeanette Ouellette. *Discover*. June 2002,  
Vol. 23, No. 6.