



**EMA2602  
RRM2602**

May/June 2016

**ENGINEERING MANAGEMENT II (MODULE B)**

Duration 2 Hours

100 Marks

**EXAMINERS**

FIRST

MR WP NEL

SECOND

MR IMP DIKGWATLHE

EXTERNAL

MS T VAN WYK

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**Use of a non-programmable pocket calculator is permissible**

**Closed book examination**

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This examination paper consists of 9 pages (including this page)

Answer all the questions in the answer book

Answer all the questions

**QUESTION 1**

This question consists of multiple-choice questions. Answer them in your answer book. Read through the instructions below.

**Instructions:**

- (i) Suppose a question reads as follows

Which of the following statements is/are **correct**?

- a) Good employment relations will usually result in improved employee productivity
- b) Good employment relations will usually result in reduced absenteeism
- c) One of the main functions of a trade union is to negotiate better wages and working conditions on behalf of its members

- [1] a
- [2] a and c
- [3] a, b and c
- [4] b and c
- [5] c

In this case, all three of the statements (a, b and c) are correct and you would therefore write [3] in your answer book next to the number of the question.

- (ii) Write down only one of the options (1 to 5) for each question.
- (iii) You will receive 2 marks for a correct answer. No marks will be deducted for incorrect answers.
- (iv) Question 1 consists of 10 questions and is marked out of 20.
- (v) **Please write your answers to the questions in your answer book. Write down the number of the question and, next to it, the number of the option you have selected, for example:**

- 1 1 [5]
- 1 2 [4]
- 1 3 [3] – and so forth

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**QUESTION 1 (Multiple-choice questions)**Employment relations and labour legislation

1 1 Read the following three statements

- a) The primary aim of discipline in any organisation should be to punish employees
- b) A company's disciplinary procedure must be fair, just and equitable for the whole workforce
- c) Discipline must be applied consistently at a workplace

Which of the above statements is/are **correct**?

- [1] a
- [2] a and c
- [3] a, b and c
- [4] b and c
- [5] None of the options (1, 2, 3, or 4) is correct (2)

1 2 Read the following three statements

- a) A disciplinary enquiry must be procedurally and substantively fair
- b) Procedural fairness means that an employee may be dismissed only if there is a valid reason to do so
- c) Employees are usually dismissed for latecoming

Which of the above statements is/are **correct**?

- [1] a
- [2] a and c
- [3] a, b and c
- [4] b and c
- [5] None of the options (1, 2, 3, or 4) is correct (2)

1 3 Read the following three statements

- a) Employees are usually warned verbally in the case of absenteeism
- b) It is best practice to suspend an employee without pay prior to disciplinary action
- c) A senior manager at a company committed fraud. Dismissal is an appropriate disciplinary sanction in such a case

Which of the above statements is/are **correct**?

- [1] a
- [2] c
- [3] a, b and c
- [4] b and c

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- [5] None of the options (1, 2, 3, or 4) is correct (2)

Engineering contracts and law

1 4 Read the three statements below

- a) The registration of professional engineers, technologists and technicians is regulated by the ECSA (Engineering Council of South Africa)
- b) Primary, secondary and tertiary rules can be used to interpret contracts
- c) An innocent party (to a contract) is **always** entitled to claim specific performance

Which of the above statements are **correct**?

- [1] a and b
- [2] b and c
- [3] a, b and c
- [4] a and c
- [5] None of the options (1, 2, 3 or 4) is correct (2)

1 5 Read the three statements below

- a) Performance must be objectively possible during the conclusion of a contract
- b) A contract is unlawful when the performance to be rendered is forbidden by law
- c) A contract to commit a crime, e.g. fraud, would be void (not valid)

Which of the above statements are **correct**?

- [1] a and b
- [2] b and c
- [3] a, b and c
- [4] a and c
- [5] None of the options (1, 2, 3 or 4) is correct (2)

1 6 Read the three statements below regarding the contract for the letting and hiring of work

- a) This is a contract whereby a specialist is hired to perform a specific piece of work by an owner of a mine, plant, etc
- b) The hired party (contractor) is not employed by the owner and therefore not under his/her control
- c) The contractor is entitled to be remunerated for "extras" and variations not provided for in the original contract if the owner consented to them

Which of the above statements are **correct**?

- [1] a and b

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- [2] b and c
- [3] a, b and c
- [4] a and c
- [5] None of the options (1, 2, 3 or 4) is correct (2)

Total quality management (TQM)

1 7 Read the following three statements

- a) The quality control department at an organisation should be held solely responsible for quality
- b) The cost of quality (COQ) can be thought of as the cost of achieving conformance to quality standards plus the cost of non-conformance
- c) A process improvement team is a team of employees at shop-floor level responsible for quality in their work area

Which of the above statements is/are **correct**?

- [1] b and c
- [2] a and c
- [3] a and b
- [4] a
- [5] None of the options (1, 2, 3, or 4) is correct (2)

The engineer, user of information systems

1 8 Read the following three statements

- a) Information should be accurate and provided in good time
- b) Engineers are knowledge workers
- c) Information is more useful for decision-making than data

Which of the above statements is/are **correct**?

- [1] b and c
- [2] a and b
- [3] a, b and c
- [4] b
- [5] None of the options (1, 2, 3, or 4) is correct (2)

Managing technology and innovation

1 9 Read the following three statements

- a) The balance between tight and loose, rigid and free is one of the important themes of organisational theory in innovative environments
- b) Tasks that are unstructured, complex and dynamic are generally best performed in rigid organisational structures
- c) A champion is a team member in a technologically innovative company that provides the communication channel between members of the team, the rest of the organisation and other organisations

Which of the above statements is/are **correct**?

- [1] a, b and c
- [2] b and c
- [3] a
- [4] a and b
- [5] None of the options (1, 2, 3, or 4) is correct (2)

Entrepreneurship

1 10 Read the following three statements

- a) One of the advantages of sole ownership is that members have limited liability
- b) One of the disadvantages of sole ownership is its simplicity
- c) Close corporations are no longer allowed to exist under the Companies Act 71 of 2008

Which of the above statements is/are **correct**?

- [1] c
- [2] b and c
- [3] a and c
- [4] a, b and c
- [5] None of the options (1, 2, 3, or 4) is correct (2)

[20]

**Question 2 (Employment relations and labour legislation)**

2 1 Define "contract of employment" (2)

2 2 Explain the provisions set out in the BCEA with regard to

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- a) sick leave (2)
- b) notice period for termination of employment (2)
- 2.3 State the advantages of a grievance procedure in a workplace (4)
- 2.4 Explain the purpose of giving a warning to an employee in case of undesirable behaviour (2)
- 2.5 Define "demotion" (2)
- 2.6 What is the purpose of a workplace forum? (2)
- [16]**

### Question 3 (Engineering contract and law)

- 3.1 A surface mining company enters into a contract with an earth-moving company. The purpose of the contractual agreement is to outsource the loading and hauling functions at the mine to the earthmoving contractor at a fee. The fee structure is described in detail in the contract. Describe obligation and contractual performance in the context of this case. Explain the consequences of an obligation coming into existence. You must use the following terminology in your explanation and it should be clear what these terms mean: debtor, creditor, right and duty. (4)
- 3.2 List four ways in which an offer lapses or expires. (4)
- 3.3 A mining magnate offers the shareholders of Supersteel (Pty) Ltd, a small local company, R26m for one of their workshops. Indicate whether this offer would still be valid (or not) in each one of the following cases:
- i) The mining magnate changes his mind and withdraws the offer before it was accepted by Supersteel
  - ii) The offer expired
  - iii) The mining magnate died of a heart attack before the offer was accepted by Supersteel
  - iv) Supersteel indicated that they are only willing to sell the workshop for R32m
- {4 x ½}  
(2)

- 3.4 Explain whether your mine, plant or factory must accept the lowest tender, e.g. for drilling blast holes

(6)

**[16]**

**Question 4 (Total quality management)**

- 4.1 TQM is about gaining an understanding of what customers need. List and briefly explain the approaches to understanding customers, their needs, expectations, perceptions, requirements and the forces that drive them by briefly referring to the following

- Informal customer research
- Formal customer research
- Qualitative research
- In-depth interviews
- Focus groups
- Quantitative research

(6)

- 4.2 Match each of the following quality management terms on the left of the table with the correct definition on the right starting with term number 2. In your answer book, write down the number of each term, and next to it the letter representing the correct option e.g. 1 c

(10)

1 Process chart	a It is based on the 80/20 rule
2 Process improvement team	b It is also known as the cause-and-effect diagram
3 Pareto analysis	c It indicates the frequency of various events/causes
4 Ishikawa diagram	d It is used to map activities involved in the manufacturing of a product or delivery of a service so that value-adding and wasteful activities can be identified
5 Histograms	e It is used to identify relationships between events and time and between problems and causes
6 Run charts and correlation diagrams	f It is used in statistical process control
7 Control charts	g A small group of employees (at shop-floor level) that improve processes and solve quality problems
8 ISO 9000 quality standards	h Identify, measure and understand customers' expectations by means of qualitative and/or quantitative techniques
9 Formal customer	i It defines the basic elements of a management

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research	system an enterprise should use to ensure that its products and services meet or exceed customer needs and expectations
10 Process	j A repetitive set of interacting activities that use resources to transform a defined set of inputs into outputs that are of value to a customer

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**Question 5 (The engineer, user of information systems)**

5.1 Define "information system" and briefly describe the various components of an information system (6)

5.2 Briefly describe the opportunity that e-commerce holds for businesses (6)

5.3 Describe the various activities/jobs that a knowledge (or information) worker may do (6)

[18]

**Question 6 (Managing technology and innovation)**

Choose an appropriate example of an innovation [for example 1) e-commerce via the internet or 2) nano-technology] and demonstrate the innovation cycle by means of the development of this example of innovation from basic research to the successful introduction of the product or service in the market

[8]

**Question 7 (Entrepreneurship)**

List at least six skills that are considered essential for the successful entrepreneur

[6]

**Total: 100**

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