

UNIVERSITY OF SOUTH AUSTRALIA
SCHOOL OF GEOINFORMATICS PLANNING AND BUILDING
FIRE TECHNOLOGY 2
EXTERNAL EXAMINATION

Date of examination: June 2003
Examiner: Graham Brown

General instructions to candidates :

Write your name on the examination booklet.

You must answer all questions.

All questions or parts of 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.

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

- a fire in a deep fat fryer in a restaurant (4 marks)
- a fire in a transformer station (4 marks)
- a fire in a computer suite (4 marks)
- a fire in the rare books area of a Library (4 marks)
- a fire in a fuel tanker filling area (4 marks)

Question 2.

Australian Standard 1668.1 “Fire and Smoke Control” contains requirements for the function of air conditioning systems in a building in the event of fire.

With the use of diagrams explain the differences between a “purge system” and a “zone system”.

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

(20 marks)

Question 3.

Fighting fire in older high rise buildings is a real problem for fire fighters because of difficult access to fire hydrants, smoke filled stairways, lack of water pressure, and insufficient water flow.

Requirements for modern buildings are intended to overcome these problems. Discuss the measures which are now required to fight fires in a high rise building and how they are used by fire fighters.

(20 marks)

Question 4.

The correct selection of fire detection equipment can make a real difference in the early discovery of a fire and consequent action to save lives or to extinguish the fire.

Discuss the type of fire or smoke detection devices that you would recommend for the following situations and why :

- (1) the sleeping accommodation for a backpackers hostel (4 marks)
- (2) a large warehouse using pallets for handling goods (4 marks)
- (3) an office area which has large areas of west facing glass (4 marks)
- (4) the atrium space of a high rise building (4 marks)
- (5) wards in a nursing home. (4 marks)

Question 5.

Automatic sprinkler operation can extinguish or contain a fire in a building.

- (1) Discuss the principles of the automatic sprinkler system and the advantages that it has over Systems that rely only on human actions. (10 marks)
- (2) Discuss also the precautions that need to be taken to ensure correct operation if sprinklers are intended for :
 - (a) the protection of a cold storage room (5 marks)
 - (b) the protection of a theatre stage area. (5 marks)

End of questions