



EMA2602
RRM2602

October/November 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

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

PLEASE TURN OVER

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

1 1 Read the following three statements

- a) One of the main functions of a trade union is to negotiate better wages and working conditions on behalf of its members
- b) The state provides a legal framework within which the employee-employer relationship should be managed
- c) The contract of employment describes the duties and obligations of each of the parties in the employment relationship

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

(2)

- [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

1 2 Read the following three statements

- a) The Basic Conditions of Employment Act (BCEA) applies to senior managerial employees
- b) A meal interval may be less than 20 minutes
- c) An employee must have a daily rest period of eight consecutive hours

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

(2)

- [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

1 3 Read the following three statements

- a) An employee is entitled to at least three consecutive months of maternity leave
- b) When an employee is dismissed owing to operational requirements, then the employer must pay at least two weeks' salary for each year of continuous service in terms of the Basic Conditions of Employment Act (BCEA)
- c) Independent contractors are covered by the Labour Relations Act but not by the BCEA

PLEASE TURN OVER

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

(2)

- [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

1 4 Read the following three statements

- a) In terms of the Basic Conditions of Employment Act (BCEA) an employer must give employees who work continuously for at least five hours a meal interval of at least 20 minutes
- b) In terms of the BCEA, work performed after 18 00 and before 06 00 the next day is classified as night work
- c) An employee who works on a public holiday must receive 1,5 times the ordinary wage for that day

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

(2)

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

Engineering contracts and law

1 5 Read the following three statements

- a) A contract is an agreement that creates rights and duties
- b) When the representatives of two companies agree that their verbal contract must be reduced to writing, then a valid contract will only be concluded once it has been reduced to writing
- c) *Mora debitoris* means "delay of the debtor"

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

(2)

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

PLEASE TURN OVER

1 6 Read the following three statements

- a) The creditor has a duty to perform
- b) The debtor is the person who may claim performance
- c) Often the parties to a contract are simultaneously debtors and creditors

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

(2)

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

Total quality management (TQM)

1 7 Read the following three statements

- a) For a process to be at Six Sigma, it must have less than 3,4 defects per 1 000 opportunities for error
- b) Quality must be kept in mind as soon as a new product is designed
- c) The cost of fixing potential quality problems during the product development phase is usually less than to fix these problems once they are embedded in the product

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

(2)

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

The engineer, user of information systems

1 8 Read the following three statements

- a) E-commerce is about the buying, selling, marketing and servicing of products and services over a variety of networks
- b) "Bricks and clicks" is a hybrid business model in which companies use both traditional and e-business
- c) One of the reasons why businesses should try to use the WWW for e-commerce is its size and reach

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

(2)

- [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

Managing technology and innovation

1 9 Read the following three statements

- a) Dominant designs meet the needs of most users
- b) The Windows operating system is an example of a dominant design in the PC operating system market
- c) Movement along an S-curve takes place because of radical innovation

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

(2)

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

Entrepreneurship

1 10 Read the following three statements

- a) An entrepreneur is a person who spots a gap in the market and conceptualises and evaluates a business idea to fill that gap
- b) The need for achievement often drives entrepreneurs
- c) Entrepreneurs usually take personal responsibility for accomplishments and results

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

(2)

- [1] a
- [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

[20]

PLEASE TURN OVER

Question 2 (Employment relations and labour legislation)

- 2 1 State when it is legal to suspend an employee without pay (2)
- 2 2 Name any two of the designated groups identified by the Employment Equity Act 55 of 1998 (2)
- 2 3 May an employer withhold wages from striking workers who are participating in a protected strike? (1)
- 2 4 Define the following
- 2 4 1 contract of employment {2}
- 2 4 2 strike {2}
- (4)
- 2 5 Peter, an employee, has been catching a lift to work with his employer, Mr A, every day for the past few months. One rainy day they are involved in a collision and Peter sustains serious injuries. Can Peter claim compensation under the provisions of the Compensation for Occupational Injuries and Diseases Act? Explain briefly (2)
- 2 6 Differentiate between a workplace forum and a trade union by referring to their roles and/or purpose (4)
- 2 7 List four alternatives to retrenchment that should be considered by employers (4)
- [19]**

Question 3 (Engineering contract and law)

- 3 1 Briefly list four requirements for the valid acceptance of an offer (4)
- 3 2 Briefly explain the principles related to the contract for the letting and hiring of work (4)
- 3 3 Mary, a high school learner, buys a squash racquet from one of her teachers, Mr Schutte, who is her squash coach, on credit for R450. Mary must pay Mr Schutte in one month's time. Mr Schutte gave her the racquet in order to compete in a tournament. On the due date, Mary forgets to pay Mr Schutte.
- 3 3 1 Define the obligation in this example {2}
- 3 3 2 Who is the creditor in this example? {2}

PLEASE TURN OVER

- 3 3 3 Discuss in detail whether this transaction constitutes a contract Provide reasons {7}
(11)
[19]

Question 4 (Total quality management)

- 4 1 List any four quality improvement tools (4)
- 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 z (13)

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 Appraisal cost	d Costs associated with all the activities that focus on preventing defects or non-conformance with quality standards
5 Ishikawa diagram	e 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
6 Histograms	f It is used to identify relationships between events and time and between problems and causes
7 Run charts and correlation diagrams	g It is used in statistical process control
8 Control charts	h A small group of employees (at shop-floor level) that improve processes and solve quality problems
9 ISO 9000 quality standards	i Identify, measure and understand customers' expectations by means of qualitative and/or quantitative techniques
10 Formal customer research	j It defines the basic elements of a management system an enterprise should use to ensure that its products and services meet or exceed customer needs and expectations
11 Process	k A repetitive set of interacting activities that uses resources to transform a defined set of inputs into outputs that are of value to a customer
12 Prevention costs	l Costs associated with evaluating and either correcting or replacing defective products, components or materials that do

	not meet quality standards
13 Failure costs	m Costs associated with measuring, evaluating or auditing products to assure conformance with quality standards and performance requirements

[17]

Question 5 (The engineer, user of information systems)

- 5.1 Choose any engineering discipline (e.g. mining, electrical, mechanical, civil, industrial or chemical engineering) and briefly explain how computers, networks and various types of software are used by engineers in this discipline (3)
- 5.2 Explain the difference between data and information, and list four criteria that information should meet (6)
- [9]**

Question 6 (Managing technology and innovation)

Briefly discuss **any four** of the following six aspects of technology strategy listed below

- timing of market entry
- technology portfolio
- level of expertise in each technology
- sourcing of technology
- level of investment in R&D
- organisation policies and practices supporting a work environment that encourages innovation

[8]

Question 7 (Entrepreneurship)

- 7.1 List four forms of business ownership in South Africa (4)
- 7.2 List four modalities of starting a new business (4)
- [8]**

Total: 100