



GRE TSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS JANUARY – APRIL 2025 SEMESTER

DIPLOMA IN COMPUTER SCIENCE

COURSE CODE: DPIT 021

COURSE TITLE: COMPUTER HARDWARE AND MAINTENANCE

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY**.
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: All exam rooms are under CCTV surveillance during the examination period.

NOTE : QUESTION ONE - 30MARKS

: SECTION B-Each question should be out of 20marks

SECTION A: COMPULSORY

QUESTION ONE [40MARKS]

- a) Name any five tools you handy before computer disassembly [5 Marks]
- b) Describe any five signs that a computer has been infected by a malware [5 Marks]
- c) Discuss the various signs of a failed computer motherboard [5 marks]
- d) Explain how you would troubleshoot a computer hardware failure [5 Marks]
- e) Explain the roles of the following computer parts
 - i. North bridge [4 Marks]
 - ii. Southbridge [3 Marks]
 - iii. CMOS [3 Marks]

SECTION B: ANSWER ANY OTHER THREE QUESTIONS

QUESTION TWO [20MARKS]

- a) Describe the various steps you would follow for a computer disassembly [12 Marks]
- b) Discuss any four signs of a failing computer hard disk [8 Marks]

QUESTION THREE [20MARKS]

- a) Discuss any four signs of a RAM problem [8 Marks]
- b) Explain any four causes of computer memory damage [8 Marks]
- c) Give any for ways in which you can fix a CPU fan error [4 Marks]

QUESTION FOUR [20 MARKS]

- a) Discuss the causes of Blue screen of death [8 Marks]
- b) Explain any four ways in which you can resolve blue screen of death [8 Marks]
- c) Highlight any four devices that can cause blue screen of death [4 Marks]

QUESTION FIVE [20 MARKS]

- a) Describe the preparations that you need to carry out before troubleshooting a computer [8 Marks]
- b) Discuss any four simple things you can try while resolving a computer problem [8 Marks]
- c) Discuss any two BIOS operations [4 Marks]



GRE TSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS JANUARY – APRIL 2025 SEMESTER

DIPLOMA IN COMPUTER SCIENCE

COURSE CODE: DPIT 031

COURSE TITLE: SOFTWARE ENGINEERING METHODOLOGIES

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

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2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
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NOTE : QUESTION ONE - 30MARKS

: SECTION B-Each question should be out of 20marks

SECTION A: COMPULSORY

QUESTION ONE [40MARKS]

- a) Define the following terms
 - i. Software [3 Marks]
 - ii. Software product [3 Marks]
 - iii. Engineering [3 Marks]
 - iv. Software engineering [3 Marks]
- b) Explain the following categories of software according to Lehman
 - i. S-type [3 Marks]
 - ii. P-type [3 Marks]
 - iii. E-type [3 Marks]
- c) Give any four advantages of waterfall model of software development [4 Marks]
- d) Explain the ideal application areas of the spiral model of software development [5 Marks]

SECTION B: ANSWER ANY OTHER THREE QUESTIONS

QUESTION TWO [20MARKS]

- a) Discuss any four engineering activities [12 Marks]
- b) Explain four characteristics of a good software design [8 Marks]

QUESTION THREE [20MARKS]

- a) Give any four characteristics of a good software [4 Marks]
- b) Discuss the following software paradigms
 - i. Software development paradigm [6 Marks]
 - ii. Software design paradigm [5 Marks]

iii. Programming paradigm

[5 Marks]

QUESTION FOUR [20 MARKS]

- a) Explain the software requirements engineering [4 Marks]
- b) Discuss any four application areas of Prototyping model [8 Marks]
- c) Discuss the big bang model of SDLC [8 Marks]

QUESTION FIVE [20 MARKS]

- a) Distinguish between system requirements and User requirements [6 Marks]
- b) During software validation, highlight any four things that the software is checked about [8 Marks]
- c) Describe any three ways you can use to collect software requirements [6 Marks]



GRE TSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS

JAN-APRIL 2025 SEMESTER

SPECIAL EXAMINATION BACHELOR OF SCIENCE (COMPUTER SCIENCE), BACHELOR OF EDUCATION (ARTS), BACHELOR OF HOSPITALITY AND TOURISM

COURSE CODE: GUCC 102

COURSE TITLE: QUANTITATIVE SKILLS

DATE: APRIL 2025

TIME:

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY**.
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SECTION A: COMPULSORY

Question One

- a) List the 2 methods of describing a set while citing a relevant example in which
[2 marks]
- b) Given the matrices $A = \begin{pmatrix} 1 & 5 \\ 3 & 7 \end{pmatrix}$, $B = \begin{pmatrix} 7 & 3 \\ -4 & -2 \end{pmatrix}$. Find
- i) AB [2 marks]
 - ii) BA [2 marks]
 - iii) Explain why matrix multiplication is not commutative
[3 marks]
- c) Given that $\Sigma = \{1, 2, \dots, 9\}$, $A = \{2, 4, 6, 8\}$, $B = \{1, 3, 4, 5, 7\}$ and $C = \{7, 8\}$. Find;
- (i) $n(B)$ [2 marks]
 - (ii) $(A \cap B)^c$ [3 marks]
 - (iv) $A - B$ [3 marks]
 - (v) $(A \cap C) \cap (A \cap B)$ [3 marks]
- d) Define what is meant by a matrix and its order [4 marks]
- e) Distinguish between these terms and illustrate using relevant examples.
- (i) Sequence and a series [4 marks]
 - (ii) Finite and infinite series [4 marks]
- f) Solve this system by the elimination
- $$\begin{aligned} 3x + 5y &= 4w \\ 3x + 2y &= 4w \\ 6x + y &= 8w \end{aligned}$$
- [4 marks]
- g) Given the following functions $f(x) = 2x^2$ and $g(x) = 4x^2 - 2$. Find the $g \circ f(x)$
[4 marks]

SECTION B: ANSWER ANY THREE QUESTIONS

Question Two

- a) State of all the integral values that satisfy the following inequality
$$30(3a + 2) \leq 24(2a + 3) \leq 20(4a + 15)$$
 [5 marks]
- b) Find the solution of this system using Matrix method

$$7a + 3b = -15$$

$$12b - 5a = 39$$

[5 marks]

- c) A lady deposited Kes. 10,000 in a bank at the beginning of every year. The bank offered a compound interest of 20% p.a. If the lady stopped making the deposits after 3 years and retained the money in the institution for another 7 years: - **[6 marks]**

- i) How much money yielded from her investment in the bank in each of the first 3 years
- ii) How much interest did her principal generate in the entire period?

[4 marks]

d)

Question three

- a) Determine the first six terms of the AP whose first term is 18 and common difference is -5. **[4 marks]**
- b) Using complete square method solve for x in the following equation.

$$4x^2 - 11x = 6$$
 [5 marks]
- c) Given that $a = 2^s$ and $b = 4^t$, show clearly that $\log_2(a^3b) = 3s + 2t$. **[5 marks]**
- d) Given that the 1st, 3rd and 7th terms of a progressive AP are the 3 consecutive terms of a GP. If the 1st term of the AP is 10, find its common difference. **[6 marks]**

Question Four

- a) If a store Sales-lady earns a 5% commission for selling merchandise in a store that is worth Kes. 17,500. How much money did the owner receive from the sale of his car? **[3 marks]**
- b) Given the following *Geometric Progression*: 2, -6, 18, ... Determine the 7th term of the progression and its respective sum of the factor to this term **[3 marks]**
- c) Define what is meant by the following terms
 - (i) Probability **[2 marks]**
 - (ii) Statistics **[2 marks]**
- d) The probabilities that a man and his wife will be alive 25 years from now are $\frac{7}{10}$ and $\frac{9}{10}$ respectively. Find the probability that in 25 years time,
 - (i) Neither will be alive **[2 marks]**
 - (ii) One will be alive **[2 marks]**

- (iii) Both will be alive [3 marks]
- (iv) At least one will be alive [3 marks]

Question Five

- a) Given $g(x) = 3x - 8$ and that $f(x) = 6x - 5$. Find $g \circ f(x)$ [4 Marks]
- b) Determine the mode of the following data [4 marks]

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	13	21	37	31	24	3

- c) Jubilee Insurance Company Limited surveyed 400 of its customers to determine the way they learned about the new assurance policy. The survey shows that 180 learned about the tariff through radio, 190 from television, 190 from newspapers, 80 from both radio and television, 90 from radio and newspapers, 50 from television and newspapers and 30 from all the 3 forms of media.
- Draw a Venn diagram to represent this information and the using that diagram and the inclusion-exclusion principle, determine [3 marks]
 - The number of customers who learned of the policy from at least two of the 3 mediums. [3 marks]
 - The number if customers who learn of the policy from exactly one of the three mediums. [3 marks]
 - The number of customers who did not learn of the policy altogether. [3 marks]