The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Mechanical Engineering

Study Programme	:	BTech Hons in Engineering
Name of the Examination	:	Final Examination
Course Code and Title	:	**DMM6601/DMM6602 Management for Engineers**
Academic Year	:	2021-2022
Date	:	08th February 2023
Time	:	0930-1230 hrs
Duration	:	3 hours

General instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of 08 questions. All questions carry equal marks.
3. Answer **any 05** questions only.

Q1.

(a)   Under administrative management theories, 14 principles of management were explained by Henry Fayol. Briefly discuss any 5 of them still used as management principles.

(5 Marks)

(b)   Briefly explain weaknesses of the classical management theories giving reasons.

(5 Marks)

(c)   Organizational structures provide the basic building blocks for the overall design of an organization. Explain two types of organizational structures commonly used giving advantages and disadvantages of them (2 each).

(5 Mark)

(d)   There are three leadership styles based on use of authority. Name them and briefly explain when and in which situation you would use these styles as a leader.   **(5 Marks)**

Q2.

(a)   State and describe the main components of human resources management process.

(6 Marks)

(b)   Why is it important to retain high quality human resources in any organization?
Discuss giving examples.   (4 Marks).

(c)   Basically, there are two sources from which a pool of qualified applicants may be
recruited.   Name these two sources and discuss advantages and disadvantages of them.

(4 Marks)

(d)   Motivation is the core of management. Explain Maslow's hierarchy of needs and the
importance of it in human resource management.   (6 Marks)

Q3.

(a)   One Model of group development assumes that groups proceed through four stages of
development. Explain those four stages.   (6 Marks)

(b)   Group cohesiveness refers to the degree of attraction bet(ween members in a group. Explain
why group cohesiveness is an important consideration for management.

(6 Marks)

(c)   Explain the importance of external environmental analysis when formulating strategies in a
business organization referring to the elements of PESTEL analysis.   (8 Marks)

Q4.

(a).   Explain why control of stock volume /inventory is desirable stating at least three reasons.

(5 Marks)

(b)   The demand for a certain product is 800 units per year. The fixed administrative cost of
placing an order is Rs.70 and the stock holding cost is Rs.8 per unit per year. Cost of one
item is Rs 30. Calculate the following.

    i.   Economic lot size.   (5 Marks)

    ii.   How often orders should be placed.   (5 Marks)

    iii.   The average yearly cost.   (5 Marks)

Q5.

(a)   Name three methods used for finding a feasible solution of a transportation problem.

(6 Marks)

(b)   Amount of production of a crop in provinces P1, P2, P3 is 19, 37, 34 metric tons respectively. The demand for the crop in food processing units of a company situated in districts D1, D2, D3, D4 is 16, 18, 31,25 metric tons respectively. The cost for transporting one metric ton is given in the table.

	D1	D2	D3	D4
P1	5	3	6	2
P2	4	7	9	1
P3	3	4	7	5

i.   Find a feasible solution for the transportation problem using **least cost method.**

(8 Marks)

ii.   Find the optimum solution and minimum transportation cost.   **(6 Marks)**

Q6.

(a)   Discuss the difference between projects and functional activities carried out in an organization. You may consider at least three factors.   **(4 Marks)**

(b)   Explain four stages of project life cycle stating at least two activities carried out in each phase.   **(8 Marks)**

(b)   Briefly describe what is meant by the term 'Work Breakdown Structure" (WBS), when applied to engineering project management.   **(3 Marks)**

(c)   List the main components of a WBS and provide examples of a typical structure for a construction project.   **(5 marks)**

Q7.

(a)   Discuss two techniques used in activity scheduling of a project.   **(4 Marks)**

(b)   Following table shows the activities involved in completing a project, duration of each activity and its dependency.

Activity	Dependency	Task duration (weeks)
A	Start	8
B	A	12
C	A	16
D	A	20
E	C	8
F	B,C	24
G	B	16
H	F,G	20
J	D,E,F	12
K	J,H	8
Finish	K	-

i.   Draw the network diagram.   **(6 Marks)**
ii.   Find the critical path.   **(4 Marks)**
iii.   What is the total project duration?   **(3 Marks)**
iv.   Mention the activity you may delay most, so that it will not affect the total project duration.

(3 Marks)

Q8.

(a)   State the difference between "Quality assurance" and "Quality Control".   **(5 Marks)**

(b)   What are the two main categories of *cost of quality?* Explain why both may be considered as important and costly for the organization.   **(5 Marks)**

(c)   Briefly explain three productivity improvement techniques which are commonly used in modern organizations.   **(5 Marks)**

(d)   5S aims at organizing the workspace. Explain 5S highlighting how it is helpful for productivity improvement.   **(5 Marks)**