

**UNIVERSITY OF SOUTH AUSTRALIA**  
**SCHOOL OF GEOINFORMATICS PLANNING AND BUILDING**

**(FIRE TECHNOLOGY 2)**

**EXAMINATION**

**Date of examination:** November 2002  
**Examiner:** Graham Brown

**General instructions to candidates :**

**Write your name on the examination booklet.**

**You must answer all questions.**

**All questions have marks indicated in brackets e.g. ( 20 marks )**

**Lecture notes and text books and Australian Standards are permitted references.**

**Reading time is 10 minutes before commencing the paper.**

**Time for examination is 2 hours.**

**Question 1.**

You are the Consultant to a building owner who is proposing to construct a 6 storey office building in the central business district of Adelaide.

The effective height is 15 metres.

It is built to the side boundary on both sides and to the rear boundary on the other.

There is a narrow laneway along the rear boundary. The front faces a main road.

The floor area per storey is 3000 square metres.

The owner cannot understand why the building has to have storage or break tanks, pumps with varying flow and pressure characteristics, internal fire hydrants, and a fire service booster connection for use by the fire service when "they already have perfectly good fire hydrants in the street".

Prepare a submission to the owner explaining why these requirements are necessary from a fire fighting point of view.

**( 20 marks )**

**Question 2.**

By the use of diagrams explain what the differences are between a "purge system" and a "zone system" used for smoke control in the event of a fire in a building.

Discuss why one system performs better than the other and why this is so.

**( 20 marks )**

**Question 3.**

Your client wants to install a sprinkler system into an existing building which has cold rooms in a kitchen area, a storage area for rare books, and a reading room area with a vaulted roof, exposed air conditioning duct work, and open web trusses.

Discuss the recommendations that you would make for such an installation and the things that you would check to ensure that the system would be effective.

**( 20 marks )**

**Question 4.**

Discuss the types of extinguishing systems or equipment that you would recommend for the following situations and explain the reasons for your recommendations :

- (a). a fire in a deep fat fryer in a restaurant **( 5marks )**
- (b). a fire in an electrical switchboard **( 5 marks )**
- (c). a fire in a computer suite **( 5 marks )**
- (d). a fire in a rare books storage room **( 5 marks )**

**Question 5.**

Smoke from a fire can be a hazard to the occupants of any building.

Discuss why this is so and explain why it is particularly dangerous in an enclosed shopping mall and the precautions that you would recommend to mitigate the hazard.

**( 20 marks )**