

UNIVERSITY OF SOUTH AUSTRALIA

SCHOOL OF NATURAL AND BUILT ENVIRONMENTS

FIRE TECHNOLOGY 2 (CIVE 5033)– EXTERNAL EXAMINATION

EXAMINATION: External Exam, Semester 1, 2004

DURATION: 2 Hours of Exam time preceded by 10 minutes of reading time i.e. a total of **2Hrs 10 Mins.**

EXAMINER: Graham Brown

REVIEWER: Assoc Professor George Zillante (Tel. 22379)

INSTRUCTIONS TO CANDIDATES:

- You **MUST** answer all questions
- The value of each question is noted adjacent to the question
- Open Book Examination i.e. all references permitted

Question 1.

The Fire Services need fire-fighting equipment to be available so that they can use it to extinguish a fire in a building.

Discuss the items that would need to be installed in an office tower 10 storeys high and how these would be used to fight a fire on the seventh storey.

(20 marks)

Question 2.

- (a) You have been asked by your client to install a sprinkler system to cover the office area only of an office/showroom building. What could be the consequences of such an installation if a fire started in the showroom area?

(10 marks)

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

Discuss the recommendations that you would make and the difficulties that could be encountered with the installation.

(10 marks)

Question 3.

(a) What type of smoke or heat detection devices or system of devices, would you recommend for the following buildings and why would you make such a recommendation?

- (1) An aircraft hangar
- (2) A backpackers hostel
- (3) The atrium space of a building
- (4) A large factory where smoke and flames and heat are normally present
- (5) A hospital ward

(15 marks)

(b) What are the advantages of an addressable fire detection system over a conventional system?

(5 marks)

Question 4.

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 5.

(a) Describe what could happen in a single storey unventilated shopping mall if a fire was to start in a shop opening onto the mall?

(10 marks)

(b) What means could you employ to limit the hazard to occupants from a fire such as the one in (a) above?

(10 marks)

End of Questions

Total marks available is 100