NESA NATIONAL EXAMINATION AND SCHOOL INSPECTION AUTHORITY

NET – Telecommunication and Audio-visual devices

T061

Monday, 31/07/2023
08:30 – 11:30 AM

Names:.....

Index number:.....

TVET NATIONAL EXAMINATIONS, LEVEL 5, 2022-2023

QUESTIONS and ANSWERS BOOKLET

OPTION/ TRADE : NETWORKING

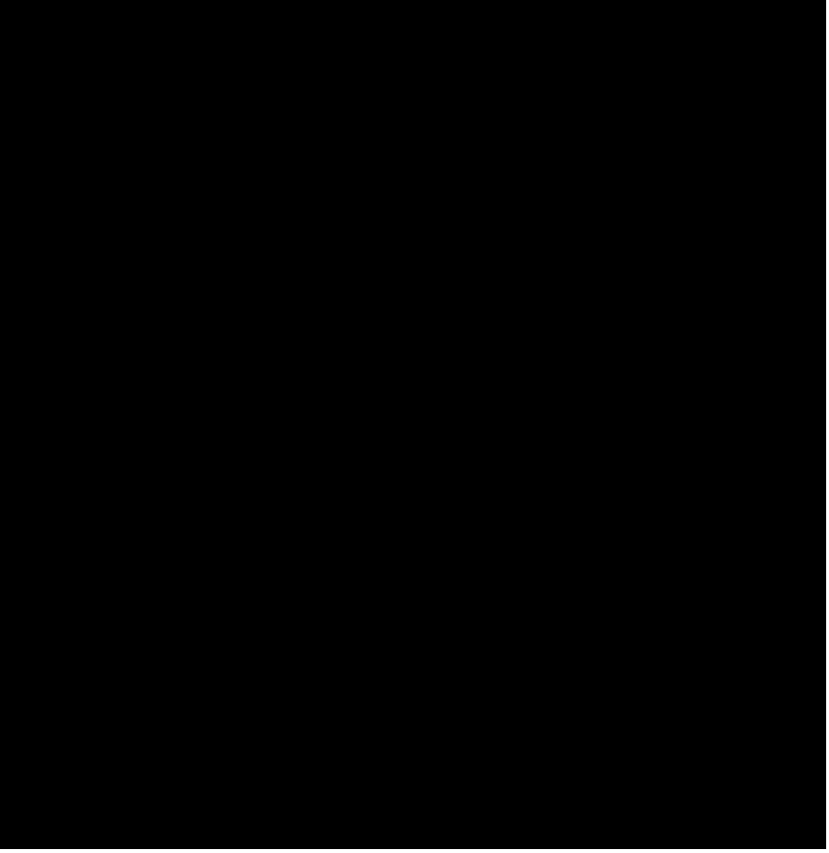
SUBJECT/EXAM: TELECOMMUNICATION AND AUDIO-VISUAL DEVICES

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

OPTION/TRADE: NETWORKING

SUBJECT/EXAM: TELECOMMUNICATION AND AUDIO-VISUAL DEVICES

DURATION: 3 HOURS

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. Define the following terms: **(4marks)**

a) Woofer,

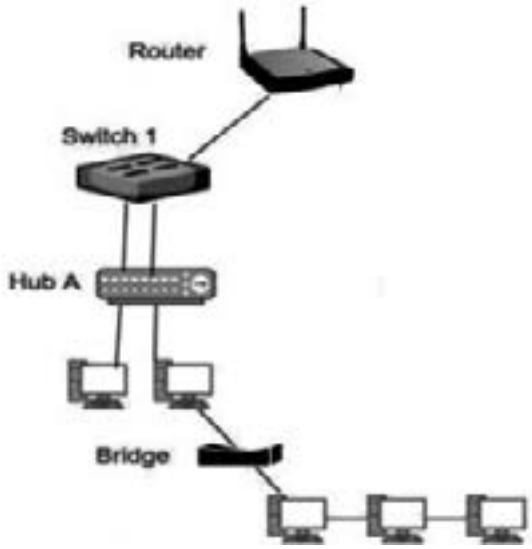
b) Cost estimation.

02. What are the three (3) different types of telecommunication systems? **(3marks)**

03. What is the difference between volume and gain? **(3marks)**

04. List any three (3) applications of telecommunication in our daily life. **(3marks)**

05. Refer to the figure below and identify the main functions of each device: **(5marks)**



06. Give any three (3) functions of software presentation program. **(3marks)**

07. What is the difference between baseband and broadband transmission? **(4marks)**

08. Write the following acronyms in full: **(3marks)**

a) LCD,

b) PDP,

c) DLP.

09. Outline any four (4) advantages of using Multiplexing. **(4marks)**

10. Calculate the following binary numbers: **(4marks)**

a) 11110001_2*1110_2=

b) 1111000110_2:1100_2=

c) 11110001_2+1110011_2=

d) 1100_2-1010_2=

11. Match the elements in column A with their functions in column B. **(5marks)**

Column A	**Column B**	**Answer**
1. RFID	A. is a networking hardware device that allows other WiFi devices to connect to a wired network.	
2. *R*adio communication system	B. is a wireless technology standard for exchanging data over short distances using short-wavelength UHF (ultra-high frequency) radio waves	
3. Wireless access point	C. is uses electromagnetic fields to automatically identify and track tags attached to objects.	
4. Bluetooth	D. is a special computer designed for technical or scientific applications.	
5. A workstation	E. information is carried across space using *radio* waves.	
	F. is technology that enables sending data over existing power cables	

12. Explain why testing is necessary before using AV Equipment. **(4marks)**

13. Differentiate amplitude modulation from frequency modulation. **(5marks)**

14. Identify any five (5) types of digit coding used to represent letters, characters and other symbols. **(5marks)**

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

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15. Sometimes the computer image may fail to display through a projector automatically. It may seem that the computer and projector are connected properly, but they still don't work together like they should. Discuss in details what to do in order to handle this problem. **(10marks)**

16. Explain the basic components of a telecommunications network. **(10marks)**

17. Describe different techniques used in multiplexing. **(10marks)**

18. Compare Omnidirectional and unidirectional as the common directional types of a microphone. **(10marks)**

19. Distinguish between the connection-Oriented and the Connectionless Service and give one example for each. **(10marks)**

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

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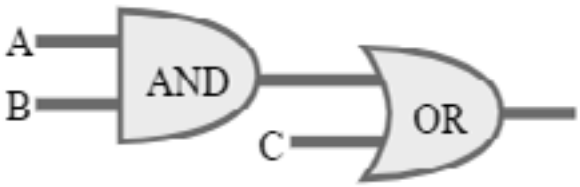
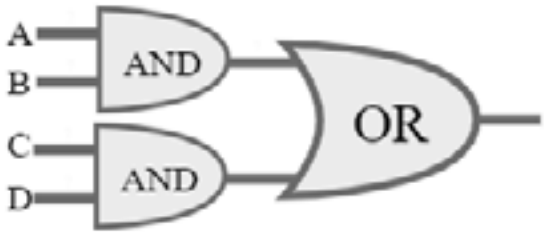
20. a) The diagram below shows a circuit where an AND gate leads to an OR gate. The circuit has three inputs (A, B, C) and a single output.



– If the output is 1 and input C is 0, Rewrite the possible states of inputs A and B. **(5marks)**

b) The diagram below shows a circuit with three gates, where the output from two AND gates are sent into an OR gate. The circuit has four inputs (A, B, C, D), two for each AND gate.



– If the final output is 0, Rewrite possible states of inputs A, B, C, and D. **(5marks)**

c) Construct and explain how an XOR gate functions by using a truth table. **(5marks)**

21. Design the logic diagram and construct the truth table corresponding to the following Boolean expressions without simplifying them: **(15marks)**

a) $Q = \overline{\overline{ABC} + \overline{A\overline{B}}}$

b) $Q = AB\overline{C} + \overline{AB}D + \overline{BC}D$

END OF ASSESSMENT

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