Sydney TAFE NSW

**Name:** _____

**Class:** _____

**Date:** _____

*20222 Certificate III Electrotechnology Electrician*

# APPLY W.H.S IN WORK PLACE
# UEENEEE101A TEST 1A

**Time allowed – One & half Hours**

**16 Pages in this Question Booklet**

**Student Feedback/Comments**

| |
|---|
| The results of my performance have been discussed and explained to me. |

| | | | |
|---|---|---|---|
| **Student:** | | **Date:** | |

| |
|---|
| If you would like to request a review of your results or if you have any concerns about your results, contact your teacher or head teacher. |

| | | | |
|---|---|---|---|
| **Teacher:** | | **Date:** | |

**TOTAL MARKS AVAILABLE**

| SECTION | Possible Marks | Actual Marks |
|---|---|---|
| A | 30 | |
| B | 30 | |
| C | 40 | |
| TOTAL | 100 | |

**Instructions to Students:**

- All questions are to be answered in the space provided in this Question Booklet.
  Answers to Multi-choice Questions (Section A) are to be recorded on the Answer Sheet attached to this Question Booklet.
- You are not to use any reference book in this examination.
- The whole of this Question Booklet is to be handed to the Supervisor upon completion.

**Aids permitted where indicated:**

| Standard Dictionaries | Bilingual Dictionaries | Technical Dictionaries | Programmable Calculators | Non-programmable Calculators | Mobile Phones | MP3 Players |
|---|---|---|---|---|---|---|
| No | Yes | No | No | Yes | No | No |

- **Disallowed electronic devices are to be turned off and removed from your person.**
  If you access an electronic device during this examination you will be considered to be cheating.
  You will receive a Not Yet Competent (NC) result for the unit and disciplinary action will be taken.

Verified by (print name): _____ _____ Signature: _____ Date: _____

# SECTION A

**Instructions:** Select the best answer for the following statements and place an 'X' in the appropriate box on the answer sheet attached to this examination paper. *Each correct answer is worth ONE mark.*

1. Who has a role to play in ensuring the health and safety of people in their workplace?
A. Occupational health and safety officer
B. Everyone
C. Managing director
D. WorkCover inspector

2. Which of the following identifies the steps in managing risks in the workplace?
A. Dismiss all employees that have had more than two accidents
B. Nominate OH&S committee, obtain legal representation, eliminate risks
C. Identify people that have accidents and replace them with people that don't have accidents
D. Identify then assess hazards, eliminate or control the risk, monitor and review

3. When isolating a circuit at a switchboard, the isolating device should be:
A. tagged and locked out
B. held in the "off" position with insulation tape
C. guarded by an assistant to ensure it is not switched on
D. in a locked switchroom

4. A safe work method statement is used to ensure:
A. relevant staff know the hazards and control measures and have suitable training to safely complete the task
B. that the supervisor has a check list of all the work to be done
C. that the customer has a record of work done on a daily basis
D. all aspects of the work will be completed in an economical way

5. Before you start work on a site that is new to you, what should take place?
A. You should be paid a travel allowance
B. You should be introduced to the workers on the new site
C. All your tools and equipment should be delivered
D. You should have a site specific induction

6. You will be working on a construction site and are to organize your personal protective equipment (PPE). The job requires you to be grinding and cutting brackets for a cable tray. You pack the following: full face mask, hard hat, ear muffs, and gloves. What have you forgotten?
A. Insulating mat
B. Steel capped boots
C. Safety glasses
D. High voltage rescue kit

7. Asbestos is a dangerous product that is still present in a lot of buildings. Asbestos can harm you if you:
A. swallow it
B. breathe it in
C. allow it to come into contact with your skin
D. get it in your eyes

8. In which section of the *Wiring Rules* is the information on earthing?
A. Section 2
B. Section 3
C. Section 4
D. Section 5

9. What level of current and duration of contact causes muscular cramping that may make it difficult to let go of a live cable?
A. 300 to 500μA for less than 0.5 sec
B. 300 to 500mA for less than 0.5 sec
C. 10 to 50μA for less than 2 sec
D. 10 to 50mA for less than 2 sec

10. Which current path through the body would most likely prove fatal?
A. Left thumb to left index finger
B. Right foot to left foot
C. Left hand to feet
D. Right hand to right elbow

11. If you come across an accident where power lines have been brought down, you should:
A. stay at least 8 m clear
B. block all traffic both ways
C. test the cable to see if it is still live
D. use an insulated stick to push the cables out of harm's way

12. Low voltage is defined as voltage:
A. below 1000V a.c. and above 50V a.c.
B. below 50V a.c. and 120V d.c.
C. above 1000v a.c.
D. below 24V a.c.

13. If a victim of electrocution seems to be unconscious, your first step should be to:
A. ensure the victim is isolated from the energy source
B. run for help
C. immediately start mouth-to-mouth
D. immediately start CPR

14. After current from an electric shock has passed through the heart it may go into a quivering spasm known as:
A. multiple sclerosis
B. myocardial infarction
C. ventricular fibrillation
D. muscular dystrophy

15. If a person came into contact with a 230V circuit and the impedance of the current path through his or her body was 2000Ω, the resulting current flow would be:
A. 2.23 mA
B. 1.7 mA
C. 8.7 mA
D. 115 mA

16. Fatalities due to incorrect wiring of plug tops and cord sets have decreased recently. One reason for this may be:
A. all appliances now need to be double-insulated
B. rewire able fuses have been replaced by circuit breakers
C. flexible leads now have a larger cross-sectional area
D. appliances now have molded plug and cord sets fitted

17. RCDs or safety switches are now mandatory on most socket outlet circuits. The letters RCD stand for:
A. rolling control device
B. restorative construct device
C. residual current device
D. restrictive control device

18. Why would someone in a damp area, such as a swimming pool or bathroom, be more susceptible to electric shock?
A. Because their bare feet and wet skin lower their effective body resistance
B. Because they are using electrical appliances
C. Because there are more exposed socket outlets
D. Because they are paying less attention

19. When working in a hazardous area with explosive dust, your main risk would be?
A. Breathing in dust
B. Keeping your clothes clean from dust
C. Dust in your eyes
D. An ignition source which could cause an explosion

20. What requirements are needed before using an elevated platform?

A. Full tank of petrol
B. 4 hours, worth of work
C. Induction and training on equipment (machine)
D. At least 2 people,1 up top, 1 down bottom

21. Some risks involved when working from an elevated platform?

A. Vertigo
B. Fall from height
C. Crushed between moving parts
D. All of the above

22. How often should fire extinguishers be service or checked?

A. Every 3 months
B. Only after they have been used
C. Every 12 months and whenever used
D. Never

23. What information do you find on MSDS sheets attached to chemicals ,materials and substances

A. How to carry safely
B. How to store safely
C. What PPE equipment is required
D. All of the above

24. On signs for safety, which background colour indicates what you must do?

A. Red
B. Yellow
C. Green
D. Blue

25. On signs for safety, which background colour indicates a warning?

A. Red
B. Yellow
C. Green
D. Blue

26. Who is ultimately responsible for the provision of a safe workplace?

A. Inspectors
B. Work health and safety representative
C. Person conducting a business or undertaking
D. Director of division of workplace health and safety

27 Workplace health and safety laws are necessary because they provide ?

A. A set of minimum standards to protect the health and safety of workers
B. National standards
C. Protection against prosecution
D. A complete set of laws that cover every workplace situation and activity

28. Identify from the list below the meaning of the term 'Industrial housekeeping'

A. Quality control
B. Keeping workplaces and access ways clean, neat and orderly
C. Project management
D. Material requirement planning

29.A confined space is often described as a space?

A. Which may have a contaminated atmosphere
B. Which is not intended or designed primarily as a place of work
C. Which may have restricted means for entry and exit
D. All of the above

30 Select a potential psychological hazard from the list below?

A. Work station design
B. Microwaves
C. Electrical energy
D. Harassment

# SECTION B

**(30 Marks, 2 marks for each question unless other wised marked)**

1. Give an example for each of the following hazard.

A. Chronic Hazard deafness skin cancer back problems (long term problems)

_____

B. Acute Hazard cuts broken bones falls ( happen now)

_____

2. When working on an elevated platform, falling from heights is a risk, list precautions you need to take?

1 harness , legs out, level ground ,training

2 _____

3. Ladders are required to be properly looked after and stored. Give 2 examples of what you would check before using.

1 ropes, rungs ,rails sharp edges (timber alum fibre)

2 _____

4. Name 2 areas classified as confined spaces.

1 In roofs containers trenches under houses or structures

2_____

5. Two substances that electricians may have to be cautious of when working on older installations are:

1. Asbestos pcb

2. _____

6. MSDS sheets gives information, what do the letters stand for?

M. material
S. safety
D. data
S. sheet

7. When climbing ladders there are quite a few risks involved name 2 controlling methods you would employ.

1. Level, tied off, stable, checked

2.___ foot base, right one, read instruction

8. When considering hazard controls there are 5 main ways to implement such controls, name 2 other than PPE.

1. Eliminate, substitute,

2.___ , isolate, modify

9. When manual handling a large heavy motor, describe 2 actions which you could take to reduce the risk of injury

1. use equipment,

2._ get help, lift correctly

10a. A major concern when working in confined spaces both underground and above ground (e.g. inside containers) is:

1. _____gases , bugs , light

10b. How can this concern be controlled or made safe to work on?

2.____breathing gear, air flow, inspection, portable lights

11. A domestic electrician working on new and old houses will at some stage work in a confined space, name 2 examples of a confined space in a domestic setting.

1._____under house ,

2. in roof

12. Name 2 types of fire extinguishers that can be used on an electrical fire?

1._____carbon dioxide

2._____dry chemical

13. Fire extinguishers need to be installed and displayed how?

1._____in an exposed, in sight, accessible area

2.____ type , what is able to be used on

14. When planning to move an object by hand, list 2 things you would check before attempting.

1._____its weight

2._____is it dangerous

15. List 2 hazards that can cause long term effects, either physical or psychological

1.___sun –skin cancer noise- going deaf glare –sight

2.__vibration – sore joints

# Section C (40 marks total, as shown)

1. **( 2 marks)** Name 2 substances that people take which can have an adverse effect on their ability to work safely.

   1._____drugs legal or not

   2._____alachol

2. **( 4 marks)** List 4 factors (effects) that contribute to physical or psychological problems cause by using outdoor machinery incorporating laser equipment?

   1._____vibration (joints)

   2._____the laser (sight )

   3._____movement (machinery)

   4._____sun (heat, cancer)

3. **( 4 marks)** For the above question (2), list for each factor a method for overcoming the problem.

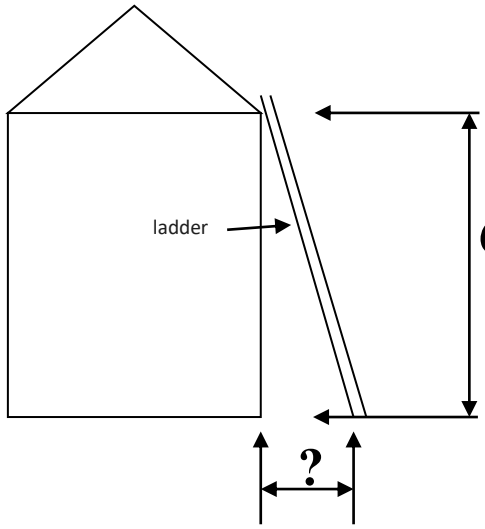
   1._____remote control , rubber mat

   2._____eye protection

   3._____barriers ,cage ,flashing light when moving or noise

   4.____ water , sun cream ,hat ,long sleeve shirt

**Question 4 (2 marks)** From the diagram below show working out calculation for the distance the bottom (base) of the ladder needs to be from the wall.




**Question 5 (4 marks)** Explain what the 4 Safety signs below are telling you.

Blue back with white Writing & symbol

**Must wear**

yellow back with black symbol

**danger**

yellow back with black symbol and writing

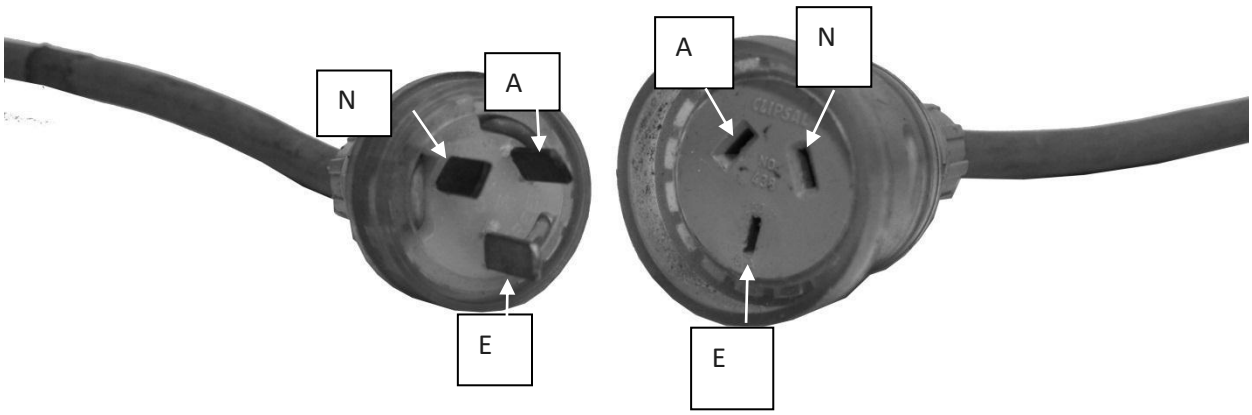

**warning**

red back with black and writing

**fire**

**Warning radioactive**

**Question 6.** **(4 marks)** Label boxes with correct polarity for a standard extension lead.




. **Question 7** **(10 marks )**

**On the next page (safe work method statement part 1) fill out required job, possible hazards, risks and controls for job listed below, where you are the contractor**

1. **Project is a domestic house**
2. **Job is to pre-drill holes in timber frame ready for wiring**
3. **Equipment to be used , electric drill, extension lead and a 25mm drill bit**
   **Some holes are at a height of 1.8m (no ladder required)**

**(If not enough room to write turn over page and write on back)**

**Question 8** **(10 marks )**

**On the page after the SWMS page fill out Risk assessment sheet provided for job listed in question 7**

# Safe Workplace Method Statement (SWMS)

## Question 7 (10 marks) Pre-drilling holes in timber frame

| Job Activity | Hazard | Specific Risk | Risk level |
|---|---|---|---|
| Using electric drill | death | Electrocuted due to faulty drill | 1-2 |
| | | | |
| | Hand injury | Injured wrist due to drill jamming | 3-5 |
| | | | |
| using extension lead | death | Electrocuted due to faulty lead | 1-2 |
| | | Is power supply RCD protected | |
| | Fire | Unroll lead to avoid over heating | 5-6 |
| | | | |
| Drilling holes in timber | Damage to eyes | Dust or debris getting into eyes | 3 |
| | | | |
| | Cut /injury | Sharp point on drill bit or edges | 4-5 |
| | | | |
| working on construction site | Fall/ trip/sunburn | Nails sticking out ,uneven surface, working in sunshine | 5-6 |
| | | Rubbish lying about, hang up lead of floor | |
| | injury | Other trades working above or around | 4-5 |
| | | | |
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## Risk Assessment

## Question 8 (10 marks) Pre-drilling holes in timber frame

| Job Activity | Hazard | Specific Risk | Control measures | Review Method |
|---|---|---|---|---|
| | | | Check drill for tag ,lead, working ,RDC protected | ANY INJURY |
| | | | | |
| | | | Training how to drill, right setting for drill, right type | |
| | | | Of drill bit, check drill bit( bent, broken tip or edge ) | |
| | | | Check lead for tag, cuts or cracks, RCD protected | |
| | | | | |
| | | | Hang lead up of floor, un roll lead, RCD protected | |
| | | | | |
| | | | Wear eye protection ( PPE ), use vacuum, clean up as | |
| | | | You go | |
| | | | Wear gloves , check drill bit is sharp and has no damage | |
| | | | ( bent, broken tip or edge ) | |
| | | | Inspect site area for nails, pipes, bolts sticking out | |
| | | | Loose bits off timber | |
| | | | Check with other trades ( roofers, etc ) who is working | |
| | | | Were and when | |
| | | | | |
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Student Name : _____

Class : _____

## ANSWER SHEET

### Section A – (Multi-choice Questions)

### Instructions:

Enter your personal details in the top right hand corner of this sheet.
Place an **X** in box of your choice. If you make a mistake, circle your answer ⊗ and choose again.

| Question | A. | B. | C. | D. |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| **Totals** | | | | |

| Question | A. | B. | C. | D. |
|---|---|---|---|---|
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |
| **Totals** | | | | |

**Total Marks Section A: _____**

# E101A Final Tutorial

# SECTION A

1. Who has a role to play in ensuring the health and safety of people in their workplace?
A. Occupational health and safety officer
B. Everyone
C. Managing director
D. WorkCover inspector

2. Which of the following identifies the steps in managing risks in the workplace?
A. Dismiss all employees that have had more than two accidents
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A. Insulating mat
B. Steel capped boots
C. Safety glasses
D. High voltage rescue kit

7. Asbestos is a dangerous product that is still present in a lot of buildings. Asbestos can harm you if you:
A. swallow it
B. breathe it in
C. allow it to come into contact with your skin
D. get it in your eyes

8. In which section of the *Wiring Rules* is the information on earthing?
A. Section 2
B. Section 3
C. Section 4
D. Section 5

9. What level of current and duration of contact causes muscular cramping that may make it difficult to let go of a live cable?
A. 300 to 500μA for less than 0.5 sec
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23. What information do you find on MSDS sheets attached to chemicals ,materials and substances

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B. How to store safely
C. What PPE equipment is required
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A. Red
B. Yellow
C. Green
D. Blue

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B. Which is not intended or designed primarily as a place of work
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30 Select a potential psychological hazard from the list below?

A. Work station design
B. Microwaves
C. Electrical energy
D. Harassment

# SECTION B

**(30 Marks, 2 marks for each question unless other wised marked)**

1. Give an example for each of the following hazard.

A. Chronic Hazard deafness skin cancer back problems (long term problems)

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B. Acute Hazard cuts broken bones falls ( happen now)

_____

2. When working on an elevated platform, falling from heights is a risk, list precautions you need to take?

1 harness , legs out, level ground ,training

2 _____

3. Ladders are required to be properly looked after and stored. Give 2 examples of what you would check before using.

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2 _____

4. Name 2 areas classified as confined spaces.

1 In roofs containers trenches under houses or structures

2_____

5. Two substances that electricians may have to be cautious of when working on older installations are:

1. Asbestos pcb

2. _____

6. MSDS sheets gives information, what do the letters stand for?

M. material
S. safety
D. data
S. sheet

7. When climbing ladders there are quite a few risks involved name 2 controlling methods you would employ.

1. Level, tied off, stable, checked

2.___ foot base, right one, read instruction

8. When considering hazard controls there are 5 main ways to implement such controls, name 2 other than PPE.

1. Eliminate, substitute,

2.___ , isolate, modify

9. When manual handling a large heavy motor, describe 2 actions which you could take to reduce the risk of injury

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2._ get help, lift correctly

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1. _____gases , bugs , light

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13. Fire extinguishers need to be installed and displayed how?

1._____in an exposed, in sight, accessible area

2.____ type , what is able to be used on

14. When planning to move an object by hand, list 2 things you would check before attempting.

1._____its weight

2._____is it dangerous

15. List 2 hazards that can cause long term effects, either physical or psychological

1.___sun –skin cancer noise- going deaf glare –sight

2.__vibration – sore joints

# Section C (40 marks total, as shown)

1. **( 2 marks)** Name 2 substances that people take which can have an adverse effect on their ability to work safely.

   1._____drugs legal or not

   2._____alachol

2. **( 4 marks)** List 4 factors (effects) that contribute to physical or psychological problems cause by using outdoor machinery incorporating laser equipment?

   1._____vibration (joints)

   2._____the laser (sight )

   3._____movement (machinery)

   4._____sun (heat, cancer)

3. **( 4 marks)** For the above question (2), list for each factor a method for overcoming the problem.

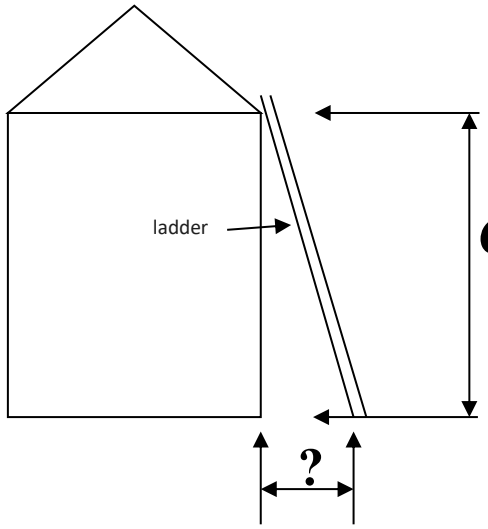
   1._____remote control , rubber mat

   2._____eye protection

   3._____barriers ,cage ,flashing light when moving or noise

   4.____ water , sun cream ,hat ,long sleeve shirt

**Question 4 (2 marks)** From the diagram below show working out calculation for the distance the bottom (base) of the ladder needs to be from the wall.




**Question 5 (4 marks)** Explain what the 4 Safety signs below are telling you.

Blue back with white Writing & symbol

**Must wear**

yellow back with black symbol

**danger**

yellow back with black symbol and writing

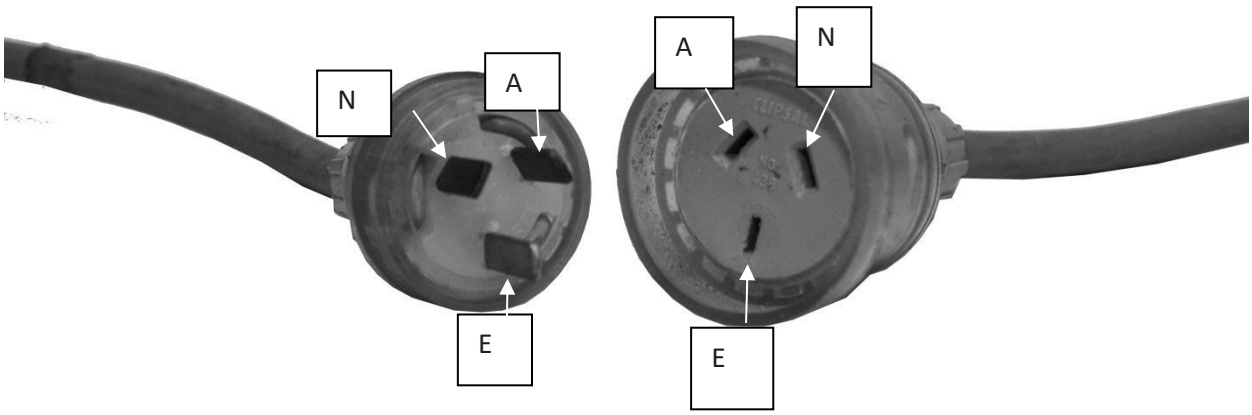

**warning**

red back with black and writing

**fire**

**Warning radioactive**

**Question 6.** **(4 marks)** Label boxes with correct polarity for a standard extension lead.




. **Question 7** **(10 marks )**

**On the next page (safe work method statement part 1) fill out required job, possible hazards, risks and controls for job listed below, where you are the contractor**

1. **Project is a domestic house**
2. **Job is to pre-drill holes in timber frame ready for wiring**
3. **Equipment to be used , electric drill, extension lead and a 25mm drill bit**
   **Some holes are at a height of 1.8m (no ladder required)**

**(If not enough room to write turn over page and write on back)**

**Question 8** **(10 marks )**

**On the page after the SWMS page fill out Risk assessment sheet provided for job listed in question 7**

# Safe Workplace Method Statement (SWMS)

## Question 7 (10 marks) Pre-drilling holes in timber frame

| Job Activity | Hazard | Specific Risk | Risk level |
|---|---|---|---|
| Using electric drill | death | Electrocuted due to faulty drill | 1-2 |
| | | | |
| | Hand injury | Injured wrist due to drill jamming | 3-5 |
| | | | |
| using extension lead | death | Electrocuted due to faulty lead | 1-2 |
| | | Is power supply RCD protected | |
| | Fire | Unroll lead to avoid over heating | 5-6 |
| | | | |
| Drilling holes in timber | Damage to eyes | Dust or debris getting into eyes | 3 |
| | | | |
| | Cut /injury | Sharp point on drill bit or edges | 4-5 |
| | | | |
| working on construction site | Fall/ trip/sunburn | Nails sticking out ,uneven surface, working in sunshine | 5-6 |
| | | Rubbish lying about, hang up lead of floor | |
| | injury | Other trades working above or around | 4-5 |
| | | | |
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## Risk Assessment

## Question 8 (10 marks) Pre-drilling holes in timber frame

| Job Activity | Hazard | Specific Risk | Control measures | Review Method |
|---|---|---|---|---|
| | | | Check drill for tag ,lead, working ,RDC protected | ANY INJURY |
| | | | | |
| | | | Training how to drill, right setting for drill, right type | |
| | | | Of drill bit, check drill bit( bent, broken tip or edge ) | |
| | | | Check lead for tag, cuts or cracks, RCD protected | |
| | | | | |
| | | | Hang lead up of floor, un roll lead, RCD protected | |
| | | | | |
| | | | Wear eye protection ( PPE ), use vacuum, clean up as | |
| | | | You go | |
| | | | Wear gloves , check drill bit is sharp and has no damage | |
| | | | ( bent, broken tip or edge ) | |
| | | | Inspect site area for nails, pipes, bolts sticking out | |
| | | | Loose bits off timber | |
| | | | Check with other trades ( roofers, etc ) who is working | |
| | | | Were and when | |
| | | | | |
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Student Name : _____

Class : _____

## ANSWER SHEET

### Section A – (Multi-choice Questions)

### Instructions:

Enter your personal details in the top right hand corner of this sheet.
Place an **X** in box of your choice. If you make a mistake, circle your answer ⊗ and choose again.

| Question | A. | B. | C. | D. |
|---|---|---|---|---|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |
| 6 | | | | |
| 7 | | | | |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| **Totals** | | | | |

| Question | A. | B. | C. | D. |
|---|---|---|---|---|
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | | |
| 24 | | | | |
| 25 | | | | |
| 26 | | | | |
| 27 | | | | |
| 28 | | | | |
| 29 | | | | |
| 30 | | | | |
| **Totals** | | | | |

**Total Marks Section A: _____**

# ELECTRICAL WORK HEALTH AND SAFETY
# FINAL ASSESSMENT

# CMA MODULE 3.1
# ASSIGNMENT 12

*Containing core competency standard units:*
UEENEEE101A Workplace Health and Safety
*Element T9 delivered **separate to this assessment**

## *Time allowed – 90 minutes*

| | |
|---|---|
| CPR in the workplace<br>UEENEEE101A<br>ELEMENT T9 only | **Electrical Work Health and Safety**<br>**UEENEEE101A – T1 to T8**<br>**A PASS MARK OF 65% OR HIGHER** |
| **CPR Assessment** | **Final WHS Assessment** |
| **15%** | **85%** |

**TOTAL POINTS AVAILABLE 60**
***18 Pages in this Question Booklet***



## Aids to be supplied by college:

- ❑ A4 note paper / Assessment booklet / Computer

## Aids to be supplied by student:

- ❑ Pen, pencil, eraser, rule, calculator.

## Instructions to Students:

- ❑ ***Mobile phones are to be turned off and removed from your person***. You cannot access a mobile phone during this examination. **Respect your fellow students**.
- ❑ This is an open book exam (the use of the Electrical WHS booklet is permitted)
- ❑ The whole of this paper (unmarked in any way) is to be handed to the Assessor upon completion.
- ❑ Answer questions in the appropriate spaces in the computer program Class Act®

**Aids permitted where indicated:**

| Standard Dictionaries | Bilingual Dictionaries | Technical Dictionaries | Programmable Calculators | Non-programmable Calculators |
|---|---|---|---|---|
| **No** | **Yes** | **No** | **No** | **Yes** |

# PREFACE

# Do you need additional assistance in your studies?

**Reasonable Adjustment**

Reasonable adjustment is any approved modification or allowance made in assessment to accommodate a disability related function. Reasonable adjustment allows a learner with a disability to participate equitably in assessment procedures and demonstrate required skills and knowledge.

**8.7 Reasonable adjustment for learners with disabilities undertaking assessment**

8.7.1 TAFE NSW must provide equitable, efficient and timely reasonable adjustment3 for learners with disabilities who undertake assessments, while maintaining the integrity of those assessments. This applies to all assessment events including those in the workplace and online and for Category A and Category B final examinations.

8.7.2 On the Enrolment Form, learners are asked whether they consider they have a disability, impairment or long term condition. They are then required to declare whether they are seeking assistance from a TAFE NSW Teacher/Consultant for Students with Disabilities. This information assists TAFE NSW to provide reasonable adjustment, on a unit basis, in a timely manner.

8.7.3 If the learner presents with a temporary disability or a disability not disclosed on the Enrolment Form, the learner is required to provide documentary evidence such as a medical certificate before reasonable adjustment to assessment can be provided.

8.7.4 Reasonable adjustment In TAFE NSW is provided in accordance with the Commonwealth Disability Discrimination Act 1992 Section 4.

**8.9 Use of bilingual dictionaries**

8.9.1 Learners are permitted to use bilingual dictionaries during final timetabled examinations. This is in accordance with, and in support of, the procedures on Multicultural Education and the Community Relations Commission and Principles of Multiculturalism Act 2000.

8.9.2 Bilingual dictionary: a dictionary which translates from one language into English and vice versa.

8.9.3 Additional reading time will NOT be granted to learners who use a bilingual dictionary during an examination.

8.9.4 Refer to the implementation guidelines on the Use of bilingual dictionaries.

**Category D Assessment**

All Certificate II and III subjects at the Northern Sydney Institute of TAFE are Category D assessments. A result of AC (Achieved Competency) or NC (Not yet Competent).

With a Category D unit, one result, a class result (AC/NC), is recorded for each student. The requirements to achieve competency are explained in the student assessment guide (SAG – page 3) associated with this unit.

# ASSESSOR GUIDE

**Delivery and assessment**

The delivery of unit UEENEEE101A is based on a flipped classroom approach. Online material and quizzes make up the bulk of this unit. Student feedback for online quizzes (formative) is at the end of each chapter. Once the online work or workbook is complete and a small lesson based on element T7 of unit UEENEEE101A is completed, a student will sit a final assessment based on unit UEENEEE101A (T1 to T8 only for non-qualified CPR teachers), a student will sit T9 (CPR) on-site or if previously qualified and sighted, the student will receive RPL (it is recommended that the student sit in the CPR class purely for refresher purposes). Consolidation (including T7) will be for between 2 and 6 hours including assessment (see Assessment Guide – page 4).

T7 Physical and psychological hazards encompassing:

- short and long term effects of excessive noise and techniques to avoid damage to hearing due to excessive noise
- effects of vibration on the human body and work practices to protect against vibration
- effects of thermal stress on the human body and work practices to protect against thermal stress
- effects of ultraviolet (UV) radiation on the human body and work practices to protect against UV radiation.
- dangers associated with laser operated equipment and tools and suitable protective measures to overcome the danger.
- occupational overuse syndrome, how it occurs and means to overcome it
- factors that cause stress in the workplace, symptoms of a person suffering from stress and personal stress management techniques
- detrimental effects and dangers of drug and alcohol use in the workplace

T9 Life support - CPR in the workplace encompassing:

- First Aid.
- responsibilities of the First Aider.
- priorities of first aid management for any accident or injury.
- procedures required at an accident scene.
- legal and ethical issues, which may impact on the management of care.
- 'Duty of Care'.
- examination of a casualty for injuries.
- effect of cardio pulmonary arrest on the body.
- Managing simulated conditions of: airway obstruction; respiratory arrest and cardio pulmonary arrest,
- single and two-person cardio pulmonary resuscitation (CPR).
- signs and symptoms of an altered level of consciousness
- management of simulation of a casualty with an altered level of consciousness.
- signs and symptoms of shock.
- management of simulation of a casualty in shock

| | |
|---|---|
| **Unit/s of competency:** | **UEENEEE101A – Apply Occupational Health and Safety regulations, codes and practices in the workplace** |
| **AQF level:** | **3** |
| **Unit Descriptor** | This unit specifies the mandatory requirements of occupational health and safety and how they apply to the various electrotechnology work functions. It encompasses responsibilities for health and safety, risk management processes at all operative levels and adherence to safety practices as part of the normal way of doing work.<br>http://training.gov.au/Training/Details/UEENEEE101A |
| **Prerequisites :** | N/A |
| **What do I need to do be deemed competency:** | Evidence shall show an understanding of Occupational Health and Safety to an extent indicated by the following aspects:<br>• T1 The basic legal requirements covering occupational health and safety in the workplace<br>• T2 The work environment<br>• T3 Manual Handling<br>• T4 Chemicals in the workplace<br>• T5 Working at heights<br>• T6 Confined spaces<br>• T7 Physical and psychological hazards**<br>• T8 Working safely with electricity<br>• **T9 Life support - CPR in the workplace***<br>*** T9 is not included and will be delivered separately to this student Assessment**<br>** T7 to be delivered at college and Assessed in Final Assessment – UEENEEE101A – T1 to T8 |
| **To achieve a satisfactory result:** | The Assessor will assess competency against the elements of competence, performance criteria and knowledge and skills as specified in the Unit of competence information obtained from Training.gov.au. You will be given an outline of assessment tasks and due dates for each assessment event. It should be noted that all student exercises within this learner book require 100% pass to continue. All exercises are open book.<br>This unit is ungraded. Your results will be recorded as ***Achieved Competent*** or ***Not Yet Competent***.<br>**Achieved Competency**<br>The student has demonstrated effective skills and knowledge and has satisfactorily met the performance criteria.<br>The student must demonstrate good understanding of theory and knowledge in practical performance/application. |

| | |
|---|---|
| | **Not Yet Competent**<br>The student has demonstrated some skills but has not satisfied all the skills and knowledge required to meet the performance criteria.<br>The student only uses basic skills and is unable to practically demonstrate/link the knowledge and theory to performance.<br>Each assessment task will be marked as Satisfactory or Not Yet Satisfactory.<br>Each satisfactory result will contribute to the achievement of AC (Achieved Competence) or NYC (Not Yet Competent).<br>The student will be required to perform the task again if competency is not demonstrated. |

| **Assessment Methods and schedule** | **Task Number** | **Assessment Task** | **Venue** | **Assessment Date** | **Must Demonstrate Satisfactory performance** |
|---|---|---|---|---|---|
| | **FINAL ASSESSMENT**<br><br>**WHS-T1toT8** | Electrical Workplace Health and Safety UEENEEE101A - T1 to T8 | **Self-paced online / Workbook – on or off site – Assessment on completion** | **To be advised** | **Yes**<br><br>100% (open book) |
| | **Assessment 1** CPR in the workplace | T9 - Life support - CPR in the workplace – instructor delivered and assessed | **Classroom based – Locally assessed (on site)** | **To be advised** | **Yes** |

| | |
|---|---|
| **Resources required for assessments:** | Any preferred Textbook, Online material (without the practice questions) provided by the college and any other material accepted locally. See your teacher for further enquiry. |
| **Reporting assessment outcomes:** | A Transcript of Academic Record will list all results of your study to date. If you have achieved competency in a unit but are unable to finish the qualification, you will receive a Transcript of Academic Record showing only the units you have completed.<br>A report of your final results can be accessed from the DET Student Portal https://portal.det.nsw.edu.au |
| **Recognition of Prior Learning** | **Recognition and credit transfers**: You can apply to have your previous study, work and/or life experiences recognised. Recognition of Prior Learning (RPL) will be determined according to TAFE NSW Recognition Policy. Please see www.nsi.edu.au/recognition for further information about RPL. |
| **Assessment feedback, review or appeals:** | Student feedback is ongoing and given at the completion of each exercise and assessment event<br>If you would like to request a review of your results or if you have any concerns about your results, contact your teacher or head teacher.<br>You will have 2 weeks from the date you receive your results in which to make an appeal and request a review. |

| | |
|---|---|
| | You will receive a response within 1 week after receipt of the request.<br>Your Head Teacher will address the appeal in accordance with Assessment Guidelines for TAFE NSW. |
| **Assessment conditions:** | You must submit assessment work and attended scheduled assessments on the required dates.<br>○ **If you miss an assessment or have been deemed "Not Competent"** you must discuss the issue of the missed assessment or NC with your teacher within seven days, or at your first class attendance after the assessment, whichever occurs first.<br>○ **If you miss a Knowledge Assessment**, or arrive late by more than 30 minutes after the commencement of the Knowledge assessment, due to illness or circumstances beyond your control, you should contact the teacher of this unit.<br>○ **If you engage in cheating** such as copying, colluding with another person, using unauthorised notes, or allowing another person to copy your work, you will be liable for disciplinary action as per Student Discipline Policy TAFE NSW. Whatever the form of assessment, it is essential that the work you are assessed on is your own.<br><br>TAFE NSW provides learners with reasonable opportunity to have their work assessed and where possible learner absence from an assessment task will be considered on an individual basis. However, where there are no extenuating circumstances, the following penalties apply:<br>○ when the assessment is more than seven days late, the result is recorded as "not yet competent"<br>○ for non-attendance at an assessment on a negotiated date, the result is recorded as "not yet competent".<br><br>You can view information related to assessment in *Every Student's Guide to Assessment in TAFE NSW*, which is available from www.tafensw.edu.au/courses/assessment. |

**A submission of suitable work place evidence related to UEENEEE101A is required to be assessed as competent.**

# Required Skills and Knowledge

**REQUIRED SKILLS AND KNOWLEDGE**

**7)** This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and applying OHS practices in the workplace.

The knowledge and skills shall be contextualised to current industry standards, technologies and practices.

**KS01-EE101A Occupational Health and Safety principles**

Evidence shall show an understanding of Occupational Health and Safety to an extent indicated by the following aspects

**PLEASE NOTE:**

**FORMATIVE (EXERCISES) MARKED IN GREEN**

**SUMMATIVE (FINAL ASSESSMENT) MARKED IN RED**

T1 The basic legal requirements covering occupational health and safety in the workplace encompassing:

- underlying principles of OH&S Q1.1.1Q1
- general aims and objectives of the relevant state or territory legislation relating to OH&S. Q1.1.2/Q1.1.3/Q1.1.5/Q1.5.4/Q1.5.5 Q2
- employer and employee responsibilities, rights and obligations Q1.1.4/Q1.2.1/Q1.2.2/Q1.2.4/Q1.2.3/Q1.5.3/Q1.2.5/Q1.4.1/Q1.4.3/Q1.4.4/Q1.4.5/Q1.4.6/Q1.5.2.Q3
- major functions of safety committees and representatives. Q1.6.1/Q1.6.3/Q1.6.4 Q4
- powers given to Occupational Health and Safety Inspectors Q1.3.1/Q1.3.2/Q1.3.3/Q1.3.4/Q1.6.2/Q1.3.5/Q1.51 Q5
- housekeeping and potential hazards in relation to improper housekeeping Q2.2.1/Q2.2.2 Q6
- selecting appropriate personal protective equipment (PPE) given hazardous situations Q2.4.2/Q2.4.3 Q7

T2 The work environment encompassing:

- typical hazards associated with a range of work environments Q2.3.3/Q2.5.2/Q3.5.2 Q8
- procedures used to control the risks associated with these hazards Q2.4.4/Q2.4.5 Q9
- principles of risk assessment / management and state the purpose of each Q2.3.1/Q2.3.2. Q10/Q11
- hierarchy of OH&S hazard control measures. Q2.4.1/Q2.4.6/Q2.4.7/Q2.4.8/Q2.4.9/Q2.5.1 Q12
- required documentation for risk assessment. Q2.3.4/Q2.3.5 Q10
- commonly used workplace safety signs. Q2.6.1/Q2.6.2/Q2.6.3/Q2.6.4/Q2.6.5/Q2.6.6 Q13
- workplace emergencies that pose a threat to health and safety and suitable

**REQUIRED SKILLS AND KNOWLEDGE**

procedure for an emergency workplace evacuation. Q3.4.1/Q3.4.4 Q14
- appropriate fire extinguisher for a given type of fire. Q3.3.2 Q15
- requirements for the location, mounting and maintenance of portable fire extinguishers. Q3.3.1/Q3.3.3 Q16
- basic process of fighting a fire. Q4.3.2/Q3.4.3 Q17
- Importance of safe premises, buildings and security in an industrial setting and the consequences of non- compliance. Q1.3.1/Q1.3.2/Q1.3.3/Q1.3.4/Q1.3.5 Q18
- standard work procedure. Q2.3.1/Q2.3.2/Q2.3.3/Q2.3.4/Q2.5.3 Q19

T3 Manual Handling encompassing:

- typical manual handling injuries and the effect they can have on lifestyle Q3.9.1 Q20
- situations that may cause manual handling injuries Q3.9.2 Q21
- correct procedures for lifting and carrying to prevent manual handling injuries Q3.9.3/Q3.9.4 Q22

T4 Chemicals in the workplace encompassing:

- hazardous substances and dangerous goods. Q3.6.1/Q3.7.3 Q23
- classification of chemicals as hazardous substances and/or dangerous goods Q3.6.2 Q24
- requirements for labelling of chemicals in the workplace Q3.6.3/Q3.7.1/Q3.7.2 Q25
- safe storage procedures for chemicals Q3.6.4 Q23
- purpose and interpretation of material safety data sheet (MSDS) Q3.7.1/Q3.7.2 Q26

T5 Working at heights encompassing:

- dangers associated with working on ladders and scaffolds Q1.4.2/Q2.1.5/Q3.8.3 Q27
- identification of work area as a height risk and use appropriate safety equipment to prevent a fall Q3.8.3 Q28
- selecting an appropriate ladder for a given situation and perform a safety check before use Q3.8.1/Q3.8.2 Q29
- precautions that should be taken when ascending and working off a ladder Q3.8.4 Q30
- precautions that should be taken when working on and around a scaffold and elevated platforms Q2.1.5. Q27

T6 Confined spaces encompassing:

- hazards associated with working in a confined space Q3.5.1 Q31
- identifying workplace situations that could be classified as a confined space Q3.5.2 Q32
- control measures for working in a designated confined space Q3.5.3 Q33

**REQUIRED SKILLS AND KNOWLEDGE**

T7 Physical and psychological hazards encompassing:

- short and long term effects of excessive noise and techniques to avoid damage to hearing due to excessive noise Q34
- effects of vibration on the human body and work practices to protect against vibration Q35
- effects of thermal stress on the human body and work practices to protect against thermal stress Q37
- effects of ultraviolet (UV) radiation on the human body and work practices to protect against UV radiation. Q36
- dangers associated with laser operated equipment and tools and suitable protective measures to overcome the danger. Q41/ Q42/ Q43/ Q44
- occupational overuse syndrome, how it occurs and means to overcome it Q38/ Q39/ Q40
- factors that cause stress in the workplace, symptoms of a person suffering from stress and personal stress management techniques Q45/ Q46/ Q47
- detrimental effects and dangers of drug and alcohol use in the workplace Q48

DELIVERED AT COLLEGE

T8 Working safely with electricity encompassing:

- effects of electric shock on the human body Q2.1.1/Q2.1.3/Q2.7.5 Q49/ Q50
- common causes of electrical accidents Q2.1.4/Q2.3.3/Q2.7.1/Q3.1.1 Q51
- precautions that can minimise the chance of electric shock (earthing, extra low voltage, fuses, circuit breakers and residual current devices – RCDs) Q3.1.3/Q2.3.4/Q3.1.5/Q3.1.1/Q3.2..3/Q3.2.1/Q2.2.4/Q2.7.2/Q2.7.4/Q3.1.6 Q55/ Q56/ Q57/ Q58/ Q59/ Q53
- protection offered by a residual current device (RCD) Q2.2.3/Q3.1.2/Q3.2.2 Q53/ Q57
- need for ensuring the (safe) isolation of an electrical supply Q2.1.2/Q2.5.2/Q2.5.3/Q2.5.4/Q2.5.5 Q54
- appropriate method of removing an electric shock victim from a live electrical situation Q2.1.2/Q2.7.3/Q2.8.1/Q2.8.2/Q2.8.3/Q2.8.4/Q2.8.5 Q60/ Q52

T9 Life support - CPR in the workplace encompassing:

- First Aid.
- responsibilities of the First Aider.
- priorities of first aid management for any accident or injury.
- procedures required at an accident scene.
- legal and ethical issues, which may impact on the management of care.
- 'Duty of Care'.
- examination of a casualty for injuries.
- effect of cardio pulmonary arrest on the body.
- Managing simulated conditions of: airway obstruction; respiratory arrest and cardio pulmonary arrest,
- single and two-person cardio pulmonary resuscitation (CPR).
- signs and symptoms of an altered level of consciousness
- management of simulation of a casualty with an altered level of consciousness.
- signs and symptoms of shock.
- management of simulation of a casualty in shock

DELIVERED SEPERATELY

STUDENT INSTRUCTION: **Answer the questions below by finding the most appropriate answer from the information given.**

**1. What act did the Work Health and Safety Act 2011 replace?**

**a) The Occupational Health and Safety Act of 2000**

b) The WorkCover rules

c) Workers compensation Act

d) The Work Health and Safety Act 2010

**2. What is the main objective of the Work Health and Safety Act 2011?**

a) To govern workplace relations

b) To manage productivity in a workplace

**c) To secure the health and safety of workers and workplaces**

d) To secure the financial wellbeing of workers and workplaces

**3. An apprentice is defined by the Work Health and Safety Act 2011 is:**

a) an inspector

b) a union member

c) an employer

**d) a worker**

**4. A major function of a safety committee is to:**

a) Close sites that are unsafe

b) Save money on equipment

c) Stop businesses becoming profitable and /or efficient

**d) Facilitate co-operation between business and its workers have a safer workplace**

**5. The Work Health and Safety Act 2011 describes a Category 1 offence as:**

a) a person who is "reckless to the risks his/her bad hygiene causes"

**b) a person who is "reckless to the risks to an individual of death and serious injury"**

c) a person who is "reckless to the risks to a body corporates profit margin"

d) a person who's "failure has exposed an individual to a risk of serious injury"

**6. One important aspect of good housekeeping is to keep, as far as practicable, electrical (extension) leads:**

a) coiled in a bundle

b) from being pulled out

c) away from non-qualified staff

**d) from running across doorways**

**7. This sign is out the front of a work site, before entering the site, I would need to:**


a) wear foot protection

b) wear eye protection

**c) wear hearing protection**

d) wear sun protection

**8. Electricity is particularly hazardous because:**

a) it is expensive to run and maintain

**b) electrical currents are invisible, with no smell or sound**

c) it has a mind of its own

d) it has a high resistance to human skin

**9. The most common procedure used to control risks associated with hazards is known as the:**

**a) hierarchy of risk control**

b) safety guide of NSW

c) checklist of common hazards

d) Workcover hazard identification list

**10. A risk assessment is best described as:**

a) poor housekeeping

b) the elimination of hazards

c) the substitution of hazards

**d) what could happen if someone is exposed to a hazard**

**11. The risk management process involves 4 clear steps. These are:**

**a) identify the hazards, assess the risks, control the risks and review**

b) elimination, substitution, isolation and review

c) engineering controls, administrative controls, PPE and elimination

d) inspecting, testing, certifying and checking

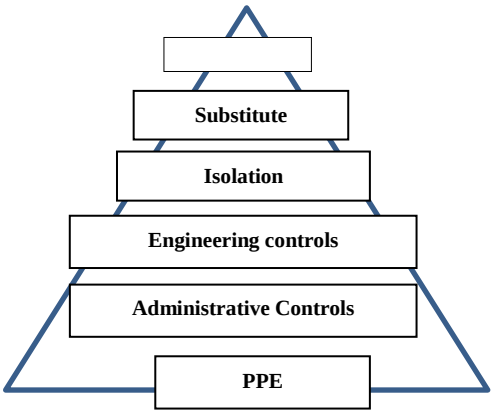
**12. In the Hierarchy of control what measure is missing from this diagram?**

a) Protective clothing

b) Risk

**c) Elimination**

d) Ventilation



**13. This sign is out the front of a work site, before entering the site, I would need to:**


**a) wear foot protection (steel capped boots)**

b) wear eye protection (safety glasses)

c) wear hearing protection (earmuffs)

d) wear sun protection (slip on a shirt, slop on some sunscreen and slap on a hat)

**14. The saying the NSW Fire brigade uses the term, "Remain calm – and remember:**

a) to run

**b) RACE**

c) your phone

d) FACE

**15. The most appropriate type of fire extinguisher listed below for use in the event of an electrical fire is:**

a) water

b) foam

c) wet chemical

**d) dry powder**

**16. The height from the ground a fire extinguisher can be mounted is:**

a) 1200mm minimum

**b) 1200mm maximum**

c) 100mm minimum

d) 100mm maximum

**17. In the event of a fire, always keep your escape route:**

**a) at your back**

b) open

c) at arms length

d) in front of you

**18. If a person commits a Work Health and Safety Act 2011 Category 1 offence, what is the maximum imprisonment time?**

a) 1 year

b) 3 years

**c) 5 years**

d) 7 years

**19. Using the hierarchy of risk control, isolation would be best described as:**

a) removing the hazard or hazardous work practice

b) replacing the hazardous process or material with one less hazardous

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c) repetitive strain injury (RSI)

d) a drug overdose

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## Edition

Australian Edition Version 1 – February 2015



The Northern Sydney Institute (part of TAFE NSW)

# ELECTRICAL WORK HEALTH AND SAFETY
# FINAL ASSESSMENT

## CMA MODULE 3.1
## ASSIGNMENT 12

*Containing core competency standard units:*
UEENEEE101A Workplace Health and Safety
*Element T9 delivered **separate to this assessment**

## *Time allowed – 90 minutes*

| | |
|---|---|
| CPR in the workplace<br>UEENEEE101A<br>ELEMENT T9 only | **Electrical Work Health and Safety**<br>**UEENEEE101A – T1 to T8**<br>**A PASS MARK OF 65% OR HIGHER** |
| **CPR Assessment** | **Final WHS Assessment** |
| **15%** | **85%** |

**TOTAL POINTS AVAILABLE 60**
***18 Pages in this Question Booklet***

## Aids to be supplied by college:

- ❑ A4 note paper / Assessment booklet / Computer

## Aids to be supplied by student:

- ❑ Pen, pencil, eraser, rule, calculator.

## Instructions to Students:

- ❑ ***Mobile phones are to be turned off and removed from your person***. You cannot access a mobile phone during this examination. **Respect your fellow students**.
- ❑ This is an open book exam (the use of the Electrical WHS booklet is permitted)
- ❑ The whole of this paper (unmarked in any way) is to be handed to the Assessor upon completion.
- ❑ Answer questions in the appropriate spaces in the computer program Class Act®

**Aids permitted where indicated:**

| Standard Dictionaries | Bilingual Dictionaries | Technical Dictionaries | Programmable Calculators | Non-programmable Calculators |
|---|---|---|---|---|
| **No** | **Yes** | **No** | **No** | **Yes** |

# PREFACE
# Do you need additional assistance in your studies?

**Reasonable Adjustment**

Reasonable adjustment is any approved modification or allowance made in assessment to accommodate a disability related function. Reasonable adjustment allows a learner with a disability to participate equitably in assessment procedures and demonstrate required skills and knowledge.

**8.7 Reasonable adjustment for learners with disabilities undertaking assessment**

8.7.1 TAFE NSW must provide equitable, efficient and timely reasonable adjustment3 for learners with disabilities who undertake assessments, while maintaining the integrity of those assessments. This applies to all assessment events including those in the workplace and online and for Category A and Category B final examinations.

8.7.2 On the Enrolment Form, learners are asked whether they consider they have a disability, impairment or long term condition. They are then required to declare whether they are seeking assistance from a TAFE NSW Teacher/Consultant for Students with Disabilities. This information assists TAFE NSW to provide reasonable adjustment, on a unit basis, in a timely manner.

8.7.3 If the learner presents with a temporary disability or a disability not disclosed on the Enrolment Form, the learner is required to provide documentary evidence such as a medical certificate before reasonable adjustment to assessment can be provided.

8.7.4 Reasonable adjustment In TAFE NSW is provided in accordance with the Commonwealth Disability Discrimination Act 1992 Section 4.

**8.9 Use of bilingual dictionaries**

8.9.1 Learners are permitted to use bilingual dictionaries during final timetabled examinations. This is in accordance with, and in support of, the procedures on Multicultural Education and the Community Relations Commission and Principles of Multiculturalism Act 2000.

8.9.2 Bilingual dictionary: a dictionary which translates from one language into English and vice versa.

8.9.3 Additional reading time will NOT be granted to learners who use a bilingual dictionary during an examination.

8.9.4 Refer to the implementation guidelines on the Use of bilingual dictionaries.

**Category D Assessment**

All Certificate II and III subjects at the Northern Sydney Institute of TAFE are Category D assessments. A result of AC (Achieved Competency) or NC (Not yet Competent).

With a Category D unit, one result, a class result (AC/NC), is recorded for each student. The requirements to achieve competency are explained in the student assessment guide (SAG – Page 5) associated with this unit.

STUDENT INSTRUCTION: **Answer the questions below by finding the most appropriate answer from the information given.**

**1. What act did the Work Health and Safety Act 2011 replace?**

a) The Occupational Health and Safety Act of 2000

b) The WorkCover rules

c) Workers compensation Act

d) The Work Health and Safety Act 2010

**2. What is the main objective of the Work Health and Safety Act 2011?**

a) To govern workplace relations

b) To manage productivity in a workplace

c) To secure the health and safety of workers and workplaces

d) To secure the financial wellbeing of workers and workplaces

**3. An apprentice is defined by the Work Health and Safety Act 2011 is:**

a) an inspector

b) a union member

c) an employer

d) a worker

**4. A major function of a safety committee is to:**

a) Close sites that are unsafe

b) Save money on equipment

c) Stop businesses becoming profitable and /or efficient

d) Facilitate co-operation between business and its workers have a safer workplace

**5. The Work Health and Safety Act 2011 describes a Category 1 offence as:**

a) a person who is “reckless to the risks his/her bad hygiene causes”

b) a person who is “reckless to the risks to an individual of death and serious injury”

c) a person who is “reckless to the risks to a body corporates profit margin”

d) a person who’s “failure has exposed an individual to a risk of serious injury”

**6. One important aspect of <u>good housekeeping</u> is to keep, as far as practicable, electrical (extension) leads:**

a) coiled in a bundle

b) from being pulled out

c) away from non-qualified staff

d) from running across doorways

**7. This sign is out the front of a work site, before entering the site, I would need to:**

a) wear foot protection

b) wear eye protection

c) wear hearing protection

d) wear sun protection


**8. Electricity is particularly hazardous because:**

a) it is expensive to run and maintain

b) electrical currents are invisible, with no smell or sound

c) it has a mind of its own

d) it has a high resistance to human skin

**9. The most common procedure used to control risks associated with hazards is known as the:**

a) hierarchy of risk control

b) safety guide of NSW

c) checklist of common hazards

d) Workcover hazard identification list

**10. A risk assessment is best described as:**

a) poor housekeeping

b) the elimination of hazards

c) the substitution of hazards

d) what could happen if someone is exposed to a hazard

**11. The risk management process involves 4 clear steps. These are:**

a) identify the hazards, assess the risks, control the risks and review

b) elimination, substitution, isolation and review

c) engineering controls, administrative controls, PPE and elimination

d) inspecting, testing, certifying and checking

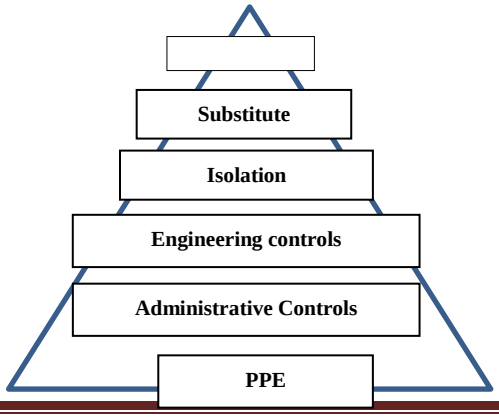
**12. In the Hierarchy of control what measure is missing from this diagram?**

a) Protective clothing

b) Risk

c) Elimination

d) Ventilation



**13. This sign is out the front of a work site, before entering the site, I would need to:**


a) wear foot protection (steel capped boots)

b) wear eye protection (safety glasses)

c) wear hearing protection (earmuffs)

d) wear sun protection (slip on a shirt, slop on some sunscreen and slap on a hat)

**14. The saying the NSW Fire brigade uses the term, "Remain calm – and remember:**

a) to run

b) RACE

c) your phone

d) FACE

**15. The most appropriate type of fire extinguisher listed below for use in the event of an electrical fire is:**

a) water

b) foam

c) wet chemical

d) dry powder

**16. The height from the ground a fire extinguisher can be mounted is:**

a) 1200mm minimum

b) 1200mm maximum

c) 100mm minimum

d) 100mm maximum

**17. In the event of a fire, always keep your escape route:**

a) at your back

b) open

c) at arms length

d) in front of you

**18. If a person commits a Work Health and Safety Act 2011 Category 1 offence, what is the maximum imprisonment time?**

a) 1 year

b) 3 years

c) 5 years

d) 7 years

**19. Using the hierarchy of risk control, <u>isolation</u> would be best described as:**

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The Northern Sydney Institute (part of TAFE NSW)

# UEENEEE102A

## Fabricate, Assemble and Dismantle Utilities Compondents

# Final Tutorial

**SECTION A**

1) When using a stock and die to produce a thread, a second cut is often made with the die nut flipped 180°. This is done to:

   a) ensure that the thread depth is the same over the entire length
   b) allow the cut to be made in two passes to prevent overheating
   c) reduce the pressure applied to the cutting teeth
   d) break off the material forming in the flutes of the die

2) "Manual metal arc", "MIG" and "TIG" are:

   a) brazing methods
   b) chemical adhesives
   c) soldering methods
   d) welding methods

3) Flux used when soldering electrical conductors must:

   a) be non-corrosive
   b) contain acid
   c) have low alkalinity
   d) include a binding agent

4) When marking out sheetmetal, the **datum edge method** is used because:

a) it saves time, and therefore money
b) it is the safest method when using sheetmetal
c) it gives a greater degree of accuracy
d) it allows one edge of the work to be marked

5) The edges of sheetmetal are often folded at 90° to:

a) make the sheet more rigid
b) minimise wastage
c) indicate a datum edge
d) create a safe edge

6) In an **isometric** sketch, at what angle to the horizontal are receding lines drawn?

a) 15°
b) 30°
c) 45°
d) 60°

7) When a pop-rivet mandrel doesn't break with the first squeeze of the handles:

a) the rivet is defective and should be removed by drilling
b) the mandrel should be removed using a pair of pliers
c) open the handles, slide the nose down the mandrel and squeeze again
d) the material can no longer be fastened correctly

8) The term used to describe a hole that a screw will fit through without binding is called a:

a) countersink hole
b) threading hole

c) tapping hole

d) clearance hole

9) Screwdrivers used for electrical maintenance work must have:

a) captive screw facilities

b) a red handle

c) a parallel tip

d) an insulated shank

10) Hand taps are usually provided in sets of three to allow:

a) cutting of different pitch threads

b) threading of different materials

c) progressive tapping of blind holes

d) spare taps in case of breakage

11) As a spanner's size increases, so does it's length. This is to:

a) apply greater turning effort to larger sized nuts and bolts

b) reduce the chances of breaking the bolt being tightened

c) allow the operator more room to move

d) increase the distance the hand must travel in case of slippage

12) The **datum edge method** of marking out requires all measurements to be taken:

a) from a single point

b) from a common edge

c) using a standard tolerance

d) using a datum rule

13) When joining sheetmetal by pop-riveting, it's important to match the rivet material with the type of metal to be joined to minimise the risk of:

a) material damage
b) the rivet being only half set
c) leakage through the joint
d) corrosion occurring

14) **Deburring** of sheetmetal can be performed using a:

a) file
b) centre punch
c) hacksaw
d) cold chisel

15) If a piece of sheetmetal has been **galvanised**, this means that:

a) it has a prepared surface for marking out
b) it has been given a corrosion resistant coating
c) the material has been designed for spot welding
d) it has a surface that can be readily painted

16) Identify the tool shown in Figure 1:

*Figure 1*

a) club hammer
b) ball pein hammer
c) mash hammer
d) soft face hammer

17) To scribe an arc on a metal surface, the most appropriate tool would be:

a) dividers
b) jenny calipers
c) a scriber

d) a surface gauge

18) Which of the following materials provides the highest degree of protection against corrosion while also providing good mechanical strength?

a) Stainless steel
b) Aluminium
c) Zincalume
d) Colourbond steel

19) Identify the tool shown in Figure 2:

a) cable cutters
b) combination pliers
c) side cutters
d) tin snips


*Figure 2*

20) Identify the item shown in Figure 3:

a) internal circlip
b) external circlip
c) wave washer
d) spring washer

*Figure 3*

21) The process of **silver soldering** requires a high temperature. This is usually achieved using:

a) an induction furnace
b) a high powered soldering iron
c) an oxy-acetylene set
d) liquid petroleum gas

22) Prior to dismantling an electric motor, the end shields should be marked to indicate their original position to allow for correct re-assembly. These marks are called:

a) indicator marks

b) punch marks

c) reassembly marks

d) witness marks

23) The most appropriate drill bit for drilling a 20mm hole through a piece of timber would be a:

a) spade bit

b) high speed twist drill

c) tungsten tip drill bit

d) jobber drill bit

24) Identify the screw head type shown in Figure 4:

a) allen head

b) cheese head

c) countersunk head

d) cup head

*Figure 4*

25) Identify the item shown in Figure 5:

a) split pin

b) roll pin (or spring pin)

c) tapered key

d) drift rod

*Figure 5*

26) The following photo shows the belt and spindle arrangement used for speed adjustment on a bench drilling machine…


How would you **increase** the speed of the drilling machine?

a) Move the belt up at both ends

b) Move the belt down at both ends

c) Move the belt up at the motor end only

d) Move the belt down at the motor end only

27) Identify the power tool shown in Figure 6:

a) battery driver drill

b) pistol grip drill

c) impact drill

d) rotary hammer drill


*Figure 6*

28) Identify the tool shown in Figure 7:

a) vice grips
b) multigrips
c) combination pliers
d) shifting spanner


*Figure 7*

29) Identify the power tool shown in Figure 8:

a) angle grinder
b) circular saw
c) jig saw
d) wall chaser

*Figure 8*

30) Identify the item shown in Figure 10:

a) flat washer
b) spring washer
c) star washer
d) tabbed washer

*Figure 10*

31) Identify the tool shown in Figure 11:

a) dividers
b) inside calipers
c) jenny calipers
d) outside calipers

*Figure 11*

32) Identify the tool shown in Figure 12:

a) external circlip pliers
b) flat nose pliers
c) internal circlip pliers
d) long nose pliers

*Figure 12*

33) Identify the tool shown in Figure 14:

a) combination pliers
b) gas pliers
c) multigrips
d) vice grips

*Figure 14*

34) Flux is used when soft soldering to:

a) improves the conductivity of the joint
b) remove oxides from the metal surfaces being joined
c) act as a binding agent to strengthen the joint
d) help the solder to melt when heated

35) If a twist drill is sharpened **without** lip clearance, the drill bit will:

a) cut too quickly
b) drill over-sized holes

c) overheat rapidly

d) drill under-sized holes

36) Pilot holes are normally drilled:

a) when working with brittle material

b) in every type of drilling operation

c) by hand only

d) before drilling large holes

37) With regard to soft soldering, the process of **tinning** usually refers to:

a) coating the soldering iron with solder prior to joining

b) twisting conductors together before soldering

c) the use of non-corrosive flux when soldering

d) the application of solder to individual parts before joining

38) When soldering using resin core solder, care should be taken to avoid:

a) resin coming into contact with the skin

b) touching the solder with bare hands

c) inhaling fumes produced during soldering

d) applying excessive heat to the solder

39) When tapping or threading, the cutting tool should be backed off a quarter of a turn at regular intervals to:

a) break-off material chips forming in the flutes

b) prevent the cutting tool from overheating

c) relieve pressure on the cutting teeth of the tool

d) allow the cutting compound to penetrate effectively

40) Establishing a **job procedure** before starting a job:

a) ensures that difficult work can be sub-contracted to other companies

b) allows you to check if equipment will be available for use when you need it

c) helps employers to keep track of their employee's exact location

d) will ensure that material will always be delivered to the job at exactly the right time

41) A diagram commonly used to show how a piece of equipment is assembled is called:

a) a composite view

b) an exploded view

c) an isometric view

d) an oblique view

42) Identify the tool shown in Figure 15:

a) centre punch

b) drift punch

c) dolly punch

d) impact driver

*Figure 15*

43) Identify the tool shown in Figure 17:

a) cable cutters
b) vice grips
c) side cutters
d) tin snips

*Figure 17*

44) Identify the tool shown in Figure 18:

a) ball pein hammer
b) club hammer
c) mash hammer
d) soft face hammer

*Figure 18*

45) The part of a twist drill that does the cutting is called the:

a) lip
b) flank
c) land
d) flute

46) The depth gauge on a Bench Drilling Machine is typically used when drilling:

a) deep holes
b) large holes
c) blind holes
d) through holes

47) Identify the tool shown in Figure 20:

a) bearing puller
b) combination set
c) multigrips
d) outside calipers

*Figure 20*

48) Identify the tool shown in Figure 21:

a) combination spanner
b) open ended spanner
c) ring spanner
d) shifting spanner

*Figure 21*

49) Identify the tool shown in Figure 22:

a) pipe threader
b) stock and die
c) tap wrench
d) thread gauge

*Figure 22*

50) Identify the tool shown in Figure 23:

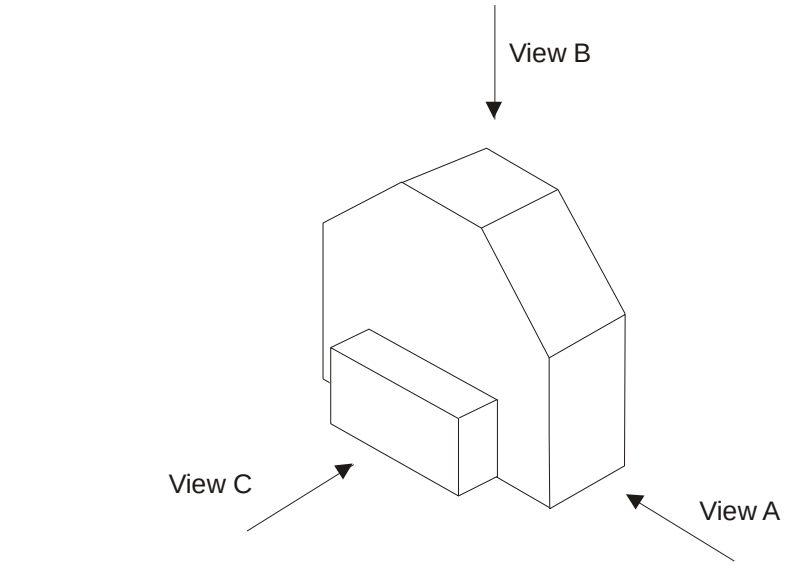
a) feeler gauge
b) spark gap gauge
c) surface gauge
d) thread gauge


*Figure 23*

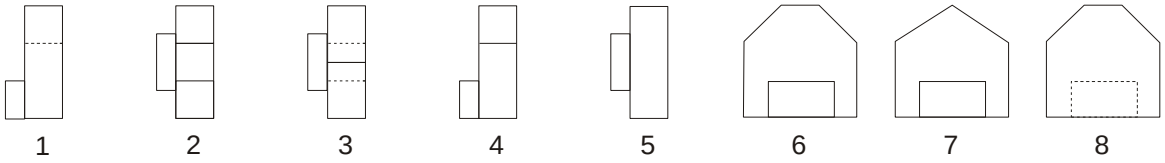
**SECTIONB** **25 marks**

Blank spaces in the following statements represent missing words, phrases or quantities. Write the appropriate word, phrase or quantity in the spaces provided on the answer sheet.

1. Select the correct views of the following object from the drawing shown below and write the drawing number for each view in the table provided.




| *View* | *Drawing No.* |
|---|---|
| **A** | **4** |
| **B** | **2** |
| **C** | **6** |




/3

2. Before doing any practical work, it's important to spend time planning. From the options listed below, select those that may result from not planning. ? *(Select **ALL** that apply. If you make a wrong selection you will score **zero** for this question*)

- ☑ **Work being done wrongly**
- ☑ **Lost work time**
- ☑ **Wasted materials**
- ☑ **Equipment not being available**
- ☑ **Injuries to workers**

/3

3. List two important considerations when fitting a blade to a **hacksaw**.

(i) The teeth need to point in the forward direction

(ii) The blade should be tightened sufficiently to prevent the cut from wandering

Also, correct selection of blade TPI

/2

4. What is the main difference between a **hand** file and a **flat** file?

A hand file has a safe edge (also, a flat file tapers towards the end)

/1

5. List three things you would be able to tell about a thread that was specified as M8 x 1.25.

(i) Metric thread

(ii) Thread size = 8mm

(iii) Thread pitch = 1.25mm /3

6. Where there is no tapping chart available, what size tapping hole would you need to drill for an **M10 x 1.5** thread?

Tapping hole size = **8.5mm** (10 – 1.5)

/1

7. Which of the following precautions apply when using chemical adhesives? *(Select **ALL** that apply. If you make a wrong selection you will score **zero** for this question*)

- ☐ **Smell the product before use**
- ☑ **Apply in a ventilated area if possible**
- ☑ **Wear appropriate PPE**
- ☑ **Read the product label for Safety Directions**

/1

8. List at least three (3) things to be checked before using a portable electric power tool.

(i) No cracks in case

(ii) No damage to power lead

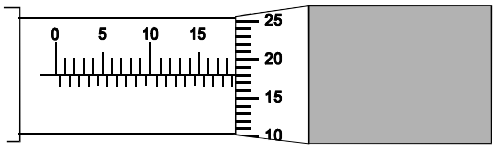
(iii) Tool is in test (current test tag fitted)

Also – power source is RCD protected

– suitable PPE – adequate training – control of hazards around work area /3

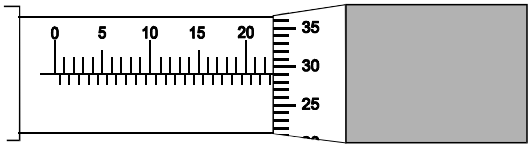
/1

9. Determine the following micrometer reading...



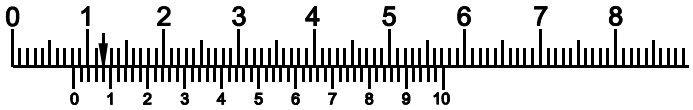

Reading= (18.5 + 0.18) = **18.68 mm** /1

10. Determine the following micrometer reading...



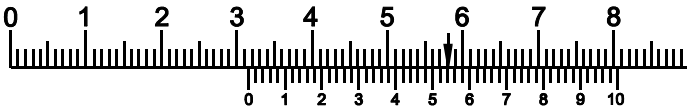

Reading = (22.5 + 0.29) = **22.79 mm** /1

11. Determine the following vernier caliper reading...




Reading= **8.08 mm** ..... /1

12. Determine the following vernier caliper reading...




Reading = **31.54 mm** ..... /1

13. A piece of electrical equipment is to be manufactured from a set of engineering drawings. Listed below are a number of dimensions taken from the drawings. For each dimension, determine the maximum and minimum allowable dimensions on the finished product based on the allowable tolerances given.

| Dimension | Tolerance | Maximum dimension | Minimum dimension |
|---|---|---|---|
| 300 mm | ± 1mm | 301 mm | 299 mm |
| 160 mm | ± 0.5mm | 160.5 mm | 159.5 mm |
| 20 mm | + 0mm – 2mm | 20 mm | 18.0 mm |

1 mark per line if both max and min are correct /3

14. Select a suitable portable electric power tool for the following tasks…

*Installing screws into softwood* — battery driver drill

*Drilling a 13mm hole into hardwood* — power drill with 13mm chuck

*Cutting a square hole in a panel to fit a meter* — jig saw

/3

15. List three (3) safety precautions that need to be taken when soft soldering…

(i) Check that the soldering iron or gas torch is in good condition

(ii) Ensure adequate ventilation

(iii) Wear safety glasses

Also – power source for a soldering iron is RCD protected

– control of hazards around work area

– ensure that the job is not touched while cooling after soldering

/3

# UEENEEE102A

## Fabricate, assemble and dismantle utilities industry components

# THEORY Test 1

**Do not mark this sheet**

| Section | Marks |
|---|---|
| A | /50 |
| B | /30 |
| TOTAL | /80 |

**Equipment to be supplied by Student :**

1. Pens/pencil
2. Ruler
3. Rubber
4. Non-programmable Calculator

**Please note the following:**

- All Answers must be placed on the answer sheet provided
- Maximum permitted time for exam is = **90 minutes**
- Read all instructions carefully
- Follow all OH&S procedures
- Mobile phones are not to be used and must be turned off during the exam
- The calculator function of a mobile phone is NOT permitted

**Use the answer sheet provided**

## SECTION A — 50 MARKS

For each question in part A, identify the response you consider best answers the question by placing its identifying letter in the space provided on the **separate answer sheet**.

**1 MARK awarded for each correct answer.**

1) When using a stock and die to produce a thread, a second cut is often made with the die nut flipped 180°. This is done to:

   a) ensure that the thread depth is the same over the entire length
   b) allow the cut to be made in two passes to prevent over-heating
   c) reduce the pressure applied to the cutting teeth
   d) break off the material forming in the flutes of the die

2) "Manual metal arc", "MIG" and "TIG" are:

   a) brazing methods
   b) chemical adhesives
   c) soldering methods
   d) welding methods

3) Flux used when soldering electrical conductors must:

   a) be non-corrosive
   b) contain acid
   c) have low alkalinity
   d) include a binding agent

4) When marking out sheetmetal, the **datum edge method** is used because:

   a) it saves time, and therefore money
   b) it is the safest method when using sheetmetal
   c) it gives a greater degree of accuracy
   d) it allows one edge of the work to be marked

5) The edges of sheetmetal are often folded at 90° to:

a) make the sheet more rigid
b) minimise wastage
c) indicate a datum edge
d) create a safe edge

6) In an **isometric** sketch, at what angle to the horizontal are receding lines drawn?

a) 15°
b) 30°
c) 45°
d) 60°

7) When a pop-rivet mandrel doesn't break with the first squeeze of the handles:

a) the rivet is defective and should be removed by drilling
b) the mandrel should be removed using a pair of pliers
c) open the handles, slide the nose down the mandrel and squeeze again
d) the material can no longer be fastened correctly

8) The term used to describe a hole that a screw will fit through without binding is called a:

a) countersink hole
b) threading hole
c) tapping hole
d) clearance hole

9) Screwdrivers used for electrical maintenance work must have:

a) captive screw facilities
b) a red handle
c) a parallel tip
d) an insulated shank

10) Hand taps are usually provided in sets of three to allow:

a) cutting of different pitch threads
b) threading of different materials
c) progressive tapping of blind holes
d) spare taps in case of breakage

11) As a spanner's size increases, so does it's length. This is to:

a) apply greater turning effort to larger sized nuts and bolts
b) reduce the chances of breaking the bolt being tightened
c) allow the operator more room to move
d) increase the distance the hand must travel in case of slippage

12) The **datum edge method** of marking out requires all measurements to be taken:

a) from a single point
b) from a common edge
c) using a standard tolerance
d) using a datum rule

13) When joining sheet-metal by pop-riveting, it's important to match the rivet material with the type of metal to be joined to minimise the risk of:

a) material damage
b) the rivet being only half set
c) leakage through the joint
d) corrosion occurring

14) **Deburring** of sheet-metal can be performed using a:

a) file
b) centre punch
c) hacksaw
d) cold chisel

15) If a piece of sheetmetal has been **galvanised**, this means that:

a) it has a prepared surface for marking out
b) it has been given a corrosion resistant coating
c) the material has been designed for spot welding
d) it has a surface that can be readily painted

16) Identify the tool shown in Figure 1:

a) club hammer
b) ball pein hammer
c) mash hammer
d) soft face hammer

*Figure 1*

17) To scribe an arc on a metal surface, the most appropriate tool would be:

a) dividers
b) jenny calipers
c) a scriber
d) a surface gauge

18) Which of the following materials provides the highest degree of protection against corrosion while also providing good mechanical strength?

a) Stainless steel
b) Aluminium
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19) Identify the tool shown in Figure 2:

a) cable cutters
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c) side cutters
d) tin snips


*Figure 2*

20) Identify the item shown in Figure 3:

a) internal circlip
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21) The process of **silver soldering** requires a high temperature. This is usually achieved using:

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22) Prior to dismantling an electric motor, the end shields should be marked to indicate their original position to allow for correct re-assembly. These marks are called:

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25) Identify the item shown in Figure 5:

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c) tapered key
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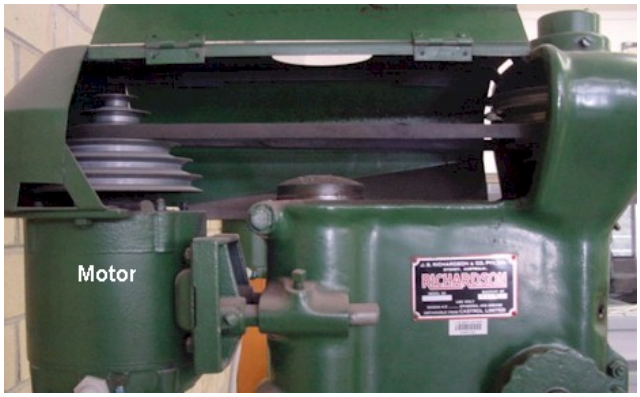
26) The following photo shows the belt and spindle arrangement used for speed adjustment on a bench drilling machine…




How would you **increase** the speed of the drilling machine?

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a) battery driver drill
b) pistol grip drill
c) impact drill
d) rotary hammer drill

*Figure 6*

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a) vice grips
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45) The part of a twist drill that does the cutting is called the:

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d) shifting spanner

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49) Identify the tool shown in Figure 22:

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b) stock and die
c) tap wrench
d) thread gauge

*Figure 22*

50) Identify the tool shown in Figure 23:

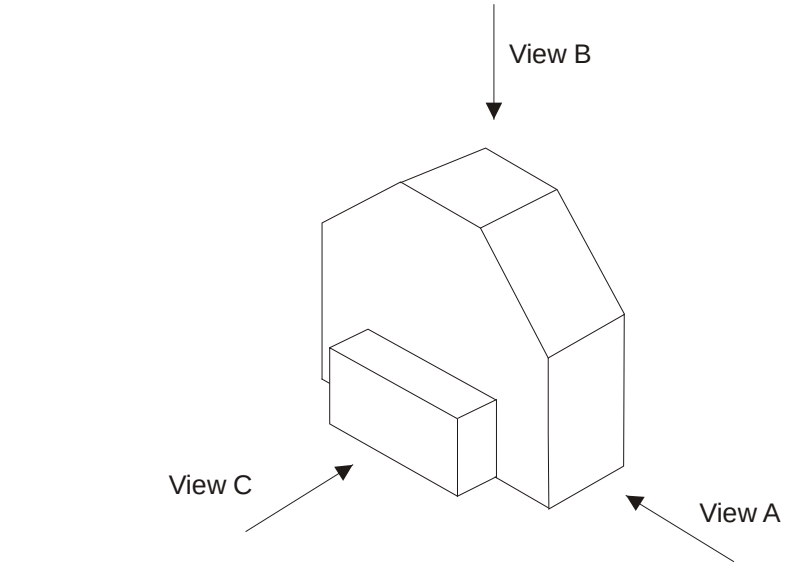
a) feeler gauge
b) spark gap gauge
c) surface gauge
d) thread gauge

*Figure 23*

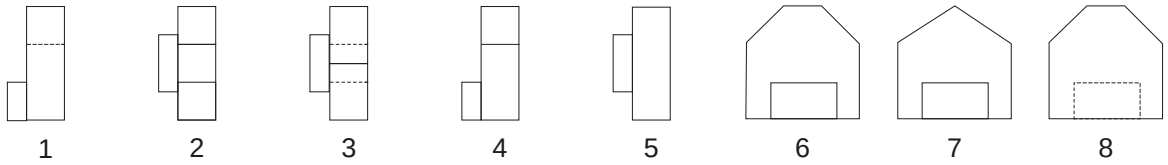
**SECTION B** **30 marks**

Blank spaces in the following statements represent missing words, phrases or quantities. Write the appropriate word, phrase or quantity in the spaces provided on the answer sheet.

1. Select the correct views of the following object from the drawing shown below and write the drawing number for each view in the table provided.




| *View* | *Drawing No.* |
|---|---|
| **A** | |
| **B** | |
| **C** | |




/3

2. Before doing any practical work, it's important to spend time planning. From the options listed below, select those that may result from not planning. ? *(Select **ALL** that apply. If you make a wrong selection you will score **zero** for this question*)

- ☐ **Work being done wrongly**
- ☐ **Lost work time**
- ☐ **Wasted materials**
- ☐ **Equipment not being available**
- ☐ **Injuries to workers**

/3

3. List two important considerations when fitting a blade to a **hacksaw**.

(i)
.....

.....

(ii)
.....

.....

.....
/2

4. What is the main difference between a **hand** file and a **flat** file?

.....

.....

.....
/1

5. List three things you would be able to tell about a thread that was specified as M8 x 1.25.

(i)
.....

(ii)
.....

(iii)
.....
/3

6. Where there is no tapping chart available, what size tapping hole would you need to drill for an **M10 x 1.5** thread?

Tapping hole size..... /1

7. Which of the following precautions apply when using chemical adhesives? *(Select **ALL** that apply. If you make a wrong selection you will score **zero** for this question*)

- ☐ **Smell the product before use**
- ☐ **Apply in a ventilated area if possible**
- ☐ **Wear appropriate PPE**
- ☐ **Read the product label for Safety Directions**

/1

8. List at least three (3) things to be checked before using a portable electric power tool.

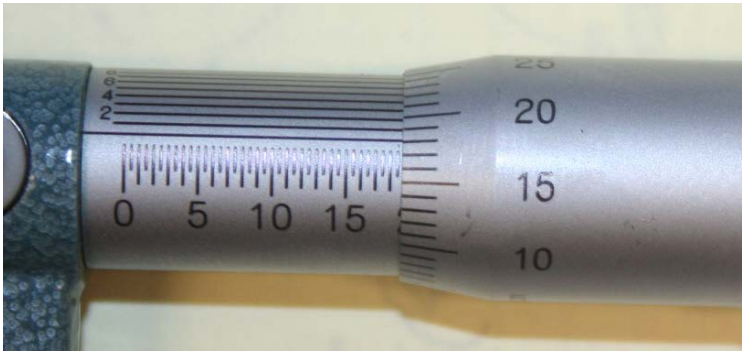
(i)
.....
.....

(ii)
.....
.....

(iii)
.....
.....
.....

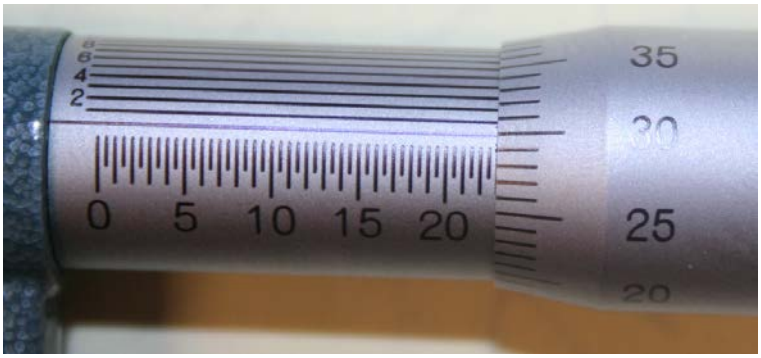
/3

9. Determine the following micrometer reading...



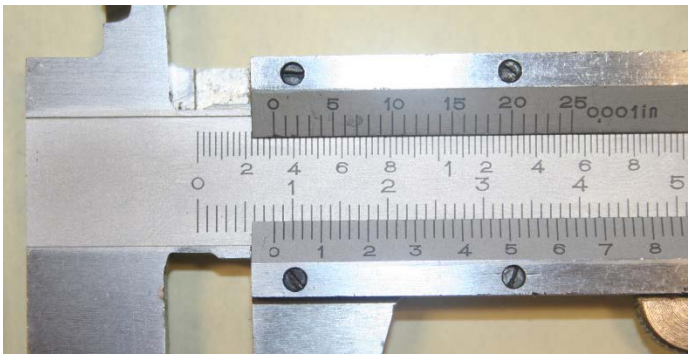

Reading .....
...../1

10. Determine the following micrometer reading...



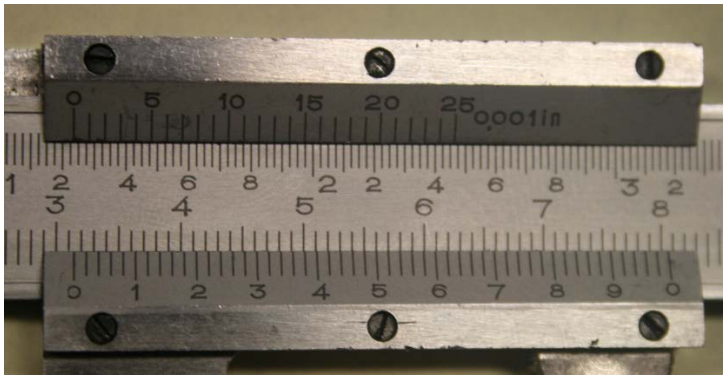

Reading.....
...../1

11. Determine the following vernier caliper reading...




Reading.....
...../1

12. Determine the following vernier caliper reading...




Reading.....
...../1

13. A piece of electrical equipment is to be manufactured from a set of engineering drawings. Listed below are a number of dimensions taken from the drawings. For each dimension, determine the maximum and minimum allowable dimensions on the finished product based on the allowable tolerances given.

| Dimension | Tolerance | Maximum dimension | Minimum dimension |
|---|---|---|---|
| 300 mm | ± 1mm | | |
| 160 mm | ± 0.5mm | | |
| 20 mm | + 0mm – 2mm | | |

/3

14. Select a suitable portable electric power tool for the following tasks…

*Installing screws into softwood*

.....

*Drilling a 13mm hole into hardwood*

.....

*Cutting a square hole in a panel to fit a meter*

.....

/3

15. List three (3) safety precautions that need to be taken when soft soldering…

(i)

.....

.....

(ii)

.....

.....

(iii)

.....

.....

.....

/3

***************** END OF EXAMINATION*****************

ELECTRICAL TRADES - ULTIMO

# UEENEEE102A Fabricate, Assemble and Dismantle Utilities Compondents Theory Exam Answer sheet

Name: _____Class:_____ Date:

## 1. SECTION A

| | | | | |
|---|---|---|---|---|
| 1 | **A** | **B** | **C** | **D** |
| 2 | **A** | **B** | **C** | **D** |
| 3 | **A** | **B** | **C** | **D** |
| 4 | **A** | **B** | **C** | **D** |
| 5 | **A** | **B** | **C** | **D** |
| 6 | **A** | **B** | **C** | **D** |
| 7 | **A** | **B** | **C** | **D** |
| 8 | **A** | **B** | **C** | **D** |
| 9 | **A** | **B** | **C** | **D** |
| 10 | **A** | **B** | **C** | **D** |
| 11 | **A** | **B** | **C** | **D** |
| 12 | **A** | **B** | **C** | **D** |
| 13 | **A** | **B** | **C** | **D** |
| 14 | **A** | **B** | **C** | **D** |
| 15 | **A** | **B** | **C** | **D** |
| 16 | **A** | **B** | **C** | **D** |
| 17 | **A** | **B** | **C** | **D** |
| 18 | **A** | **B** | **C** | **D** |
| 19 | **A** | **B** | **C** | **D** |
| 20 | **A** | **B** | **C** | **D** |

| | | | | |
|---|---|---|---|---|
| 21 | **A** | **B** | **C** | **D** |
| 22 | **A** | **B** | **C** | **D** |
| 23 | **A** | **B** | **C** | **D** |
| 24 | **A** | **B** | **C** | **D** |
| 25 | **A** | **B** | **C** | **D** |
| 26 | **A** | **B** | **C** | **D** |
| 27 | **A** | **B** | **C** | **D** |
| 28 | **A** | **B** | **C** | **D** |
| 29 | **A** | **B** | **C** | **D** |
| 30 | **A** | **B** | **C** | **D** |
| 31 | **A** | **B** | **C** | **D** |
| 32 | **A** | **B** | **C** | **D** |
| 33 | **A** | **B** | **C** | **D** |
| 34 | **A** | **B** | **C** | **D** |
| 35 | **A** | **B** | **C** | **D** |
| 36 | **A** | **B** | **C** | **D** |
| 37 | **A** | **B** | **C** | **D** |
| 38 | **A** | **B** | **C** | **D** |
| 39 | **A** | **B** | **C** | **D** |
| 40 | **A** | **B** | **C** | **D** |

| | | | | |
|---|---|---|---|---|
| 41 | **A** | **B** | **C** | **D** |
| 42 | **A** | **B** | **C** | **D** |
| 43 | **A** | **B** | **C** | **D** |
| 44 | **A** | **B** | **C** | **D** |
| 45 | **A** | **B** | **C** | **D** |
| 46 | **A** | **B** | **C** | **D** |
| 47 | **A** | **B** | **C** | **D** |
| 48 | **A** | **B** | **C** | **D** |
| 49 | **A** | **B** | **C** | **D** |
| 50 | **A** | **B** | **C** | **D** |

## SECTION B

1.

| *View* | *Drawing No.* |
|---|---|
| **A** | |
| **B** | |
| **C** | |

/3

2.

- ☐ Work being done wrongly
- ☐ Lost work time
- ☐ Wasted materials
- ☐ Equipment not being available
- ☐ Injuries to workers

/3

3.

(i)

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(ii)

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/2

4.

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/1

5. .

(i)

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(ii)

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(iii)

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……

/3

6.

Tapping hole size..... /1

7.

- ☐ Smell the product before use
- ☐ Apply in a ventilated area if possible
- ☐ Wear appropriate PPE
- ☐ Read the product label for Safety Directions

/1

8.

(i)

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(ii)

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(iii)

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.....

/3

9. Reading…… /1

10. Reading..... /1

11. Reading.....
......./1

12. Reading.....
......./1

13.

| Dimension | Tolerance | Maximum dimension | Minimum dimension |
|---|---|---|---|
| 300 mm | ± 1mm | | |
| 160 mm | ± 0.5mm | | |
| 20 mm | + 0mm – 2mm | | |

/3

14. *A)*

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*B)*

.....

*C)*

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/3

15.

(i)

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(ii)

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(iii)

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/3

# UEENEEE102A

## Fabricate, Assemble and Dismantle Utilities Compondents

# THEORY EXAM

**Do not mark this paper !**

| Section | Marks |
|---|---|
| A | /50 |
| B | /30 |
| TOTAL | /80 |
| WEIGHTED | 50% |

**Equipment to be supplied by Student :**

1. Pens/pencil
2. Ruler
3. Rubber
4. Non-programmable Calculator

**Please note the following:**

- All Answers must be placed on the answer sheet provided
- Maximum permitted time for exam is = **90 minutes**
- Read all instructions carefully
- Follow all OH&S procedures
- Mobile phones are not to be used and must be turned off during the exam
- The calculator function of a mobile phone is NOT permitted
- This exam forms **30 %** of the overall assessment for this module

**Use the answer sheet provided**

## SECTION A 50 MARKS

For each question in part A, identify the response you consider best answers the question by placing its identifying letter in the space provided on the **separate answer sheet**.

**1 MARK awarded for each correct answer.**

1) When using a stock and die to produce a thread, a second cut is often made with the die nut flipped 180°. This is done to:

a) ensure that the thread depth is the same over the entire length
b) allow the cut to be made in two passes to prevent overheating
c) reduce the pressure applied to the cutting teeth
d) break off the material forming in the flutes of the die

2) "Manual metal arc", "MIG" and "TIG" are:

a) brazing methods
b) chemical adhesives
c) soldering methods
d) welding methods

3) Flux used when soldering electrical conductors must:

a) be non-corrosive
b) contain acid
c) have low alkalinity
d) include a binding agent

4) When marking out sheetmetal, the **datum edge method** is used because:

a) it saves time, and therefore money
b) it is the safest method when using sheetmetal
c) it gives a greater degree of accuracy
d) it allows one edge of the work to be marked

5) The edges of sheetmetal are often folded at 90° to:

a) make the sheet more rigid
b) minimise wastage
c) indicate a datum edge
d) create a safe edge

6) In an **isometric** sketch, at what angle to the horizontal are receding lines drawn?

a) 15°
b) 30°
c) 45°
d) 60°

7) When a pop-rivet mandrel doesn't break with the first squeeze of the handles:

a) the rivet is defective and should be removed by drilling
b) the mandrel should be removed using a pair of pliers
c) open the handles, slide the nose down the mandrel and squeeze again
d) the material can no longer be fastened correctly

8) The term used to describe a hole that a screw will fit through without binding is called a:

a) countersink hole
b) threading hole
c) tapping hole
d) clearance hole

9) Screwdrivers used for electrical maintenance work must have:

a) captive screw facilities
b) a red handle

c) a parallel tip

d) an insulated shank

10) Hand taps are usually provided in sets of three to allow:

a) cutting of different pitch threads

b) threading of different materials

c) progressive tapping of blind holes

d) spare taps in case of breakage

11) As a spanner's size increases, so does it's length. This is to:

a) apply greater turning effort to larger sized nuts and bolts

b) reduce the chances of breaking the bolt being tightened

c) allow the operator more room to move

d) increase the distance the hand must travel in case of slippage

12) The **datum edge method** of marking out requires all measurements to be taken:

a) from a single point

b) from a common edge

c) using a standard tolerance

d) using a datum rule

13) When joining sheetmetal by pop-riveting, it's important to match the rivet material with the type of metal to be joined to minimise the risk of:

a) material damage

b) the rivet being only half set

c) leakage through the joint

d) corrosion occurring

14) **Deburring** of sheetmetal can be performed using a:

a) file
b) centre punch
c) hacksaw
d) cold chisel

15) If a piece of sheetmetal has been **galvanised**, this means that:

a) it has a prepared surface for marking out
b) it has been given a corrosion resistant coating
c) the material has been designed for spot welding
d) it has a surface that can be readily painted

16) Identify the tool shown in Figure 1:

a) club hammer
b) ball pein hammer
c) mash hammer
d) soft face hammer

*Figure 1*

17) To scribe an arc on a metal surface, the most appropriate tool would be:

a) dividers
b) jenny calipers
c) a scriber
d) a surface gauge

18) Which of the following materials provides the highest degree of protection against corrosion while also providing good mechanical strength?

a) Stainless steel
b) Aluminium
c) Zincalume

d) Colourbond steel

19) Identify the tool shown in Figure 2:

a) cable cutters
b) combination pliers
c) side cutters
d) tin snips


*Figure 2*

20) Identify the item shown in Figure 3:

a) internal circlip
b) external circlip
c) wave washer
d) spring washer

*Figure 3*

21) The process of **silver soldering** requires a high temperature. This is usually achieved using:

a) an induction furnace
b) a high powered soldering iron
c) an oxy-acetylene set
d) liquid petroleum gas

22) Prior to dismantling an electric motor, the end shields should be marked to indicate their original position to allow for correct re-assembly. These marks are called:

a) indicator marks
b) punch marks
c) reassembly marks
d) witness marks

23) The most appropriate drill bit for drilling a 20mm hole through a piece of timber would be a:

a) spade bit
b) high speed twist drill
c) tungsten tip drill bit
d) jobber drill bit

24) Identify the screw head type shown in Figure 4:

*Figure 4*

a) allen head
b) cheese head
c) countersunk head
d) cup head

25) Identify the item shown in Figure 5:

*Figure 5*

a) split pin
b) roll pin (or spring pin)
c) tapered key
d) drift rod

26) The following photo shows the belt and spindle arrangement used for speed adjustment on a bench drilling machine…


How would you **increase** the speed of the drilling machine?

a) Move the belt up at both ends

b) Move the belt down at both ends

c) Move the belt up at the motor end only

d) Move the belt down at the motor end only

27) Identify the power tool shown in Figure 6:

a) battery driver drill

b) pistol grip drill

c) impact drill

d) rotary hammer drill

*Figure 6*

28) Identify the tool shown in Figure 7:

a) vice grips
b) multigrips
c) combination pliers
d) shifting spanner


*Figure 7*

29) Identify the power tool shown in Figure 8:

a) angle grinder
b) circular saw
c) jig saw
d) wall chaser

*Figure 8*

30) Identify the item shown in Figure 10:

a) flat washer
b) spring washer
c) star washer
d) tabbed washer

*Figure 10*

31) Identify the tool shown in Figure 11:

a) dividers
b) inside calipers
c) jenny calipers
d) outside calipers

*Figure 11*

32) Identify the tool shown in Figure 12:

a) external circlip pliers
b) flat nose pliers
c) internal circlip pliers
d) long nose pliers

*Figure 12*

33) Identify the tool shown in Figure 14:

a) combination pliers
b) gas pliers
c) multigrips
d) vice grips

*Figure 14*

34) Flux is used when soft soldering to:

a) improves the conductivity of the joint
b) remove oxides from the metal surfaces being joined
c) act as a binding agent to strengthen the joint
d) help the solder to melt when heated

35) If a twist drill is sharpened **without** lip clearance, the drill bit will:

a) cut too quickly
b) drill over-sized holes

c) overheat rapidly

d) drill under-sized holes

36) Pilot holes are normally drilled:

a) when working with brittle material

b) in every type of drilling operation

c) by hand only

d) before drilling large holes

37) With regard to soft soldering, the process of **tinning** usually refers to:

a) coating the soldering iron with solder prior to joining

b) twisting conductors together before soldering

c) the use of non-corrosive flux when soldering

d) the application of solder to individual parts before joining

38) When soldering using resin core solder, care should be taken to avoid:

a) resin coming into contact with the skin

b) touching the solder with bare hands

c) inhaling fumes produced during soldering

d) applying excessive heat to the solder

39) When tapping or threading, the cutting tool should be backed off a quarter of a turn at regular intervals to:

a) break-off material chips forming in the flutes

b) prevent the cutting tool from overheating

c) relieve pressure on the cutting teeth of the tool

d) allow the cutting compound to penetrate effectively

40) Establishing a **job procedure** before starting a job:

a) ensures that difficult work can be sub-contracted to other companies

b) allows you to check if equipment will be available for use when you need it

c) helps employers to keep track of their employee's exact location

d) will ensure that material will always be delivered to the job at exactly the right time

41) A diagram commonly used to show how a piece of equipment is assembled is called:

a) a composite view

b) an exploded view

c) an isometric view

d) an oblique view

42) Identify the tool shown in Figure 15:

a) centre punch

b) drift punch

c) dolly punch

d) impact driver

*Figure 15*

43) Identify the tool shown in Figure 17:

a) cable cutters
b) vice grips
c) side cutters
d) tin snips

*Figure 17*

44) Identify the tool shown in Figure 18:

a) ball pein hammer
b) club hammer
c) mash hammer
d) soft face hammer

*Figure 18*

45) The part of a twist drill that does the cutting is called the:

a) lip
b) flank
c) land
d) flute

46) The depth gauge on a Bench Drilling Machine is typically used when drilling:

a) deep holes
b) large holes
c) blind holes
d) through holes

47) Identify the tool shown in Figure 20:

a) bearing puller
b) combination set
c) multigrips
d) outside calipers

*Figure 20*

48) Identify the tool shown in Figure 21:

a) combination spanner
b) open ended spanner
c) ring spanner
d) shifting spanner

*Figure 21*

49) Identify the tool shown in Figure 22:

a) pipe threader
b) stock and die
c) tap wrench
d) thread gauge

*Figure 22*

50) Identify the tool shown in Figure 23:

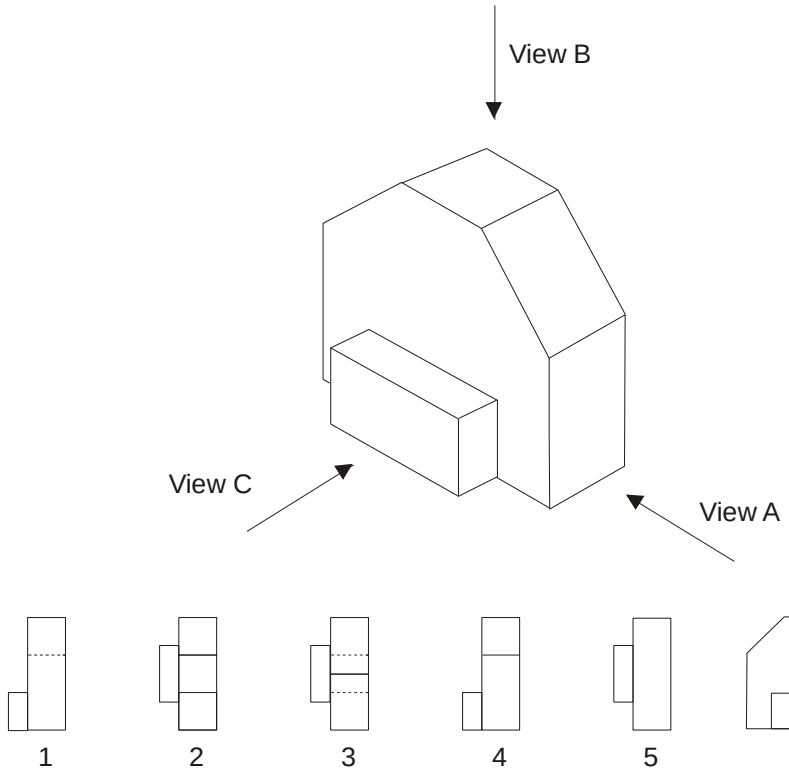
a) feeler gauge
b) spark gap gauge
c) surface gauge
d) thread gauge

*Figure 23*

**SECTIONB** **25 marks**

Blank spaces in the following statements represent missing words, phrases or quantities. Write the appropriate word, phrase or quantity in the spaces provided on the answer sheet.

1. Select the correct views of the following object from the drawing shown below and write the drawing number for each view in the table provided.




| *View* | *Drawing No.* |
|---|---|
| **A** | **4** |
| **B** | **2** |
| **C** | **6** |

/3

2. Before doing any practical work, it's important to spend time planning. From the options listed below, select those that may result from not planning. ? *(Select **ALL** that apply. If you make a wrong selection you will score **zero** for this question*)

- ☑ **Work being done wrongly**
- ☑ **Lost work time**
- ☑ **Wasted materials**
- ☑ **Equipment not being available**
- ☑ **Injuries to workers**

/3

3. List two important considerations when fitting a blade to a **hacksaw**.

   (i) The teeth need to point in the forward direction

   (ii) The blade should be tightened sufficiently to prevent the cut from wandering
   Also, correct selection of blade TPI

   /2

4. What is the main difference between a **hand** file and a **flat** file?

   A hand file has a safe edge (also, a flat file tapers towards the end)

   /1

5. List three things you would be able to tell about a thread that was specified as M8 x 1.25.

   (i) Metric thread

   (ii) Thread size = 8mm

   (iii) Thread pitch = 1.25mm /3

6. Where there is no tapping chart available, what size tapping hole would you need to drill for an **M10 x 1.5** thread?

   Tapping hole size = **8.5mm** (10 – 1.5)

   /1

7. Which of the following precautions apply when using chemical adhesives? *(Select **ALL** that apply. If you make a wrong selection you will score **zero** for this question)*

   - ☐ **Smell the product before use**
   - ☑ **Apply in a ventilated area if possible**
   - ☑ **Wear appropriate PPE**
   - ☑ **Read the product label for Safety Directions**

   /1

8. List at least three (3) things to be checked before using a portable electric power tool.

   (i) No cracks in case

   (ii) No damage to power lead

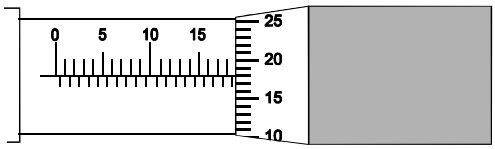
   (iii) Tool is in test (current test tag fitted)

   Also – power source is RCD protected

   – suitable PPE – adequate training – control of hazards around work area /3

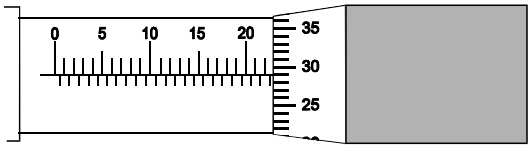
   /1

9. Determine the following micrometer reading...



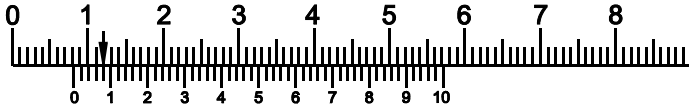

Reading= (18.5 + 0.18) = **18.68 mm** /1

10. Determine the following micrometer reading...



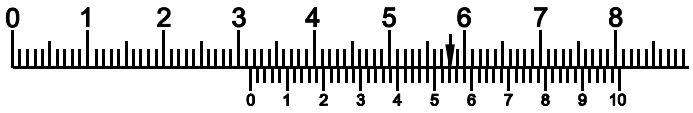

Reading = (22.5 + 0.29) = **22.79 mm** /1

11. Determine the following vernier caliper reading...




Reading= **8.08 mm** ..... /1

12. Determine the following vernier caliper reading...




Reading = **31.54 mm** ..... /1

13. A piece of electrical equipment is to be manufactured from a set of engineering drawings. Listed below are a number of dimensions taken from the drawings. For each dimension, determine the maximum and minimum allowable dimensions on the finished product based on the allowable tolerances given.

| Dimension | Tolerance | Maximum dimension | Minimum dimension |
|---|---|---|---|
| 300 mm | ± 1mm | 301 mm | 299 mm |
| 160 mm | ± 0.5mm | 160.5 mm | 159.5 mm |
| 20 mm | + 0mm – 2mm | 20 mm | 18.0 mm |

1 mark per line if both max and min are correct /3

14. Select a suitable portable electric power tool for the following tasks…

*Installing screws into softwood* battery driver drill

*Drilling a 13mm hole into hardwood* power drill with 13mm chuck

*Cutting a square hole in a panel to fit a meter* jig saw

/3

15. List three (3) safety precautions that need to be taken when soft soldering…

(i) Check that the soldering iron or gas torch is in good condition

(ii) Ensure adequate ventilation

(iii) Wear safety glasses

Also – power source for a soldering iron is RCD protected

– control of hazards around work area

– ensure that the job is not touched while cooling after soldering

/3

**********  END OF EXAMINATION**********

| | |
|---|---|
| **Name** | |
| **Class** | |
| **Date** | |

# UEENEEE105A Fix and Secure Equipment

## Final Assessment Event

## Time allowed – 1.5 hours Plus 5 minutes Reading Time

| Student Feedback/Comments | | Section | Possible Mark | Awarded Mark |
|---|---|---|---|---|
| The results of my performance have been discussed and explained to me. | | A | 10 | |
| Student & Date | | B | 20 | |
| If you would like to request a review of your results or if you have any concerns about your results, contact your teacher or head teacher | | C | 15 | |
| Teacher& Date | | Total | 45 | |

**Aids to be supplied by college**

- None

**Aids to be supplied by student**

- Calculator, pen, pencil, eraser, rule, drawing instruments

**Instructions to Student**

- **Mobile phones are to be turned off and removed from your person.** You cannot access a mobile phone during this Assessment.
- All questions to be answered in the space provided on this assessment
- You are not to use any other reference book in this examination
- The whole of this paper is to be handed to the Supervisor upon completion.
- All questions to be attempted

Verified by: ..... signed ..... Date: .....

## Section A (10 Marks)

INSTRUCTIONS: Select the best answer for the following statements.

Each question is worth 1 mark.

1. **Which nail is used to hold electrical equipment onto a concrete wall:**
   (A) masonry nail
   (B) clout
   (C) jolt head nail
   (D) galvanised clout.

2. **What is the difference between a Phillips head screw and a Pozidriv screw?**
   (A) there is a cross for the screwdriver to fit in
   (B) the thread on a Phillips is a long spiral
   (C) There is a double cross on the head of a Posidriv screw
   (D) there is no difference.

3. **Why is it important to match the screwdriver with a screw head of the same type and size?**
   (A) so that only that size of screwdriver is used
   (B) it is not important
   (C) so the screwdriver fits for size and type
   (D) so that only one type of screwdriver is used.

4. **How does an anchor hold into a brick wall?**
   (A) with glue
   (B) with a special screw
   (C) friction
   (D) length of the drill.

5. **What is the purpose of an RCD?**
   (A) as a main switch
   (B) as a residual current device
   (C) give protection to the rest of the circuit
   (D) as a decorative device.

**6. Why are re-wirable fuses no longer installed?**

(A) the size of the holder
(B) they burn the porcelain
(C) they blow too soon
(D) do not have the capacity to protect the circuit.

**7. List four factors that should be followed when chasing a brick wall.**

(A) depth of hole, location and size of hole
(B) depth of chasing, type of tool to be used, other services and route of cable
(C) tool to be used, other services, current rating of circuit and type of brick
(D) route of chasing, depth of chasing and time of chase.

**8. Name two factors that affect the current rating of a switch?**

(A) load and electromagnetic compatibility
(B) load and current rating of the switch
(C) space availability and face plate design
(D) type of switching mechanism and availability.

**9. What type of switching is used to control a light circuit from three different locations?**

(A) Two way switches
(B) Three way switching
(C) One way switching
(D) one way with parallel connections.

**10. What do the initials HRC mean?**

(A) High Rupturing Circuit
(B) High Reinforced Column
(C) To drill in a certain position with a HRC drill
(D) High Rupturing Capacity.

## **Section B (20 Marks)** two marks for each question

1. What are the wiring rules for the connection of Edison screw type lamp holders?

2. Name two devices for the protection of fault current?

3. What device is used for securing a standard socket outlet on a rendered plaster single brick wall?

4. State three precautions for preventing isolated electrical wiring from being inadvertently being energised?

5. How is a masonry drill different from a standard twist drill?

6. List three hazards and control measures associated with fixing activities?

7. Explain the principles of powder and gas fastening systems typically used in the electrical industry?

8. How are products affected by the EMC regulations labelled?

9. Name two devices used for the protection of fault current?

10. List three factors that determine the current rating of a switch.

## Section C: (15 marks)

1. With the aid of a diagram explain how an anchor holds in a plaster wall. (2 marks)

2. Name the following fasteners: (4 marks)

3. Match the following fasteners with their description: (3 marks)

a) Torx
b) Tri-wing
c) Sentinal

4. Show how to fix a mounting plate in the following locations: (2 marks)

5. Show the wiring method for a two way switch (4 marks)