NESA NATIONAL EXAMINATION AND SCHOOL INSPECTION AUTHORITY

SOD –System analysis and design

T170

Friday, 28/07/2023

08:30 – 11:30 AM

Names:.....

Index number:.....

TVET NATIONAL EXAMINATIONS, LEVEL 5, 2022-2023

QUESTIONS and ANSWERS BOOKLET

OPTION/ TRADE : SOFTWARE DEVELOPMENT

SUBJECT/EXAM: SYSTEM ANALYSIS AND DESIGN

DURATION: 3 Hours

Read carefully the instructions on page 1 & 2.

FOR EXAMINER'S USE ONLY

QUESTIONS	1	2	3	4	5	6	7	8	9	10	Total
Marks											
QUESTIONS	11	12	13	14	15	16	17	18	19	20	Total
Marks											
QUESTIONS	21	22	23	24	25	26	27	28	29	30	Total
Marks											

TVET NATIONAL EXAMINATIONS, LEVEL 5, 2022-2023

INSTRUCTIONS TO CANDIDATES (ANSWER BOOKLET)

1. A candidate should fill in the actual names and the Index number on the cover of this questions and answer booklet on the provided place.

2. It is illegal for a candidate to write any of names, Index number or school name inside the answer booklet.

3. No candidate should remove or tear any pages or part of it in the answer booklet.

4. A candidate should answer in the language in which the examination is set.

5. A candidate should sign on the sitting plan when submitting the answer booklet. He/she has also to check if the answer booklet is well sealed.

6. No extra paper is allowed in the examinations room. If a candidate is caught with it his/her results will be nullified.

7. No candidate is allowed to write answers not related to the subject being sat for, otherwise it will be considered as a cheating case.

8. Write your answers on the 16 lined pages (From page 7 to page 22).

9. Use the last non-lined pages as draft.

10. Results for any candidate who is caught in examination malpractices are nullified. The cheating can be recognized during examinations administration, marking exercise or even thereafter.

N.B: 1) After results publication, there is no remarking and no candidate is given his/her answer booklet for review. This answer booklet is a property of NESA.
2) Claims are only received online within 30 days after results publication. A link will be provided after results publication.

TVET NATIONAL EXAMINATIONS, LEVEL 5, 2022-2023

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INSTRUCTIONS TO CANDIDATES (QUESTION PAPER)

This Exam paper is composed of Three Sections (A, B, and C). Follow the instructions given below, and answer the indicated questions for a total of 100 marks

Section **A**: Fourteen (**14**) questions, all **Compulsory** **55 marks**

Section **B**: Among the five (**5**) questions, attempt any three (3) **30 marks**

Section **C**: Among the two (**2**) questions, attempt any one (1) **15 marks**

Allowed materials:

- Blue or black pen
- Mathematical set

Note:

Every candidate is required to carefully comply with the provided assessment instructions.

SECTION A: Attempt all questions **(55 marks)**

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01. What is a System Analyst? **(4marks)**

02. With the aid of one example, define the following terms: **(4marks)**

a) Social media

b) Digital media

03. List three (3) primary activities involved in the planning phase of System Development Life Cycle (SDLC). **(3marks)**

04. Identify any four (4) methods used in data collection **(4marks)**

05. List four (4) products elements of the logical design stage. **(4marks)**

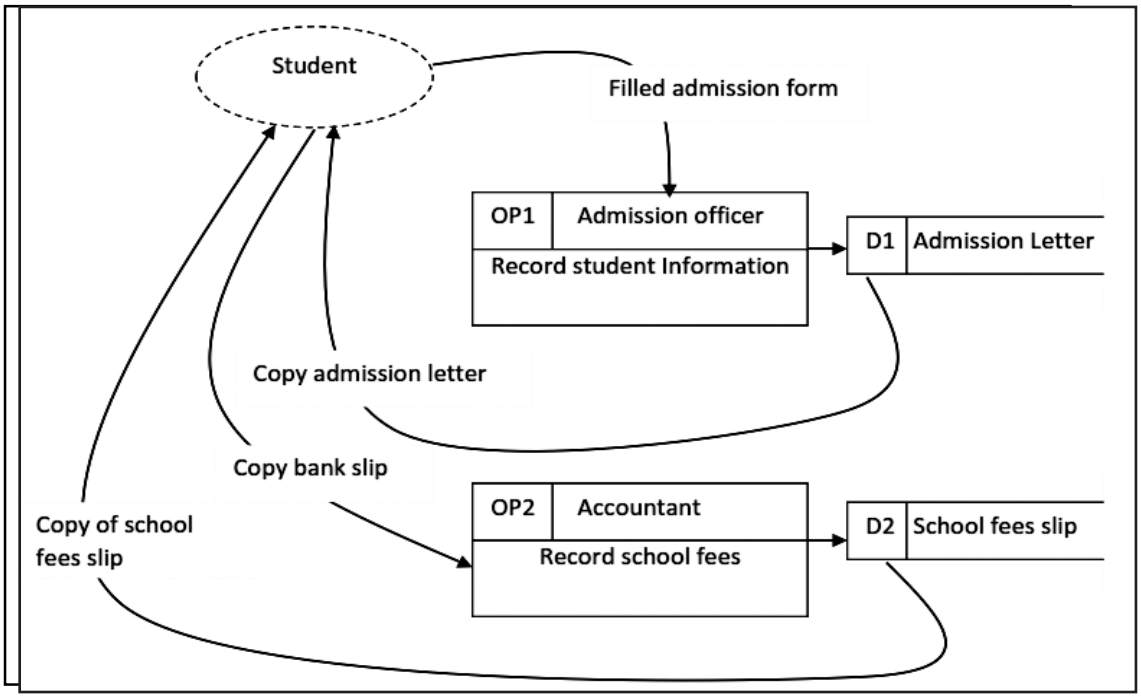
06. With flowchart scheme, show the elements of the information processing cycle. **(3marks)**

07. Explain three (3) basic constraints of the system Analysis. **(3marks)**

08. Differentiate software specification from software validation. **(4marks)**

09. Several methods are available to analyze qualitative data, outline the most commonly used for qualitative data analysis methods. **(4marks)**

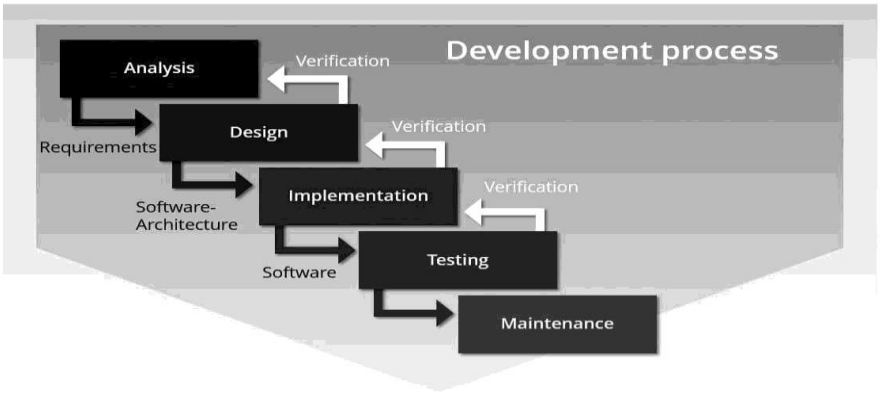
10. Analyze the given diagram and redraw its corresponding ER-Diagram. **(4marks)**



11. a) Define the term website structure. **(2marks)**

b) Give any three (3) structures of website. **(3marks)**

12. Analyse the following sketch then describe each level. **(5marks)**



13. Describe the five (5) points to be considered in the business process creation. **(5marks)**

14. Identify at least three (3) policies that a computer analyst can implement in some organization so that a user can apply them for software usage. **(3marks)**

Section B: Attempt any three (3) questions **(30 marks)**

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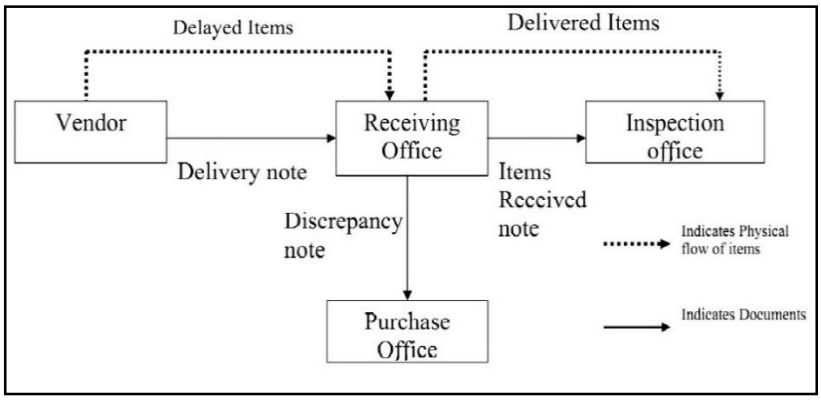
15. Analyze the following Data Flow Diagram and answer questions that follow: **(10marks)**



a) List the entities available in this DFD. **(2marks)**

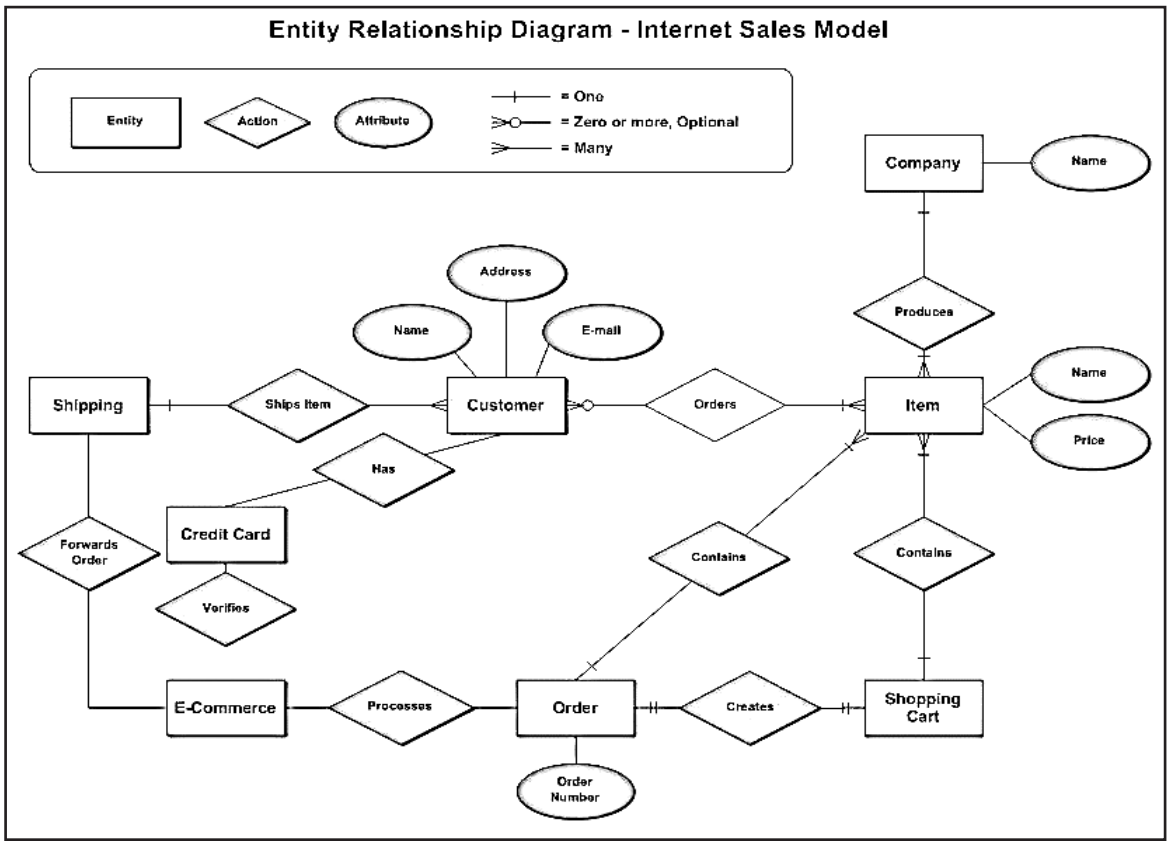
b) Explain any two (2) delivery notes that should be writen on delayed items. **(2marks)**

c) Explain any two (2) items received notes that should be writen on delivered items. **(2marks)**

d) Explain discrepancy notes in DFD. **(2marks)**

e) In given DFD, depict the orginator and the consumer of the items. **(2marks)**

16. Refer to the following diagram and answer the below questions:



a) What is the main activity according to the diagram? **(2marks)**

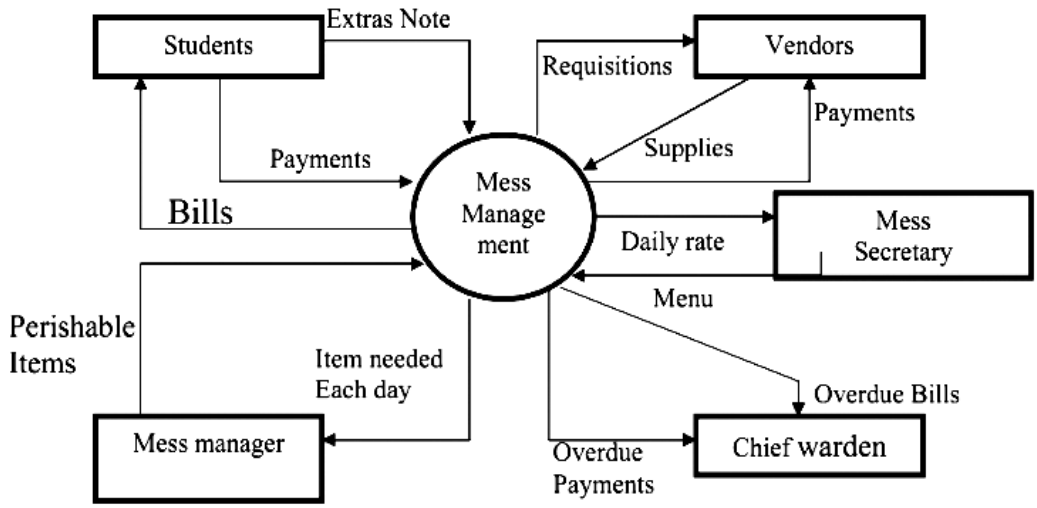
b) List all possible tables available in the diagram. **(4marks)**

c) Determine the entities that have one and only one relationship. **(2marks)**

d) Determine the entities that have zero or more and one or many relationships. **(2marks)**

17. Describe clearly five (5) importance of the SDLC process. **(10marks)**

18. Consider the following diagram and answer related questions:



a) What is the name of the given diagram? **(2marks)**

b) Determine any two (2) responsibilities of Chief warden. **(2marks)**

c) Determine any four (4) responsibilities of Mess Manager. **(4marks)**

d) Explain any two (2) relationships between Students and Mess Manager. **(2marks)**

19. Explain the functions of flowchart in system analysis and design. **10marks)**

Section C: Attempt only one (1) question **(15 marks)**

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20. a) Discuss the use of Unified Modelling Language (UML) in system design/creation. **(3marks)**

b) What is the objective of Unified Modeling Language (UML) in system design/creation? **(3marks)**

c) With the help of a diagram, show an example of UML class notation. **(9marks)**

21. During requirement analysis and feasibility study and after the interview with employees from the library, the following scenarios are found: **(15marks)**

- There can be multiple copies of one book which can be borrowed by multiple people.
- Multiple copies of one book can be both reserved books as well as non-reserved books, so record has to be made accordingly.
- A person may want to get a book re-issued after keeping it for three weeks.
- After suppliers supply the books, they have to be added into the system as reserved and non-reserved books.
- Records of new members have to be kept and records of older members have to be updated into the system.

Based on the outcomes of your investigation and analysis carried out above, use appropriate system analysis and design tools and methods such as use case diagram to provide a graphical illustration of the new system and user interactions and functions.
Draw/design a use case diagram that shows interaction between a borrower and librarian.

END OF ASSESSMENT

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