

**UNIVERSITY OF SOUTH AUSTRALIA**  
**SCHOOL OF GEOINFORMATICS, PLANNING & BUILDING**

PROGRAMS:       **Master of Project Management**  
                      **Graduate Diploma in Project Management**

COURSE:           **TIME, COST & QUALITY MANAGEMENT (12420)**

EXAMINATION:   **Internal Exam, Semester 1, 2002**

DURATION:       **3 Hours of Exam time preceded by 10 minutes of Reading**  
                      **time, a total of 3 Hrs 10 Mins.**

For ENTEXT students 10 minutes of Reading time plus 3.5  
**Hours of Exam time, a total of 3 Hrs 40 Mins.**

EXAMINER:       **Mike Durand      Tel – 8232 2788**

**INSTRUCTIONS TO CANDIDATES:**

- This exam consists of 7 questions and you need to **answer only 5** questions.
  - Each question carries 20%.
  - No reference materials are allowed. Calculator is allowed.
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**Question 1**

There are a number of tools of Total Quality that may be used to improve processes. Explain what is meant by a process and describe the following tools used for improving processes and explain how they are used:

- Cause and Effect Diagrams
- Pareto Diagrams
- Control Charts.
- Benchmarking

Briefly identify any other tools and what they are used for.

**Question 2**

- a) Most projects pass through four to five phases. Identify these phases and describe the typical activities in each phase
- b) There are several organisation structures that can be used for project management. What are the basic types of project organization? Describe the characteristics, advantages and disadvantage of each.

**Question 3**

Discuss the concepts of Quality Assurance (QA) and its application in an industry with which you are familiar. What are the advantages of implementing a quality assurance system, which conforms to the ISO 9001 standard and gaining third party certification? Are there any disadvantages and possible difficulties of auditing and assuring compliance?

**Question 4**

For the schedule of activities shown below, draw a network, determine how long the project will take and determine the critical path. Assuming that every activity starts as early as it can, what is the maximum number of staff required? If the maximum number of staff available is 9, what is the minimum number of days in which the project can be completed?

Activity	Depends on	Duration (Day)	Staff Required
A	Start	2	2
B	A	3	3
C	A	6	5
D	A	2	5
E	B	5	4
F	F	7	2
G	D, C	3	2
H	D	2	3
I	H	5	4
J	I, F	2	2
K	I	6	3
L	J, K	3	2
M	E	1	1

### Question 5

Quality Function Deployment (QFD) is one of the tools that organisations can use to help them perform better. Describe what QFD is, what it is used for, how it is used and the steps taken to implement it.

Draw a diagram of the 'House of Quality' indicating what each of the elements or 'rooms' contain.

### Question 6

(a) What is the meaning of 'Earned Value' and describe the variances that are used to monitor a project.

(b) On day 70 a construction project has had \$80,000 actual cost spent on it against a scheduled cost of \$90,000. The project manager estimates a value completed of \$85,000. Calculate the cost and schedule variances for this project at this stage. Estimate the time variance.

### Question 7

a) Explain the concepts and definitions of Value Management and Value Engineering. Describe how value management and value engineering can improve capital productivity and competitiveness.

b) An existing foundry is becoming inefficient, with increasing defects and labour costs. It is located in a residential area and a recent breach of environmental laws caused the company to be fined heavily by the EPA. The foundry is currently next to the warehouse, which needs to stay in the same location, and relocating the foundry will mean higher transportation costs. As the project manager, how will you use Value Management principles to decide on the solution which will provide the greatest value for money?