



GARISSA UNIVERSITY

UNIVERSITY EXAMINATION **2017/2018** ACADEMIC YEAR **TWO**
THIRD TRIMESTER EXAMINATION

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCE
FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

COURSE CODE: DIT 025

COURSE TITLE: COMPUTER OPERATING SYSTEM

EXAMINATION DURATION: 3 HOURS

DATE: 10/08/18

TIME: 9.00-12.00 PM

INSTRUCTION TO CANDIDATES

- The examination has FIVE (5) questions
- Question ONE (1) is COMPULSORY
- Choose any other THREE (3) questions from the remaining FOUR (4) questions
- Use sketch diagrams to illustrate your answer whenever necessary
- Do not carry mobile phones or any other written materials in examination room
- Do not write on this paper

This paper consists of THREE (3) printed pages

please turn over



QUESTION ONE (COMPULSORY)

- (a) Describe the relationship between operating system and computer hardware. [2 marks]
- (b) Discuss **Four** management tasks of the operating system [8 marks]
- (c) With the aid of a diagram analyze five state model in process management [10 marks]
- (d) Differentiate between monolithic and layered systems in operating system structure [4 marks]
- (e) What is the state of a process when it is waiting for some events to occur [1 mark]

QUESTION TWO

- (a) Explain the following concepts as used in memory management
 - i. Swapping
 - ii. Contiguous memory allocation
 - iii. Memory protection
 - iv. Fragmentation
 - v. Segmentation [10 marks]
- (b) List any **five** types of operating system [5 marks]

QUESTION THREE

- (a) Describe the term Deadlock as used in operating system [2 marks]
- (b) Explain ways that can be used to avoid deadlocks [8 marks]
- (c) Differentiate between Pre-emptive and Non –preemptive scheduling [4 marks]
- (d) Define the term throughput as used in operating system [1 mark]

QUESTION FOUR

- (a) Discuss any Four CPU scheduling algorithms [8 marks]
- (b) Differentiate between command based operating systems and graphical based (GUI) operating systems [4 marks]
- (c) With aid of a diagram explain the 3 state model in process management [3 marks]



QUESTION FIVE

- (a) What is a queue as used in operating system **[2 marks]**
- (b) Discuss four types of queues in process scheduling **[8 marks]**
- (c) List five attributes of a file as found in file systems **[5 marks]**

QUESTION SIX

Consider the process below available in the ready queue for execution

Process	Burst Time	Arrival Time
P1	21	0
P2	3	1
P3	6	2
P4	2	3

Required:

- i. Draw a Gantt chart for preemptive shortest job first **[4 marks]**
- ii. Calculate the average waiting time **[4 marks]**
- iii. Calculate the completion time for each process **[4 marks]**
- iv. Calculate the turnaround time for each process **[3 marks]**

