GX2581

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY.

SUMMER EXAMINATION 2000.

M.Sc. in Occupational Health and Ergonomics

SAFETY AND RISK MANAGEMENT (IE 522)

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Time allowed: **3 hours**
Attempt: **Any five** questions. **Use a separate answer book for SECTION 'A' & SECTION 'B'**

Section A

Q1 a) What are the main elements of the Liability for Defective Products Act, 1991? (12 marks)
b) What constitutes a Product Liability Prevention Policy? (8 marks)

Q2 a) Discuss the effectiveness of current health and safety legislation in assuring safety in workplace. (10 marks)
b) Describe the content and role of a safety statement in assuring safety in the workplace. (10 marks)

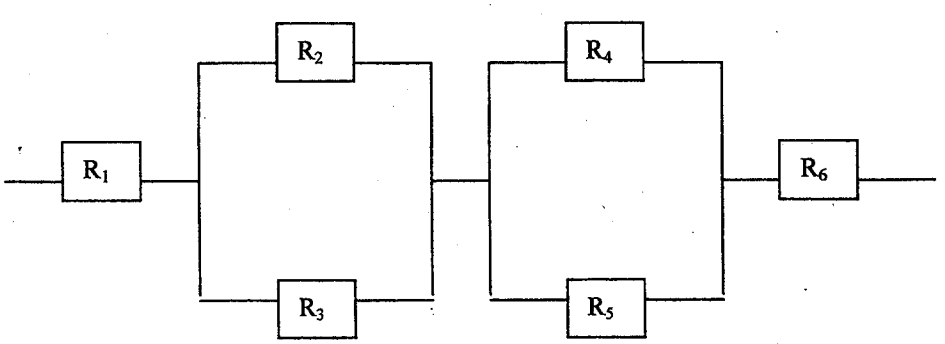
Q3 Choose two safety related risk assessment methodologies, covered in the course, and
i) Describe the method in detail using an example (10 marks)
ii) Briefly discuss risk assessment coding/classification methods. (5 marks)
iii) Describe the most appropriate application for the methods chosen (5 marks)

Q4 a) What are the main hazards associated with machines and what are the appropriate control measures to protect workers? (10 marks)
b) Fatalities and serious accidents on Construction sites are among the highest of all employment sectors in Ireland. What are the main causes of these accidents and how can they be prevented? (10 marks)

Q5 The function of a safety management system is to ensure that all the key elements required to assure workplace safety are in place and working. Describe what you consider to be the most important elements of such a system and the role of the safety manager in such a system (20 marks)

Q6 a) Discus the main elements of a management systems required to assure product safety in the catering industry. (12 marks)
b) In investigating an accident one has to look beyond the immediate cause to ascertain the basic cause and to prevent re-occurrence of the accident. What should one look for in this situation? (8 marks)

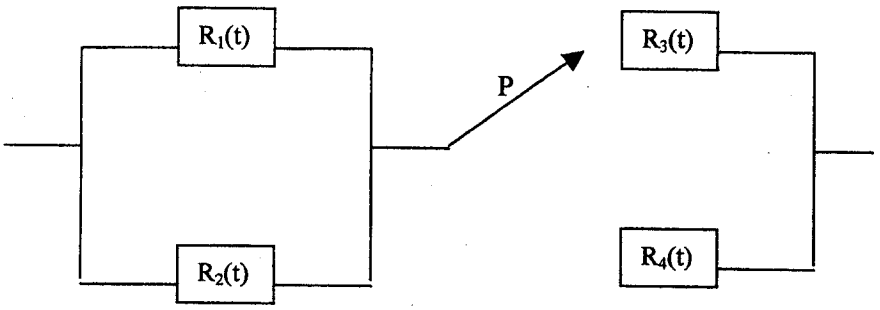
Q7 a) Determine the reliability of the following system:



Where $R_1 = 0.8$
$R_2 = R_3 = R_6 = 0.9$
$R_4 = R_5 = 0.85$ (6 marks)

p.t.o.

Q7 b) What is the reliability of time t = 10 hours of the following system?



Where $R_1(t) = e^{-t}$
$R_2(t) = e^{-2t}$
$R_3(t) = e^{-3t}$
$R_4(t) = e^{-4t}$, P = .90

Note: P, the reliability of the switch should be interpreted as follows:

Initially Unit 3 (at time t = 0) is functioning satisfactorily. Should Unit 3 breakdown the reliability of the switching system is 0.9 or in other words on the breakdown of Unit 3 the probability that Unit 4 will be switched in is 0.9. Unit 4 is assumed to be in a functioning condition when it is switched in.

(9 marks)

c) What is the Mean Time to Failure of the system described in (b) above? (5 marks)

SECTION B (Use separate answer book)

Q8 "In the context of working with hazardous materials/chemicals in Ireland, the most useful sources of information are (a) CODE OF PRACTICE for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 1994 and (b) Material Safety Data Sheets".

Discuss this statement. (20 marks)