

ELS – Install and repair fire detector system

T081

Thursday, 29/7/2021

08:30 – 11:30 AM

Names.

Index number

TVET NATIONAL EXAMINATION, RTOF LEVEL 5, 2020-2021

QUESTIONS and ANSWERS BOOKLET

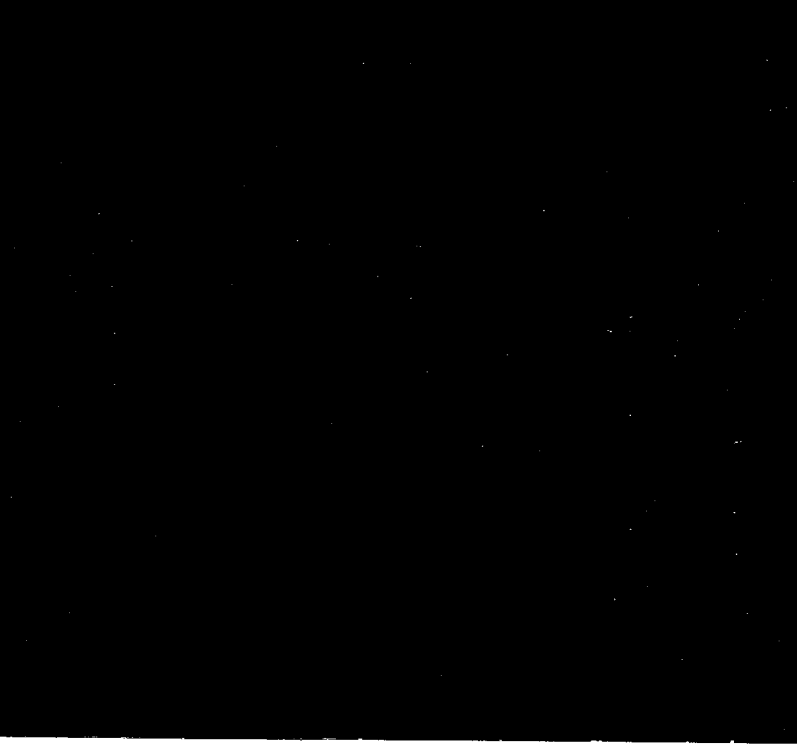
OPTION/TRADE: ELECTRONIC SERVICES

SUBJECT: Install and repair fire detector system

ACADEMIC YEAR: 2020-2021

Read carefully the instructions on page (i) & (ii)

[illegible]



TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

INSTRUCTIONS TO CANDIDATES: PART I (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 (Black Box).
2. It is illegal for a candidate to write any of his/her names, index number or a school name inside the answer booklet.
3. A candidate should check if all pages of the answer booklet are complete. No candidate should remove or tear any pages or part of it from the answer booklet.
4. A candidate should answer in the language in which the examination is set. (See page **(ii)**)
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 12 lined pages (From page 1 of 12 to page 12 of 12).
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.

TVET NATIONAL EXAMINATION, RTQF LEVEL 5, 2020-2021

OPTION/TRADE: ELECTRONIC SERVICES

SUBJECT: Install and repair fire detector system

DURATION: 3 hours

INSTRUCTIONS TO CANDIDATES: PART II (Question Paper)

The paper is composed of two (2) main Sections as follows:

Section I: Attempt all the Twelve (12) questions (60 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

Allowed materials:

- Ruler and square
- Calculator

Note:

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

Section I: Attempt all the Twelve (12) questions (60 marks)

01. Explain the following terms:

- a) Smoke detector. (2 marks)
- b) Plenum cable. (3 marks)

02. Differentiate two wires wiring system from four wires wiring system. (5 marks)

03. Answer by True (T) or False (F). (5 marks)

- (1) The use of aerosol near of fire detector heads must be prevented.
- (2) Fire detector system repair is not better than FDS prevention.
- (3) Wrong detector cannot result in false alarms.
- (4) Replacing the faulty detector head can solve a repeated unexplained AFA actuation.
- (5) Five minutes are maximum time period to wait for the alarm reset.
- (6) When one of wire in pair of conventional FDS is cut, the system will work properly.
- (7) When EOL resistor does not work well, FDS is no longer monitored.
- (8) Back up battery isn't necessary as primary power supply works properly.
- (9) When main source of power fail in addressable FDS, the system fails automatically.
- (10) Regular FDS cleaning is not recommended.

- 04.** What are focal points to consider when troubleshooting your fire alarm? **(5 marks)**
- 05. a)** As electronic technician, enumerate three (3) faults that occur in fire alarm system. **(3 marks)**
- b)** Mention two (2) places where installation of fire alarm system is prohibited. **(2 marks)**
- 06.** State clearly at least five (5) applications of fire detector system. **(5 marks)**
- 07. a)** Mention the four (4) tests to be performed after making the wiring of fire alarm system in a building. **(2 marks)**
- b)** Difference limited power cables from un-limited power cables. **(3 marks)**
- 08.** Write in full the following abbreviations. **(5 marks)**
- a. FDS:
 - b. AFA:
 - c. EOLR:
 - d. NTC:
 - e. PTC:
 - f. FAS:
 - g. PVC:
 - h. EMT:
 - i. FMC:
 - j. ENT:
- 09.** Describe techniques used for fixing and connecting cables conduits and trunking. **(5 marks)**
- 10.** With neat diagrams, describe addressable and conventional fire alarm system. **(5 marks)**
- 11.** Differentiate mimic panel from manual call point. **(5 marks)**

12. a) Which electronic devices do change their values according to the temperature? (3 marks)

(i) Light depending resistors

(ii) Fixed resistors

(iii) Thermistors

(iv) All sensors

b) What is the purpose of site survey? (2 marks)

Section II: Attempt any Four (4) questions out of Six (6) (40 marks)

13. Differentiate cable conduits from cable trunking. (10 marks)

14. a) What do you mean by initiating devices in FAS? (2 marks)

b) Differentiate automatic initiating devices and manual initiating devices (8 marks)

15. What are technical specifications to consider while rectifying FDS faults? (10 marks)

16. a) Write down ten (10) information found on invoice and proforma invoice required after repairing FDS. (5 marks)

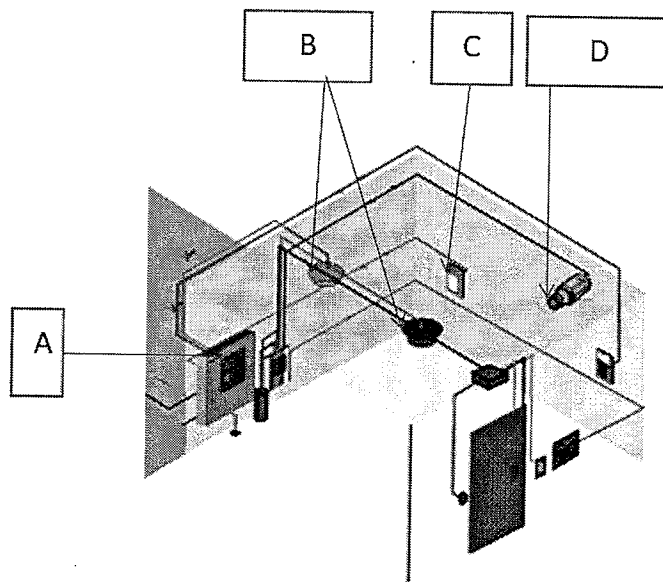
b) Give the five (5) types of cable conduits. (5 marks)

17. Refer to the table below and arrange by type the given items requirements to install FDS. (10 marks)

Smoke detector, wrench, Screw driver machine, overcoat, Air knife, Hammer, Allen key, wire, ties, Ear muffs.

Tools	Equipment	Materials	PPE's
.....
.....
.....

18. Consider the wiring of fire alarm below which is in house of one room. Answer the questions below.



- a) Give the name of devices (equipment) represented by **A, B, C** and **D**.
(4 marks)
- b) What is the function of equipment represented by **A** on this fire alarm circuit?
(2 marks)
- c) What is the role of devices represented by **B** on this fire alarm circuit?
(2 marks)
- d) What is the role of devices represented by **D** on this fire alarm circuit?
(2 marks)

