



ENERGY &  
ENVIRONMENT  
AWARDS

Skills for a greener world

EEA Level 3 End-point Assessment for Maintenance and  
Operations Engineering Technician  
(Electrical; Mechanical and Electromechanical)

## **Supporting Documents**

QAN 610/6007/0

ST0154 V1.0 V1.1 V1.2 V1.3

# Supporting Documents for

## EEA Level 3 End-point Assessment for Maintenance and Operations Engineering Technician (Electrical; Mechanical and Electromechanical)

QAN 610/6007/0

|  |     |
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## Updates to the supporting documents

Since the first publication of Energy & Environment Awards Maintenance and Operations Engineering Technician Supporting Documents Electrical; Mechanical and Electromechanical, the following updates have been made.

| Version | Date first published | Section updated   | Page(s)   |
|---------|----------------------|---|-----------|
| v4.0    | August 2025          | Rebranded   | All       |
| v3.0    | 2023                 | Appendix C: Sample Answer Sheet   | 54        |
|         |                      | Appendix G: Replaced (Assessor Use Only) with (Apprentice Input)              | 135 - 140 |
|         |                      | Footer for V2.0 below stated V3.0 this has been removed. This version is v3.0 | All       |
| v2.0    | 2023                 | New template and rebranded  | All       |
| v1.0    | 2020                 | First published   | All       |

## Appendix A: Glossary

**Amplification** – provides more detail on how individual knowledge, skills or behaviours statements should be interpreted. Where the KSB statements, themselves are deemed self-explanatory, no amplification is provided. Assessment may include questions on anything identified in the amplification

**Behaviours (as part of KSBs)** – specific mindsets, attitudes or approaches identified as part of the apprenticeship standard that must be evidenced during end-point assessment

**Elements** – are the knowledge, skills and behaviours and what is needed to competently undertake the duties required for an occupational standard

**Gateway** - the stage of the apprenticeship where the apprentice, employer and training provider determine whether the apprentice is ready to undertake end-point assessment

**Guidance** – is only provided where it is required to support interpretation of the KSB statements

**Knowledge (as part of KSBs)** – specific information, technical detail, and ‘know-how’ identified as part of the apprenticeship standard that must be evidenced during end-point assessment

**Pathways** – a specialist route within an apprenticeship standard that builds on the occupational competence for a new entrant to the occupation

**Skills (as part of KSBs)** – the practical application of knowledge identified as part of the apprenticeship standard that must be evidenced during end-point assessment

**Standard** – An occupational standard is a description of an occupation. It contains occupational profile, and describes KSBs needed for someone to be competent in the occupation’s duties. Occupational standards are developed by employers for occupations that meet the Institute for Apprenticeships and Technical Education current occupation criteria

**Topic** - is a collection of elements grouped into a theme e.g. Health and Safety

## Appendix B: Gateway Eligibility Form

(Standard Version: ST0154 version 1.2; Assessment Plan Version: ST0154/AP02)

|   |   |
|---|---|
| <b>Apprentice's name:</b>   | <b>Apprentice's job title:</b>                    |
|   |   |
| <b>Name of Employer:</b>  | <b>Name of Training provider:</b>                 |
|   |   |
| <b>Employer representatives present:</b>  | <b>Training provider representatives present:</b> |
|   |   |
| <b>Apprenticeship start date:</b>   | <b>Apprenticeship on-programme end date:</b>      |
|   |   |
| <b>Gateway meeting date:</b>  |   |
| <b>Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?</b> | Y / N   |
| <b>If "Yes" please give details:</b>  |   |
|   |   |

### Apprentice's details

#### Eligibility requirements:

The apprentice must confirm their achievement of the following:

Note: For apprentices aged 19+, if maths and/or English have been attempted but not achieved evidence of the attempt should be submitted

| Eligibility requirement   | Achieved by the apprentice? Y/N | Evidence (Scans of certificates MUST be included) |
|---|---------------------------------|---|
| Achieved Level 2 English  |                                 |   |
| Achieved Level 2 Maths  |                                 |   |
| Satisfactory completion of the formal training plan agreed with apprentice by the employer        |                                 |   |
| Compiled and submitted a portfolio of evidence, on which the technical interview will be based on |                                 |   |

### Gateway Eligibility Declaration

The apprentice, the employer and the training provider must sign this form to confirm that they understand and agree to the following:

1. The apprentice has completed the required on-programme elements of the apprenticeship and is ready for end-point assessment with Energy & Environment Awards.
2. The apprentice will only submit their own work as part of end-point assessment.
3. All parties agree that end-point assessment evidence may be recorded and stored by Energy & Environment Awards for quality assurance purposes.
4. The apprentice has been on-programme for a minimum duration of 365 days.
5. The apprentice has achieved English and maths Level 2 as detailed in this document.
6. The apprentice satisfactorily completed a formal training plan agreed by the employer.
7. The apprentice has produced compiled and submitted a portfolio of evidence, on which the technical interview will be based on.
8. The apprentice, if successful, gives permission for Energy & Environment

Awards to request the apprenticeship. certificate from the ESFA who issue the certificate on behalf of the Secretary of State.

9. The apprentice has been directed to Energy & Environment Awards Appeals Policy and Complaints Policy.
10. The employer/training provider has given Energy & Environment Awards at least three months' notice of requesting this EPA for this apprentice.
11. If the Gateway Eligibility Report is not completed in full, meeting all requirements, and submitted to Energy & Environment Awards, the end-point assessment cannot take place.

|   |            |       |
|---|------------|-------|
| Signed on behalf of the employer (print name):          | Signature: | Date: |
|   |            |       |
| Signed on behalf of the training provider (print name): | Signature: | Date: |
|   |            |       |
| Apprentice's name (print):                              | Signature: | Date: |
|   |            |       |

|                                       |  |
|---------------------------------------|--|
| Energy & Environment Awards use only: |  |
| Energy & Environment Awards Sign off: |  |
| Comments/actions:                     |  |

## Appendix C: Practice Knowledge Assessments: Electrical; Mechanical and Electromechanical

This section contains three practice knowledge assessments, one for each pathway.

Level: 3

Maintenance and Operations Engineering Technician

Pathway: Electrical

Paper Code: Practice Paper

This examination consists of 30 multiple-choice questions.

The Pass mark is 18 correct answers.

The Merit mark is 23 correct answers.

A mark of 26 or more is a Distinction.

The duration of this examination is 45 minutes.

You must use a **pencil** to complete the answer sheet - pens must NOT be used.

When completed, please leave the examination answer sheet and question paper on the desk.

For this paper the use of a scientific calculator (non-programmable) is permitted.

For each question, fill in ONE answer ONLY.

If you make a mistake, ensure you erase it thoroughly.

You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:

#### MARKING INSTRUCTIONS

A  B  C  D ANSWER COMPLETED CORRECTLY

Examples of how NOT to mark your examination sheet. **These will not be recorded**

A  B  C  D **DO NOT** partially shade the answer circle.

A  B  C  D **DO NOT** use ticks or crosses.

A  B  C  D **DO NOT** use circles.

A  B  C  D **DO NOT** shade over more than one circle.

**This paper must be returned to Energy & Environment Awards with the apprentice answer sheets.**

You may use this page for rough work. This page must not be removed.

| <b>Question 1</b>  |                  |
|--|------------------|
| On what type of installation would a technician fit this design of washer? |                  |
| <b>Possible answers</b>  |                  |
| a)   | High corrosion   |
| b)   | High temperature |
| c)   | High vibration   |
| d)   | High pressure    |



| <b>Question 2</b>   |                     |
|---|---------------------|
| When checking the pressure of a system the maintenance schedule stipulates that the system pressure should be 10 bar with a tolerance of +/- 0.05 bar, what are the minimum and maximum acceptable pressures? |                     |
| <b>Possible answers</b>   |                     |
| a)  | 9.95 to 10.05 bar   |
| b)  | 9.5 to 10.5 bar     |
| c)  | 9.05 to 10.5 bar    |
| d)  | 9.005 to 10.005 bar |

| <b>Question 3</b>                               |   |
|---|---|
| Safety critical equipment should be maintained: |   |
| <b>Possible answers</b>                         |   |
| a)  | every twelve months                                 |
| b)  | more frequently than non-safety critical equipment  |
| c)  | less frequently than non-safety critical equipment  |
| d)  | at the same period as safety non-critical equipment |

| <b>Question 4</b>  |   |
|--|---|
| Which statement best describes what is meant by the terminology “specification”? |   |
| <b>Possible answers</b>  |   |
| a)   | The capacity to endure continuous force                             |
| b)   | The standard when measured against another object of similar design |
| c)   | Detailed description of the design and materials of an object       |
| d)   | The specified point beyond which certification is invalid           |

| <b>Question 5</b>   |              |
|---|--------------|
| What type of maintenance is applied when something stops working? |              |
| <b>Possible answers</b>   |              |
| a)  | Planned      |
| b)  | Preventative |
| c)  | Corrective   |
| d)  | Shutdown     |

| <b>Question 6</b>   |                      |
|---|----------------------|
| What do the initials IP followed by 2 numbers refer to when seen on a piece of equipment? |                      |
| <b>Possible answers</b>   |                      |
| a)  | Internal pressure    |
| b)  | Integrity protection |
| c)  | Ingress protection   |
| d)  | Increased pressure   |

**Question 7**

Which of the following is commonly classed as safety critical?

**Possible answers**

|    |               |
|----|---------------|
| a) | Control valve |
| b) | Fuse          |
| c) | Steam trap    |
| d) | Drain valve   |

**Question 8**

What does the coloured tag on a piece of rigging equipment mean?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | Certification period |
| b) | Safe working load    |
| c) | Maximum working load |
| d) | Safe to use          |

**Question 9**

When seen on site, what does a green safety sign signify?

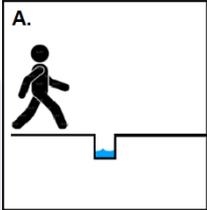
**Possible answers**

|    |             |
|----|-------------|
| a) | Mandatory   |
| b) | Prohibited  |
| c) | Information |
| d) | Warning     |

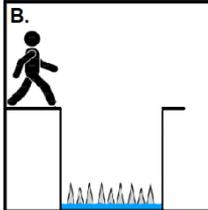
| <b>Question 10</b>   |                    |
|--|--------------------|
| What document should be fixed to a scaffold before a technician uses it? |                    |
| <b>Possible answers</b>  |                    |
| a)   | Risk assessment    |
| b)   | Safety certificate |
| c)   | Approved Scafftag  |
| d)   | Permit to work     |

| <b>Question 11</b>  |   |
|---|---|
| Looking at the image provided and taking into consideration risk, which task would a technician say is low probability and low in impact? |   |
| <b>Possible answers</b>   |   |
| a)  | A |
| b)  | B |
| c)  | C |
| d)  | D |

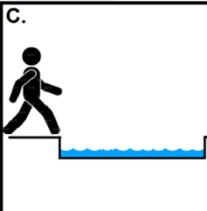
**A.**



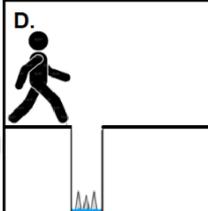
**B.**



**C.**



**D.**



[Turn to the next page for question 12]

**Question 12**

When personal protection equipment is identified on the work control document, which of the following statements is correct?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | PPE is recommended   |
| b) | PPE is available     |
| c) | PPE is good practice |
| d) | PPE is mandatory     |

**Question 13**

In accordance with HSE regulations, how would a technician know if a substance was regarded as hazardous?

**Possible answers**

|    |   |
|----|---|
| a) | The container will be coloured red          |
| b) | It will be contained in a glass receptacle  |
| c) | It will have a label identifying the hazard |
| d) | It will give off a strong odour             |

**Question 14**

According to the Confined Space Regulations 1997, which of the following locations is not regarded as a confined space?

**Possible answers**

|    |                     |
|----|---------------------|
| a) | Storage tank        |
| b) | Termination cabinet |
| c) | Floor void          |
| d) | Pipe trench         |

**Question 15**

In accordance with HSE guidelines, isolations can only be applied by:

**Possible answers**

|    |                                |
|----|--------------------------------|
| a) | competent people               |
| b) | training and authorised people |
| c) | skilled people                 |
| d) | experienced people             |

**Question 16**

Which manual handling statement is true?

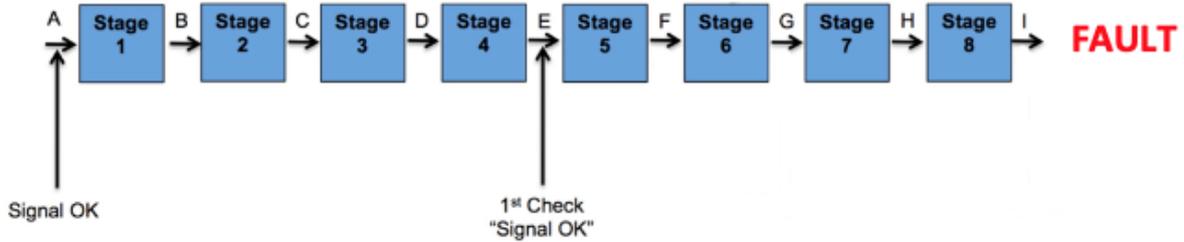
**Possible answers**

|    |   |
|----|---|
| a) | Correct manual handling prevents all accidents                  |
| b) | Correct manual handling prevents damage to equipment            |
| c) | Correct manual handling reduces the risk of human injury        |
| d) | Correct manual handling should only be applied in the workplace |

[Turn to the next page for question 17]

**Question 17**

Using the half split principle and referring to image below, at which position should a technician make the next check when fault finding?


**Possible answers**

|    |         |
|----|---------|
| a) | Point C |
| b) | Point F |
| c) | Point G |
| d) | Point I |

**Question 18**

What regulation provides guidance on the use of handheld tools?

**Possible answers**

|    |       |
|----|-------|
| a) | PUWER |
| b) | COMAR |
| c) | LOLER |
| d) | COSHH |

**Question 19**

What is being measured in this image?

**Possible answers**

|    |             |
|----|-------------|
| a) | Temperature |
| b) | Vibration   |
| c) | Pressure    |
| d) | Speed       |


**Question 20**

When seen on a British Standard Piping and Instrumentation drawing, what does this symbol represent?

**Possible answers**

|    |                   |
|----|-------------------|
| a) | Electrical signal |
| b) | Pneumatic signal  |
| c) | Hydraulic signal  |
| d) | Instrument signal |



**Question 21**

What type of maintenance can be applied to check the long-term performance of equipment to identify problems before they occur?

**Possible answers**

|    |                 |
|----|-----------------|
| a) | Preventative    |
| b) | Risk based      |
| c) | Condition based |
| d) | Corrective      |

**Question 22**

Ohm's law can be expressed as:

**Possible answers**

|    |                  |
|----|------------------|
| a) | $V = I + R$      |
| b) | $V = I \div R$   |
| c) | $V = I \times R$ |
| d) | $V = I - R$      |

**Question 23**

Which of the following hazardous conditions would arise if a loose electrical connection existed on the terminal?

**Possible answers**

|    |                         |
|----|-------------------------|
| a) | Decrease in temperature |
| b) | Increase in corrosion   |
| c) | Increase in temperature |
| d) | Increase in noise       |

**Question 24**

What is the name given to the process of routinely inspecting electrical appliances?

**Possible answers**

|    |                       |
|----|-----------------------|
| a) | PAT testing           |
| b) | Resistance testing    |
| c) | Planned maintenance   |
| d) | Breakdown maintenance |

**Question 25**

What device is created when an insulated wire in an electrical circuit is wrapped around an iron core?

**Possible answers**

|    |               |
|----|---------------|
| a) | Electromagnet |
| b) | Magnet        |
| c) | Generator     |
| d) | Motor         |

[Turn to the next page for question 26]

**Question 26**

When seen on the label of a piece of electrical equipment what does the term “d” refer to?

**CE 0477**  **II 2 G Ex d IIC T4 Gb**

**Possible answers**

|    |                      |
|----|----------------------|
| a) | Temperature group    |
| b) | Type of protection   |
| c) | Gas group            |
| d) | Explosion protection |

**Question 27**

Following maintenance on a distribution board, how should a technician re-instate the circuit?

**Possible answers**

|    |  |
|----|--|
| a) | By leaving all outgoing circuits on                            |
| b) | Leave all outgoing circuits off until asked to re-instate them |
| c) | By switching all outgoing circuits back on at the same time    |
| d) | By switching all outgoing circuits back on one at a time       |

[Turn to the next page for question 28]

**Question 28**

Two waves of the same frequency have opposite phase when the phase angle between them is:

**Possible answers**

|    |      |
|----|------|
| a) | 360° |
| b) | 180° |
| c) | 90°  |
| d) | 0°   |

**Question 29**

What hidden hazard can a capacitor have?

**Possible answers**

|    |                    |
|----|--------------------|
| a) | Dangerous material |
| b) | Stored energy      |
| c) | Hot components     |
| d) | Prone to arcing    |

**Question 30**

What colour is a 13 amp fuse in accordance with British Standards?

**Possible answers**

|    |        |
|----|--------|
| a) | Green  |
| b) | Brown  |
| c) | Red    |
| d) | Yellow |

## End of Questions

## Practice Knowledge Assessment

### Electrical - Answer scheme

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

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

Level: 3

Maintenance and Operations Engineering Technician

Pathway: Mechanical

Paper Code: Practice Paper

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**Question 1**

On what type of installation would a technician fit this design of washer?

**Possible answers**

|    |                  |
|----|------------------|
| a) | High corrosion   |
| b) | High temperature |
| c) | High vibration   |
| d) | High pressure    |


**Question 2**

When checking the pressure of a system the maintenance schedule stipulates that the system pressure should be 10 bar with a tolerance of +/- 0.05 bar, what are the minimum and maximum acceptable pressures?

**Possible answers**

|    |                     |
|----|---------------------|
| a) | 9.95 to 10.05 bar   |
| b) | 9.5 to 10.5 bar     |
| c) | 9.05 to 10.5 bar    |
| d) | 9.005 to 10.005 bar |

**Question 3**

Safety critical equipment should be maintained:

**Possible answers**

|    |   |
|----|---|
| a) | every twelve months                                 |
| b) | more frequently than non-safety critical equipment  |
| c) | less frequently than non-safety critical equipment  |
| d) | at the same period as safety non-critical equipment |

**Question 4**

Which statement best describes what is meant by the terminology “specification”?

**Possible answers**

|    |   |
|----|---|
| a) | The capacity to endure continuous force                             |
| b) | The standard when measured against another object of similar design |
| c) | Detailed description of the design and materials of an object       |
| d) | The specified point beyond which certification is invalid           |

**Question 5**

What type of maintenance is applied when something stops working?

**Possible answers**

|    |              |
|----|--------------|
| a) | Planned      |
| b) | Preventative |
| c) | Corrective   |
| d) | Shutdown     |

**Question 6**

What do the initials IP followed by 2 numbers refer to when seen on a piece of equipment?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | Internal pressure    |
| b) | Integrity protection |
| c) | Ingress protection   |
| d) | Increased pressure   |

**Question 7**

Which of the following is commonly classed as safety critical?

**Possible answers**

|    |               |
|----|---------------|
| a) | Control valve |
| b) | Fuse          |
| c) | Steam trap    |
| d) | Drain valve   |

**Question 8**

What does the coloured tag on a piece of rigging equipment mean?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | Certification period |
| b) | Safe working load    |
| c) | Maximum working load |
| d) | Safe to use          |

**Question 9**

When seen on site, what does a green safety sign signify?

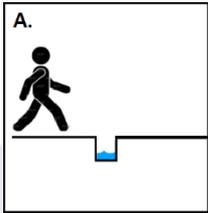
**Possible answers**

|    |             |
|----|-------------|
| a) | Mandatory   |
| b) | Prohibited  |
| c) | Information |
| d) | Warning     |

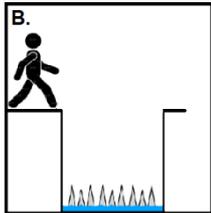
| <b>Question 10</b>   |                    |
|--|--------------------|
| What document should be fixed to a scaffold before a technician uses it? |                    |
| <b>Possible answers</b>  |                    |
| a)   | Risk assessment    |
| b)   | Safety certificate |
| c)   | Approved Scafftag  |
| d)   | Permit to work     |

| <b>Question 11</b>  |   |
|---|---|
| Looking at the image provided and taking into consideration risk, which task would a technician say is low probability and low in impact? |   |
| <b>Possible answers</b>   |   |
| a)  | A |
| b)  | B |
| c)  | C |
| d)  | D |

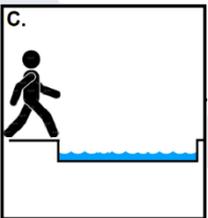
**A.**



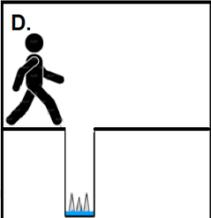
**B.**



**C.**



**D.**



[Turn to the next page for question 12]

**Question 12**

When personal protection equipment is identified on the work control document, which statement is correct?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | PPE is recommended   |
| b) | PPE is available     |
| c) | PPE is good practice |
| d) | PPE is mandatory     |

**Question 13**

In accordance with HSE regulations, how would a technician know if a substance was regarded as hazardous?

**Possible answers**

|    |   |
|----|---|
| a) | The container will be coloured red          |
| b) | It will be contained in a glass receptacle  |
| c) | It will have a label identifying the hazard |
| d) | It will give off a strong odour             |

**Question 14**

According to the Confined Space Regulations 1997, which of the following locations is not regarded as a confined space?

**Possible answers**

|    |                     |
|----|---------------------|
| a) | Storage tank        |
| b) | Termination cabinet |
| c) | Floor void          |
| d) | Pipe trench         |

|                    |  |
|--------------------|--|
| <b>Question 15</b> |  |
|--------------------|--|

|   |  |
|---|--|
| In accordance with HSE guidelines, isolations can only be applied by: |  |
|---|--|

|                         |  |
|-------------------------|--|
| <b>Possible answers</b> |  |
|-------------------------|--|

|    |                                |
|----|--------------------------------|
| a) | competent people               |
| b) | training and authorised people |
| c) | skilled people                 |
| d) | experienced people             |

|                    |  |
|--------------------|--|
| <b>Question 16</b> |  |
|--------------------|--|

|  |  |
|--|--|
| Which ONE of the following manual handling statements is true? |  |
|--|--|

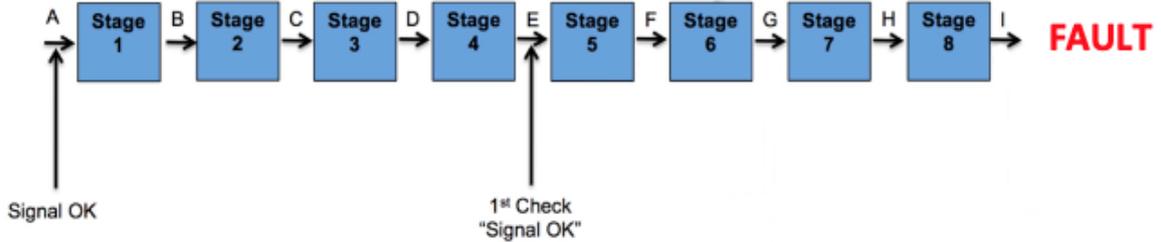
|                         |  |
|-------------------------|--|
| <b>Possible answers</b> |  |
|-------------------------|--|

|    |   |
|----|---|
| a) | Correct manual handling prevents all accidents                  |
| b) | Correct manual handling prevents damage to equipment            |
| c) | Correct manual handling reduces the risk of human injury        |
| d) | Correct manual handling should only be applied in the workplace |

[Turn to the next page for question 17]

**Question 17**

Using the half split principle and referring to image below, at which position should a technician make the next check when fault finding?


**Possible answers**

|    |         |
|----|---------|
| a) | Point C |
| b) | Point F |
| c) | Point G |
| d) | Point I |

**Question 18**

What regulation provides guidance on the use of handheld tools?

**Possible answers**

|    |       |
|----|-------|
| a) | PUWER |
| b) | COMAR |
| c) | LOLER |
| d) | COSHH |

| <b>Question 19</b>                    |             |
|---------------------------------------|-------------|
| What is being measured in this image? |             |
| <b>Possible answers</b>               |             |
| a)                                    | Temperature |
| b)                                    | Vibration   |
| c)                                    | Pressure    |
| d)                                    | Speed       |

| <b>Question 20</b>   |                   |
|--|-------------------|
| When seen on a British Standard Piping and Instrumentation drawing, what does this symbol represent? |                   |
| <b>Possible answers</b>  |                   |
| a)   | Electrical signal |
| b)   | Pneumatic signal  |
| c)   | Hydraulic signal  |
| d)   | Instrument signal |

**Question 21**

What type of maintenance can be applied to check the long-term performance of equipment to identify problems before they occur?

**Possible answers**

|    |                 |
|----|-----------------|
| a) | Preventative    |
| b) | Risk based      |
| c) | Condition based |
| d) | Corrective      |

**Question 22**

Which ONE of the following is a type of misalignment?

**Possible answers**

|    |             |
|----|-------------|
| a) | Centrifugal |
| b) | Angular     |
| c) | Centripetal |
| d) | Rotary      |

**Question 23**

Which ONE of the following items are used to assist sealing pressure leakage between the pump impeller and casing?

**Possible answers**

|    |                 |
|----|-----------------|
| a) | Wear rings      |
| b) | Thrust bearing  |
| c) | Radial bearing  |
| d) | Bearing housing |

**Question 24**

What would be a typical sign that a filter was starting to become blocked?

**Possible answers**

|    |                                   |
|----|-----------------------------------|
| a) | High vibration                    |
| b) | Static differential pressure      |
| c) | Increase in differential pressure |
| d) | Zero differential pressure        |

**Question 25**

When fitting graphite gland packing rings into a valve shaft stuffing box, which statement is correct?

**Possible answers**

|    |   |
|----|---|
| a) | Ensure that the gap in the packing rings are lined up           |
| b) | Always apply grease to the packing before fitting               |
| c) | Ensure that the gap in the packing is set 90° to the last ring  |
| d) | Ensure that the gap in the packing is set 180° to the last ring |

**Question 26**

What type of valve is shown in the image?

**Possible answers**

|    |           |
|----|-----------|
| a) | Butterfly |
| b) | Globe     |
| c) | Gate      |
| d) | Ball      |



**Question 27**

Gap clearance should be checked using which of the following items?

**Possible answers**

|    |                     |
|----|---------------------|
| a) | Micrometre          |
| b) | Feeler gauge        |
| c) | Dial test indicator |
| d) | Shims               |

**Question 28**

What type of filter would you find in this device?

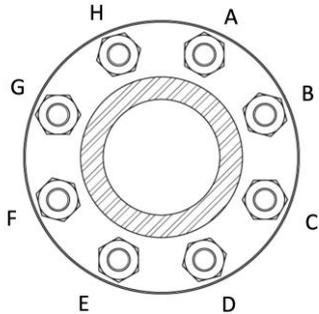
**Possible answers**

|    |        |  |
|----|--------|--|
| a) | Socket |  |
| b) | Mesh   |  |
| c) | Media  |  |
| d) | Carbon |  |

**Question 29**

Following recommended bolt tightening procedures and assuming that you have already tightened bolts A, E & C what would be the next bolt you would tighten?

**Possible answers**

|    |   |  |
|----|---|--|
| a) | H |  |
| b) | D |  |
| c) | B |  |
| d) | G |  |

**Question 30**

What device should be used to assist when positioning and aligning mounting bolt holes?

**Possible answers**

|    |                        |
|----|------------------------|
| a) | Heavy duty screwdriver |
| b) | Long bolts             |
| c) | Steel tube             |
| d) | Podge bar              |

End of Questions

## Practice Knowledge Assessment

### Mechanical - Answer scheme

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

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

Level: 3

Maintenance and Operations Engineering Technician

Pathway: Electromechanical

Paper Code: Practice Paper

This examination consists of 30 multiple-choice questions.

The Pass mark is 18 correct answers.

The Merit mark is 23 correct answers.

A mark of 26 or more is a Distinction.

The duration of this examination is 45 minutes.

You must use a **pencil** to complete the answer sheet - pens must NOT be used.

When completed, please leave the examination answer sheet and question paper on the desk.

For this paper the use of a scientific calculator (non-programmable) is permitted.

For each question, fill in ONE answer ONLY.

If you make a mistake, ensure you erase it thoroughly.

You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:

#### MARKING INSTRUCTIONS

A  B  C  D ANSWER COMPLETED CORRECTLY

Examples of how NOT to mark your examination sheet. **These will not be recorded**

A  B  C  D **DO NOT** partially shade the answer circle.

A  B  C  D **DO NOT** use ticks or crosses.

A  B  C  D **DO NOT** use circles.

A  B  C  D **DO NOT** shade over more than one circle.

**This paper must be returned to Energy & Environment Awards with the apprentice answer sheets.**

You may use this page for rough work. This page must not be removed.

| <b>Question 1</b>  |                  |
|--|------------------|
| On what type of installation would a technician fit this design of washer? |                  |
| <b>Possible answers</b>  |                  |
| a)   | High corrosion   |
| b)   | High temperature |
| c)   | High vibration   |
| d)   | High pressure    |



| <b>Question 2</b>   |                     |
|---|---------------------|
| When checking the pressure of a system the maintenance schedule stipulates that the system pressure should be 10 bar with a tolerance of +/- 0.05 bar, what are the minimum and maximum acceptable pressures? |                     |
| <b>Possible answers</b>   |                     |
| a)  | 9.95 to 10.05 bar   |
| b)  | 9.5 to 10.5 bar     |
| c)  | 9.05 to 10.5 bar    |
| d)  | 9.005 to 10.005 bar |

| <b>Question 3</b>                               |   |
|---|---|
| Safety critical equipment should be maintained: |   |
| <b>Possible answers</b>                         |   |
| a)  | every twelve months                                 |
| b)  | more frequently than non-safety critical equipment  |
| c)  | less frequently than non-safety critical equipment  |
| d)  | at the same period as safety non-critical equipment |

**Question 4**

Which statement best describes what is meant by the terminology “specification”?

**Possible answers**

|    |   |
|----|---|
| a) | The capacity to endure continuous force                             |
| b) | The standard when measured against another object of similar design |
| c) | Detailed description of the design and materials of an object       |
| d) | The specified point beyond which certification is invalid           |

**Question 5**

What type of maintenance is applied when something stops working?

**Possible answers**

|    |              |
|----|--------------|
| a) | Planned      |
| b) | Preventative |
| c) | Corrective   |
| d) | Shutdown     |

**Question 6**

What do the initials IP followed by 2 numbers refer to when seen on a piece of equipment?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | Internal pressure    |
| b) | Integrity protection |
| c) | Ingress protection   |
| d) | Increased pressure   |

**Question 7**

Which of the following is commonly classed as safety critical?

**Possible answers**

|    |               |
|----|---------------|
| a) | Control valve |
| b) | Fuse          |
| c) | Steam trap    |
| d) | Drain valve   |

**Question 8**

What does the coloured tag on a piece of rigging equipment mean?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | Certification period |
| b) | Safe working load    |
| c) | Maximum working load |
| d) | Safe to use          |

**Question 9**

When seen on site, what does a green safety sign signify?

**Possible answers**

|    |             |
|----|-------------|
| a) | Mandatory   |
| b) | Prohibited  |
| c) | Information |
| d) | Warning     |

**Question 10**

What document should be fixed to a scaffold before a technician uses it?

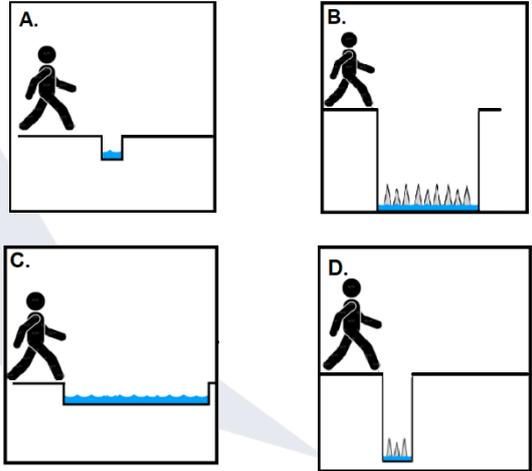
**Possible answers**

|    |                    |
|----|--------------------|
| a) | Risk assessment    |
| b) | Safety certificate |
| c) | Approved Scafftag  |
| d) | Permit to work     |

**Question 11**

Looking at the image provided and taking into consideration risk, which task would a technician say is low probability and low in impact?

**Possible answers**

|    |   |  |
|----|---|--|
| a) | A |  |
| b) | B |  |
| c) | C |  |
| d) | D |  |

[Turn to the next page for question 12]

**Question 12**

When personal protection equipment is identified on the work control document, which statement is correct?

**Possible answers**

|    |                      |
|----|----------------------|
| a) | PPE is recommended   |
| b) | PPE is available     |
| c) | PPE is good practice |
| d) | PPE is mandatory     |

**Question 13**

In accordance with HSE regulations, how would a technician know if a substance was regarded as hazardous?

**Possible answers**

|    |   |
|----|---|
| a) | The container will be coloured red          |
| b) | It will be contained in a glass receptacle  |
| c) | It will have a label identifying the hazard |
| d) | It will give off a strong odour             |

**Question 14**

According to the Confined Space Regulations 1997, which of the following locations is not regarded as a confined space?

**Possible answers**

|    |                     |
|----|---------------------|
| a) | Storage tank        |
| b) | Termination cabinet |
| c) | Floor void          |
| d) | Pipe trench         |

**Question 15**

In accordance with HSE guidelines, isolations can only be applied by:

**Possible answers**

|    |                                |
|----|--------------------------------|
| a) | competent people               |
| b) | training and authorised people |
| c) | skilled people                 |
| d) | experienced people             |

**Question 16**

Which ONE of the following manual handling statements is true?

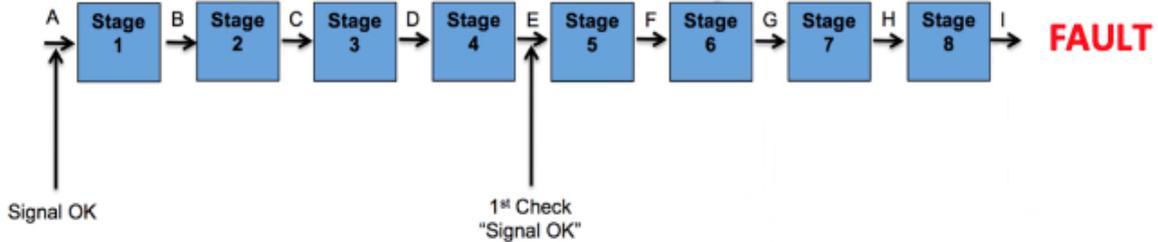
**Possible answers**

|    |   |
|----|---|
| a) | Correct manual handling prevents all accidents                  |
| b) | Correct manual handling prevents damage to equipment            |
| c) | Correct manual handling reduces the risk of human injury        |
| d) | Correct manual handling should only be applied in the workplace |

[Turn to the next page for question 17]

**Question 17**

Using the half split principle and referring to image below, at which position should a technician make the next check when fault finding?


**Possible answers**

|    |         |
|----|---------|
| a) | Point C |
| b) | Point F |
| c) | Point G |
| d) | Point I |

**Question 18**

What regulation provides guidance on the use of handheld tools?

**Possible answers**

|    |       |
|----|-------|
| a) | PUWER |
| b) | COMAR |
| c) | LOLER |
| d) | COSHH |

**Question 19**

What is being measured in this image?

**Possible answers**

|    |             |
|----|-------------|
| a) | Temperature |
| b) | Vibration   |
| c) | Pressure    |
| d) | Speed       |


**Question 20**

When seen on a British Standard Piping and Instrumentation drawing, what does this symbol represent?

**Possible answers**

|    |                   |
|----|-------------------|
| a) | Electrical signal |
| b) | Pneumatic signal  |
| c) | Hydraulic signal  |
| d) | Instrument signal |



**Question 21**

What type of maintenance can be applied to check the long-term performance of equipment to identify problems before they occur?

**Possible answers**

|    |                 |
|----|-----------------|
| a) | Preventative    |
| b) | Risk based      |
| c) | Condition based |
| d) | Corrective      |

**Question 22**

Which ONE of the following is a **primary** unit in the SI system?

**Possible answers**

|    |              |
|----|--------------|
| a) | Force        |
| b) | Length       |
| c) | Power        |
| d) | Conductivity |

**Question 23**

Which method or methods of heat transfer can occur in a vacuum?

**Possible answers**

|    |                           |
|----|---------------------------|
| a) | Radiation                 |
| b) | Convection and radiation  |
| c) | Convection and conduction |
| d) | Conduction                |

**Question 24**

How do you calculate resultant force?

**Possible answers**

|    |   |
|----|---|
| a) | By averaging the forces that act upon an object           |
| b) | By adding together all the forces that act upon an object |
| c) | By dividing the forces that act upon an object            |
| d) | By multiplying all the forces that act upon an object     |

**Question 25**

An electric drive motor on a conveyor belt is connected to a 110 V electrical supply. The power of the motor is 2.0 kW. The most suitable fuse for the drive motor circuit is:

**Possible answers**

|    |      |
|----|------|
| a) | 5 A  |
| b) | 13 A |
| c) | 20 A |
| d) | 55 A |

**Question 26**

The purpose of a commutator on an electric motor is to:

**Possible answers**

|    |  |
|----|--|
| a) | ensure easy brush replacement            |
| b) | increase the resistance in the motor     |
| c) | increase the current in the motor        |
| d) | change current direction every half turn |

**Question 27**

The formula for calculating the kinetic energy of an object of mass  $m$  moving at a velocity of  $v$  is:

**Possible answers**

|    |                           |
|----|---------------------------|
| a) | $2 \times m \times v$     |
| b) | $0.5 \times m \times v^2$ |
| c) | $2 \times m \times v^2$   |
| d) | $0.5 \times m^2 \times v$ |

**Question 28**

A vehicle is moving at a constant velocity on a horizontal road. Which of the following is true?

**Possible answers**

|    |  |
|----|--|
| a) | The friction force is almost zero                        |
| b) | The friction force is the same size as the driving force |
| c) | The friction force is exactly zero                       |
| d) | The friction force is less than the driving force        |

**Question 29**

A 20 mA current is flowing through a component of resistance 100 ohms. The voltage difference across the component is:

**Possible answers**

|    |      |
|----|------|
| a) | 5 V  |
| b) | 2 kV |
| c) | 5 mV |
| d) | 2 V  |

**Question 30**

The unit of electromotive force (EMF) is:

**Possible answers**

|    |        |
|----|--------|
| a) | Newton |
| b) | Joule  |
| c) | Amp    |
| d) | Volt   |

End of Questions

## Practice Knowledge Assessment

### Electromechanical - Answer scheme

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

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

**SAMPLE ANSWER SHEET**

|                     |               |
|---------------------|---------------|
| Candidate ID .....  | Attempt ..... |
| Last Name .....     |               |
| First Name .....    |               |
| Exam Date .....     | Paper .....   |
| Centre Name .....   |               |
| Centre Number ..... |               |

**MARKING INSTRUCTIONS**

Answers should be completed using a HB pencil.

**ANSWER COMPLETED CORRECTLY**

Examples of how NOT to mark your examination sheet. **These will not be recorded**

**DO NOT** partially shade the answer circle.

**DO NOT** use ticks or crosses.

**DO NOT** use circles.

**DO NOT** shade over more than one circle.

|  |  |  |
|--|--|--|
| 1 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 21 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 2 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 22 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 3 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 23 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 4 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 24 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 5 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 25 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 6 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 26 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 7 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 27 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 8 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 28 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 9 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>  | 29 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 10 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | 30 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |
| 11 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |  |
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| 14 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |  |
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| 19 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |  |
| 20 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> |  |  |

## Appendix D - Practical Observation and Planning Form

The practical observation must be designed to meet the requirements of the Maintenance and Operations Engineering Technician standard.

- The apprentice will complete a practical observation during which they will be asked questions by the assessor to confirm their understanding of the rationale for actions taken and choices made during the practical observation
- The content of this practical observation will relate to the specific role they are working towards
- The duration of this activity will typically be no longer than one day and the actual time allowed will be based on the comparable time that an industry competent worker would take to achieve successful task(s) completion
- The employer/training provider must devise a practical observation task(s) sufficiently complex to allow the apprentice to demonstrate the required knowledge and skills

**Note that the apprentice is only required to demonstrate the main specialist specific skill covered by the practical, and the observation task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the skill.**

The activities will need to be able to provide the evidence identified in the checklist in the form below.

Energy & Environment Awards must review the employer/training provider's practical assessment design. To do this complete the 'Level 3 Practical Observation and Planning Form' and submit to the Service Delivery team, for review 1 month before the start of the end-point assessment.

## Level 3 Practical Observation and Planning Form

|  |   |
|--|---|
| <b>Employer name and site address</b>  |   |
| <b>Training provider (if applicable)</b>   |   |
| <b>Standard</b>  | <b>Maintenance and Operations Engineering Technician</b>  |
| <b>Pathways</b>  | <b>Electrical</b> <input type="checkbox"/><br><b>Mechanical</b> <input type="checkbox"/><br><b>Electromechanical</b> <input type="checkbox"/> |
| <b>Level</b>   | <b>3</b>  |
| <b>Location of practical</b>   |   |
| <b>Contact Details:</b><br>Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site). |   |
| <b>Energy &amp; Environment Awards Date of review:</b>   |   |

|   |
|---|
| <b>Description of the proposed complex task(s):</b>                 |
| <b>Special requirements (for example: access arrangements/PPE):</b> |

|                                  |                            |
|----------------------------------|----------------------------|
| <b>Equipment/tools required:</b> | <b>Resources required:</b> |
|                                  |                            |

## Practical Observation Checklist

This checklist will assist the employer and/or training provider with planning the activity. Please confirm all required elements are covered:

| Core Skills   | Covered on activity      |
|---|--------------------------|
| <b>S1</b> Comply with industry health, safety and environmental working practices and regulations   | <input type="checkbox"/> |
| <b>S2</b> Communicate with and provide information to stakeholders in line with personal role and responsibilities                              | <input type="checkbox"/> |
| <b>S3</b> Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities | <input type="checkbox"/> |
| <b>S4</b> Assess and test the performance and condition of plant and equipment  | <input type="checkbox"/> |
| <b>S5</b> Locate, and rectify faults on plant and equipment   | <input type="checkbox"/> |
| <b>S6</b> Read, understand and interpret information and work in compliance with technical specifications and supporting documentation          | <input type="checkbox"/> |
| <b>S7</b> Inspect and maintain appropriate plant and equipment to meet operational requirements   | <input type="checkbox"/> |
| <b>S8</b> Communicate, handover and confirm that the appropriate engineering process has been completed to specification                        | <input type="checkbox"/> |

| Core Behaviours   | Covered on activity      |
|---|--------------------------|
| <b>B1 Health and Safety</b> - Follows health and safety policies and procedures and be prepared to challenge unsafe behaviour using appropriate techniques to ensure the protection of people and property when working alone and/or with appropriate supervision | <input type="checkbox"/> |
| <b>B2 Quality focused</b> - Ensures that work achieves quality standard both occupationally and personally  | <input type="checkbox"/> |
| <b>B3 Working with others</b> - Has the ability to work well with people from different disciplines, backgrounds and expertise to accomplish an activity safely and on time   | <input type="checkbox"/> |
| <b>B4 Interpersonal skills</b> - Gets along well with others and takes into account their needs and concerns  | <input type="checkbox"/> |

|   |                          |
|---|--------------------------|
| <b>B6 Sustainability and ethical behaviour</b> - Behaves ethically and undertakes work in a way that contributes to sustainable development   | <input type="checkbox"/> |
| <b>B7 Risk awareness</b> - Demonstrates high concentration, the desire to reduce risks, ability to be compliant and awareness of change, through regular monitoring and checking of information | <input type="checkbox"/> |

**PLUS select the MAIN Specialist Skill selected for Specific pathways:**

| <b>Pathway: Electrical Specialist Skills</b>  | <b>Covered on activity</b> |
|---|----------------------------|
| <b>E1</b> Position, assemble, install and dismantle electrical plant and equipment to agreed specifications                         | <input type="checkbox"/>   |
| <b>E2</b> Carry out planned, unplanned and preventative maintenance procedures on electrical plant and equipment                    | <input type="checkbox"/>   |
| <b>E3</b> Replace, repair and/or remove components in electrical plant and equipment and ensure its return to operational condition | <input type="checkbox"/>   |
| <b>E4</b> Diagnose and determine the cause of faults in electrical plant and equipment  | <input type="checkbox"/>   |
| <b>Estimated total duration pf practical (must be a minimum of 4 hours)</b>   |                            |
| <b>Pathway: Mechanical Specialist Skills</b>  | <b>Covered on activity</b> |
| <b>M1</b> Position, assemble, install and dismantle mechanical plant and equipment to agreed specifications                         | <input type="checkbox"/>   |
| <b>M2</b> Carry out planned, unplanned and preventative maintenance procedures on mechanical plant and equipment                    | <input type="checkbox"/>   |
| <b>M3</b> Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition | <input type="checkbox"/>   |
| <b>M4</b> Diagnose and determine the cause of faults in mechanical plant and equipment  | <input type="checkbox"/>   |
| <b>Estimated total duration pf practical (must be a minimum of 4 hours)</b>   |                            |
| <b>Pathway: Electromechanical Specialist Skills</b>   | <b>Covered on activity</b> |
| <b>EM1</b> Position, assemble, install and dismantle integrated electromechanical power and control systems                         | <input type="checkbox"/>   |
| <b>EM2</b> Carry out planned, unplanned and preventative maintenance procedures on integrated electromechanical plant and equipment | <input type="checkbox"/>   |

|  |                          |
|--|--------------------------|
| <b>EM3</b> Replace, repair and/or remove components within integrated electromechanical plant and equipment and ensure its return to operational condition | <input type="checkbox"/> |
| <b>EM4</b> Diagnose and determine the cause of faults within integrated electromechanical plant and equipment  | <input type="checkbox"/> |
| <b>Estimated total duration of practical<br/>(must be a minimum of 4 hours)</b>  |                          |

**Remember:**

- The specific detail of the tasks to be undertaken should be **kept confidential from the apprentices**
- You will require differing tasks where you have more than one apprentice to be assessed

Practical Task: Include relevant photographs to illustrate task(s)

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|                 |  |
|-----------------|--|
| Date received   |  |
| Date signed off |  |

## Appendix E: Practice Practical Observation Template

This document is for use by the person from the employer/training provider playing the role of the assessor during the practice practical observation. It is designed to help replicate the live assessment experience and to enable feedback to be provided to the apprentice.

|   |  |
|---|--|
| Full Name of Apprentice                       |  |
| Location(s) of Practice Practical Observation |  |
| Full Name of Assessor                         |  |
| Date of Practice Practical Observation        |  |
| Start Time                                    |  |
| End Time                                      |  |
| Assessor - Additional comments:               |  |
|   |  |

|  |              |
|--|--------------|
| Please indicate the apprentice's practice practical observation grade (F/P/M/D): | <b>Grade</b> |
|  |              |

**Please Note:**

Pass: Each criteria must be met to achieve a pass.

Merit or Distinction: All Pass criteria must be achieved PLUS a minimum number of merit and distinction as described in Section 3 in this specification.

Fail: The apprentice does not demonstrate the pass criteria.

| <b>S1 Comply with industry health, safety and environmental working practices and regulations</b>  |  |   |  |  |  |
|--|--|---|--|--|--|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>  |  |
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their own health, safety and environmental responsibilities and that of others</li> <li>• Comply with the required health, safety and environmental working practices and regulations</li> <li>• Conduct a suitable risk assessment and proactively identify workplace hazards</li> <li>• Inspect and wear the correct personal protective equipment (PPE) required to carry out the activity</li> <li>• Inform other relevant parties of matters affecting them where required</li> </ul> | <input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Demonstrate a deeper understanding of the health, safety and environmental implications of the work e.g. potential effect of failure to comply, environmental, social, financial, company impact</li> <li>• Take a lead role in managing the site safety of self and others</li> <li>• Consistently demonstrate compliance with safety requirements and make suggestions to reduce risks</li> <li>• Identify poor / bad practice in relation to work activities and address the situation</li> </ul> | <input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Demonstrate exemplary health, safety and environmental knowledge and performance throughout the activity</li> <li>• Identify health, safety and environmental deficiencies and implement appropriate solutions</li> <li>• Challenge unsafe behaviour / practices using appropriate techniques</li> <li>• Pre-empt risks prior to task commencement and puts actions in place to prevent them occurring</li> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to improve safety standards</li> </ul> | <input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/> |

| <b>S1 Comply with industry health, safety and environmental working practices and regulations</b>   |  |   |  |   |
|---|--|---|--|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>• Comply with and apply safe systems of work and maintain a safe working environment</li> <li>• Inspect and use the appropriate tools and equipment <input type="checkbox"/></li> <li>• Regularly re-assess the site conditions and take action when necessary to maintain site safety <input type="checkbox"/></li> <li>• Check to ensure the site is left in a safe / secure condition for others</li> </ul> |  |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>  |  | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |   |  | <b>Mark awarded.</b>                                |





**S3 Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities**

| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |  |
|--|--|---|--|---|--|
| <p>by the work activity or environment, where required</p> <ul style="list-style-type: none"> <li>• Maintain good housekeeping practices and a safe working environment throughout the activity <input type="checkbox"/></li> <li>• Store tools, equipment, materials in a suitable / secure position and dispose of waste products in line with company policies and Health Safety and Environmental regulations <input type="checkbox"/></li> <li>• Reinstate the work area to ensure it is left in a safe and secure condition e.g. locks, notices, documentation <input type="checkbox"/></li> </ul> |  | <p>relationships with individuals to support the work activity</p> <ul style="list-style-type: none"> <li>• Make valid suggestions / recommendations to improve the planning / preparation of the work activity <input type="checkbox"/></li> </ul> |  |   |  |







| <b>S5 Locate, and rectify faults on plant and equipment</b>  |                          |   |  |   |
|--|--------------------------|---|--|---|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>rectification has been successful</li> <li>Record the results / outcomes of rectification work in line with company requirements</li> </ul> | <input type="checkbox"/> |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |   |  | <b>Mark awarded.</b>                                |

| <b>S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation</b>                |                          |  |                          |   |
|---|--------------------------|--|--------------------------|---|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>  |                          | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>Read and correctly interpret a range of technical information provided to plan and conduct the work</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>Demonstrate a detailed knowledge of the range and purpose of the technical information available</li> </ul> | <input type="checkbox"/> |   |







**S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification**

| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
|--|--|---|--|---|--|
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their role and responsibilities in returning the system / equipment back to operational service <input type="checkbox"/></li> <li>• Provide an accurate technical explanation of the company's handover procedure <input type="checkbox"/></li> <li>• Complete the required checks / tests to confirm the equipment meets the company operational requirements for handover <input type="checkbox"/></li> <li>• Conduct the handover in compliance with all relevant policies and procedures <input type="checkbox"/></li> <li>• Clearly communicate the details of the handover including any additional requirements to the relevant parties <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate a detailed understanding of the factors which can support and influence a smooth handover of equipment <input type="checkbox"/></li> <li>• Take a pro-active lead in effectively communicating the detail of handover arrangements with stakeholders <input type="checkbox"/></li> <li>• Demonstrate their ability to develop positive professional relationships with individuals to support handover process <input type="checkbox"/></li> <li>• Confidently lead the handover process taking charge of the operation and resolving any issues within their role responsibility <input type="checkbox"/></li> <li>• Adapts the method and style of communications to changing circumstances and need <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the handover process <input type="checkbox"/></li> <li>• Consult and involve team members and / or other relevant persons to achieve greater understanding and improved performance <input type="checkbox"/></li> <li>• Demonstrate the ability to build positive relationships and actively address conflict / resolve problems with positive outcomes <input type="checkbox"/></li> <li>• Demonstrate their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, management, briefings / meetings, external clients <input type="checkbox"/></li> </ul> |  |

| <b>S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification</b> |                          |   |  |   |
|--|--------------------------|---|--|---|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| Complete all relevant reporting / recording documentation in line with company procedures                                | <input type="checkbox"/> |   |  |   |
| Leave the work area in a safe / secure condition for others  |                          |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |   |  | <b>Mark awarded.</b>                                |

| <b>B1 Health and Safety</b>   |                          |   |  |   |
|---|--------------------------|---|--|---|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b> |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>Follows health and safety policies and procedures and be prepared to challenge unsafe behaviour using appropriate techniques to</li> </ul> | <input type="checkbox"/> |   |  |   |

| <b>B1 Health and Safety</b>   |  |   |  |   |
|---|--|---|--|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| ensure the protection of people and property when working alone and/or with appropriate supervision |  |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>                                      |  | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |   |  | <b>Mark awarded.</b>                                |

| <b>B2 Quality focused</b>  |  |   |  |   |
|--|--|---|--|---|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b> |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>Ensures that work achieves quality standard both occupationally and personally</li> </ul> |  | <input type="checkbox"/>                      |  |   |

| <b>B2 Quality focused</b>                                      |   |                            |                      |
|--|---|----------------------------|----------------------|
| <b>Assessor must ask the following standardised questions.</b> | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> | <b>Recording timeline.</b> | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |   |                            |                      |

| <b>B3 Working with others</b>   |   |   |   |                      |
|---|---|---|---|----------------------|
| <b>Pass Criteria – All to be met</b>  |   | <b>Merit Criteria – Minimum two to be met</b> | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| <ul style="list-style-type: none"> <li>Has the ability to work well with people from different disciplines, backgrounds and expertise to accomplish an activity safely and on time</li> </ul> | <input type="checkbox"/>  |   |   |                      |
| <b>Assessor must ask the following standardised questions.</b>  | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |   | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |   |   |   |                      |

| <b>B4 Interpersonal skills</b>  |                          |   |   |                      |
|---|--------------------------|---|---|----------------------|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>   | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| <ul style="list-style-type: none"> <li>Gets along well with others and takes into account their needs and concerns</li> </ul> | <input type="checkbox"/> |   |   |                      |
| <b>Assessor must ask the following standardised questions.</b>  |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |                          |   |   |                      |

| <b>B6 Sustainability and ethical behaviour</b>   |                          |   |   |  |
|--|--------------------------|---|---|--|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b> | <b>Distinction Criteria – Minimum two to be met</b> |  |
| <ul style="list-style-type: none"> <li>Behaves ethically and undertakes work in a way that contributes to sustainable development</li> </ul> | <input type="checkbox"/> |   |   |  |

| <b>B6 Sustainability and ethical behaviour</b>                 |   |                            |                      |
|--|---|----------------------------|----------------------|
| <b>Assessor must ask the following standardised questions.</b> | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> | <b>Recording timeline.</b> | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |   |                            |                      |

| <b>B7 Risk awareness</b>   |   |   |   |                      |
|--|---|---|---|----------------------|
| <b>Pass Criteria – All to be met</b>   |   | <b>Merit Criteria – Minimum two to be met</b> | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| <ul style="list-style-type: none"> <li>Demonstrates high concentration, the desire to reduce risks, ability to be compliant and awareness of change, through regular monitoring and checking of information</li> </ul> | <input type="checkbox"/>  |   |   |                      |
| <b>Assessor must ask the following standardised questions.</b>   | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |   | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |





| <b>E2 Carry out planned, unplanned and preventative maintenance on electrical plant and equipment</b>  |  |   |  |  |
|--|--|---|--|--|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>  |
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/></li> <li>• Provide an accurate technical explanation for the purpose of the maintenance work <input type="checkbox"/></li> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given <input type="checkbox"/></li> <li>• Use tools and equipment to competently achieve the quality standards required by the company in a timely manner <input type="checkbox"/></li> <li>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate a detailed understanding of the process and principles of preventative maintenance <input type="checkbox"/></li> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/></li> <li>• Make recommendations / suggestions to improve work efficiencies <input type="checkbox"/></li> <li>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate deeper technical / commercial knowledge of the maintenance operation being undertaken e.g. installation costs, technical requirements, planning, corrective / preventative <input type="checkbox"/></li> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/></li> <li>• Identify and take action to report or deal with issues of nonconformity / compliance <input type="checkbox"/></li> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken <input type="checkbox"/></li> </ul> |

| <b>E2 Carry out planned, unplanned and preventative maintenance on electrical plant and equipment</b>  |                          |   |  |   |                      |
|--|--------------------------|---|--|---|----------------------|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| <ul style="list-style-type: none"> <li>Deal effectively with any issues within their role responsibilities, where necessary</li> <li>Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required</li> </ul> | <input type="checkbox"/> |   |  |   |                      |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |   |  |   |                      |

**E3 Replace, repair and/or remove components in electrical plant and equipment and ensure its return to operational condition**

| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
|--|--|--|--|---|--|
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/></li> <li>• Provide an accurate technical explanation for the purpose of the maintenance work <input type="checkbox"/></li> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given <input type="checkbox"/></li> <li>• Use tools and equipment to competently carry out the removal / replacement of components in a logical sequence and timely manner <input type="checkbox"/></li> <li>• Conduct the work in compliance with all relevant regulatory requirements and company procedures <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate a detailed understanding of the causes and principles of component degradation <input type="checkbox"/></li> <li>• Demonstrate a detailed understanding of the limits / restrictions of component replacement or repair e.g. In terms of reliability, certification of instruments / systems etc. <input type="checkbox"/></li> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/></li> <li>• Make recommendations / suggestions to improve work efficiencies <input type="checkbox"/></li> <li>• Produce a detailed work plan to support the maintenance <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate deeper technical / commercial knowledge of the repair / replacement work being undertaken e.g. costs, effect on maintenance periods, equipment sustainability <input type="checkbox"/></li> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/></li> <li>• Identify and take action to report or deal with issues of nonconformance/ compliance <input type="checkbox"/></li> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken <input type="checkbox"/></li> </ul> |  |





| <b>E4 Diagnose and determine the cause of faults in electrical plant and equipment</b>  |  |   |  |   |                      |
|---|--|---|--|---|----------------------|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| <ul style="list-style-type: none"> <li>• Correctly analyse and interpret the results of the fault-finding techniques conducted <input type="checkbox"/></li> <li>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures <input type="checkbox"/></li> <li>• Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required</li> </ul> |  |   |  |   |                      |
| <b>Assessor must ask the following standardised questions.</b>  |  | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |   |  |   |                      |

## Pathway: Mechanical Role Specialist Skills

| <b>M1 Position, assemble, install and dismantle mechanical plant and equipment to agreed specifications</b>   |  |   |   |
|---|--|---|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |   |
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/></li> <li>• Provide an accurate technical explanation for the purpose of the work activity <input type="checkbox"/></li> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given <input type="checkbox"/></li> <li>• Use tools and equipment to competently achieve the quality standards required by the company in a timely manner <input type="checkbox"/></li> <li>• Conduct the work in compliance with all relevant regulatory requirements and <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate a detailed technical knowledge of the methods and processes used to conduct the work <input type="checkbox"/></li> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/></li> <li>• Make recommendations / suggestions to improve work efficiencies <input type="checkbox"/></li> <li>• Produce a detailed work plan to support the work delivery including measures to deal with contingencies <input type="checkbox"/></li> </ul> | <ul style="list-style-type: none"> <li>• Demonstrate deeper technical / commercial knowledge of the equipment / operation e.g. installation costs, technical requirements planning, sustainability of equipment etc. <input type="checkbox"/></li> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/></li> <li>• Identify and take action to report or deal with issues of nonconformity / compliance <input type="checkbox"/></li> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken <input type="checkbox"/></li> </ul> |







**M2 Carry out planned, unplanned and preventative maintenance procedures on mechanical plant and equipment**

| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>   |                          | <b>Distinction Criteria – Minimum two to be met</b>   |                          |
|---|--------------------------|---|--------------------------|---|--------------------------|
| responsibilities in relation to the work to be conducted  |                          | and principles of preventative maintenance  |                          | maintenance operation being undertaken e.g. installation costs, technical requirements, planning, corrective / preventative   | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Provide an accurate technical explanation for the purpose of the maintenance work</li> </ul>                                       | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation</li> </ul>   | <input type="checkbox"/> |   | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Make recommendations / suggestions to improve work efficiencies</li> </ul>   | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted</li> </ul>   | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Use tools and equipment to competently achieve the quality standards required by the company in a timely manner</li> </ul>         | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Identify and take action to report or deal with issues of nonconformity / compliance</li> </ul>  | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures</li> </ul>            | <input type="checkbox"/> |   |                          | <ul style="list-style-type: none"> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken</li> </ul> | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Deal effectively with any issues within their role</li> </ul>  | <input type="checkbox"/> |   |                          |   |                          |

| <b>M2 Carry out planned, unplanned and preventative maintenance procedures on mechanical plant and equipment</b>   |  |   |  |   |
|--|--|---|--|---|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| responsibilities, where necessary  |  |   |  |   |
| <ul style="list-style-type: none"> <li>Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required</li> </ul> |  |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |  | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |  |   |  | <b>Mark awarded.</b>                                |

| <b>M3 Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition</b> |                          |  |                          |  |
|---|--------------------------|--|--------------------------|--|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>  |                          | <b>Distinction Criteria – Minimum two to be met</b>  |
| <ul style="list-style-type: none"> <li>Demonstrate a clear understanding of their role and</li> </ul>                               | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>Demonstrate a detailed understanding of the causes and</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>Demonstrate deeper technical / commercial knowledge of the repair / replacement work being</li> </ul> |
|   |                          |  |                          | <input type="checkbox"/>   |

**M3 Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition**

| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>  |                          | <b>Distinction Criteria – Minimum two to be met</b>   |                          |
|--|--------------------------|--|--------------------------|---|--------------------------|
| responsibilities in relation to the work to be conducted   |                          | principles of component degradation  |                          | undertaken e.g. costs, effect on maintenance periods, equipment sustainability  |                          |
| <ul style="list-style-type: none"> <li>• Provide an accurate technical explanation for the purpose of the maintenance work</li> </ul>  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Demonstrate a detailed understanding of the limits / restrictions of component replacement or repair e.g. In terms of reliability, certification of instruments / systems etc.</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted</li> </ul>   | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given</li> </ul>          | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation</li> </ul>  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Identify and take action to report or deal with issues of nonconformance/ compliance</li> </ul>  | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Use tools and equipment to competently carry out the removal / replacement of components in a logical sequence and timely manner</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Make recommendations / suggestions to improve work efficiencies</li> </ul>  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken</li> </ul> | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Conduct the work in compliance with all relevant regulatory requirements and company procedures</li> </ul>                                  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies</li> </ul>  |                          |   |                          |
| <ul style="list-style-type: none"> <li>• Deal effectively with any issues within their role</li> </ul>   | <input type="checkbox"/> |  |                          |   |                          |

| <b>M3 Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition</b>                                    |                          |   |  |   |
|--|--------------------------|---|--|---|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| responsibilities, where necessary  | <input type="checkbox"/> |   |  |   |
| <ul style="list-style-type: none"> <li>Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required</li> </ul> | <input type="checkbox"/> |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |   |  | <b>Mark awarded.</b>                                |

| <b>M4 Diagnose and determine the cause of faults in mechanical plant and equipment</b>  |                          |  |                          |  |
|---|--------------------------|--|--------------------------|--|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>  |                          | <b>Distinction Criteria – Minimum two to be met</b>  |
| <ul style="list-style-type: none"> <li>Demonstrate a clear understanding of their role and responsibilities in relation to</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>Demonstrate a detailed understanding of the theory /</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>Demonstrate deeper technical / commercial knowledge of the effect of fault diagnosis and</li> </ul> |
|   |                          |  |                          | <input type="checkbox"/>   |



| <b>M4 Diagnose and determine the cause of faults in mechanical plant and equipment</b>   |                          |   |  |   |
|--|--------------------------|---|--|---|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures</li> <li>Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required</li> </ul> | <input type="checkbox"/> |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |   |  | <b>Mark awarded.</b>                                |





**EM2 Carry out planned, unplanned and preventative maintenance on electromechanical plant and equipment and ensure its return to operational condition**

| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>  |  |
|--|--|---|--|--|--|
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/></li> <li>• Provide an accurate technical explanation for the purpose of the maintenance work <input type="checkbox"/></li> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given <input type="checkbox"/></li> <li>• Use tools and equipment to competently achieve the quality standards required by the company in a timely manner <input type="checkbox"/></li> <li>• Conduct the work in compliance with all relevant regulatory requirements and <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate a detailed understanding of the process and principles of preventative maintenance <input type="checkbox"/></li> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/></li> <li>• Make recommendations / suggestions to improve work efficiencies <input type="checkbox"/></li> <li>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate deeper technical / commercial knowledge of the maintenance operation being undertaken e.g. installation costs, technical requirements, planning, corrective / preventative <input type="checkbox"/></li> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/></li> <li>• Identify and take action to report or deal with issues of nonconformity / compliance <input type="checkbox"/></li> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken <input type="checkbox"/></li> </ul> |  |



**EM3 Replace, repair and/or remove components within electromechanical plant and equipment and ensure its return to operational condition**

| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
|--|--|--|--|---|--|
| <ul style="list-style-type: none"> <li>• Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/></li> <li>• Provide an accurate technical explanation for the purpose of the maintenance work <input type="checkbox"/></li> <li>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety / technical information given <input type="checkbox"/></li> <li>• Use tools and equipment to competently carry out the removal / replacement of components in a logical sequence and timely manner <input type="checkbox"/></li> <li>• Conduct the work in compliance with all relevant regulatory requirements and company procedures <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate a detailed understanding of the causes and principles of component degradation <input type="checkbox"/></li> <li>• Demonstrate a detailed understanding of the limits / restrictions of component replacement or repair e.g. In terms of reliability, certification of instruments / systems etc. <input type="checkbox"/></li> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/></li> <li>• Make recommendations / suggestions to improve work efficiencies <input type="checkbox"/></li> <li>• Produce a detailed work plan to support the maintenance <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• Demonstrate deeper technical / commercial knowledge of the repair / replacement work being undertaken e.g. costs, effect on maintenance periods, equipment sustainability <input type="checkbox"/></li> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/></li> <li>• Identify and take action to report or deal with issues of nonconformance/ compliance <input type="checkbox"/></li> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken <input type="checkbox"/></li> </ul> |  |



| <b>EM4 Diagnose and determine the cause of faults within electromechanical plant and equipment</b>   |                          |   |                          |   |                          |
|--|--------------------------|---|--------------------------|---|--------------------------|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |                          | <b>Distinction Criteria – Minimum two to be met</b>   |                          |
| responsibilities in relation to the fault diagnosis to be conducted  |                          | principles of relevant diagnostic techniques  |                          | effect of fault diagnosis and repair e.g. fault analysis, costs, prevention, lost time  | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Provide an accurate technical explanation for the purpose and process of the fault's activity</li> </ul>  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Able to identify the root cause of the fault and preventative measures</li> </ul>  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Identify and implement tangible changes that improve the efficiency of the work being conducted</li> </ul>   | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Demonstrate a clear plan for the diagnosis to be undertaken and an understanding of any safety / technical information given</li> </ul>                       | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation</li> </ul>   | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Identify and take action to report or deal with issues of nonconformity / compliance</li> </ul>  | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Competently use the correct tools, equipment, technical data and diagnostic techniques to identify, locate and diagnose fault/s in a timely manner</li> </ul> | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Make recommendations / suggestions to improve work efficiencies</li> </ul>   | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken</li> </ul> | <input type="checkbox"/> |
| <ul style="list-style-type: none"> <li>• Correctly analyse and interpret the results of the fault-finding techniques conducted</li> </ul>  | <input type="checkbox"/> | <ul style="list-style-type: none"> <li>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies</li> </ul> | <input type="checkbox"/> |   |                          |

| <b>EM4 Diagnose and determine the cause of faults within electromechanical plant and equipment</b>   |                          |   |  |   |
|--|--------------------------|---|--|---|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures</li> <li>Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required</li> </ul> | <input type="checkbox"/> |   |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |   |  | <b>Mark awarded.</b>                                |

## Appendix F: Practice Technical Interview Template

This document is for use by the employer/provider person playing the role of the assessor during a practice technical interview. It is designed to help replicate the live assessment experience and to enable feedback to be provided to the apprentice.

The practice technical interview must be conducted under examination conditions and recorded. The apprentice must be asked questions.

There are a maximum of **100 marks** for the interview.

To achieve a Pass for the technical interview, a Pass is required in ALL relevant elements, including all skills from the specialist pathway.

To achieve a Merit or Distinction for the technical interview, all Pass criteria must be achieved PLUS a minimum number of merit and distinction marks as described in Section 3 in the Specification ‘Grading and Grading Criteria – Component 3: Technical Interview.’

|                        |  |             |  |              |
|------------------------|--|-------------|--|--------------|
| Apprentice Full Name:  |  |             |  |              |
| Employer and location: |  |             |  |              |
| Assessor Full Name:    |  |             |  |              |
| Date of Interview:     |  | Start time: |  | Finish time: |





| <b>K2 Relevant industry health and safety standards, regulations, and environmental and regulatory requirements</b>   |  |   |  |   |   |
|---|--|---|--|---|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>   |   |
| <p>procedures which apply to the range of work undertaken and describe why they are required</p> <p><input type="checkbox"/></p> <ul style="list-style-type: none"> <li>• A knowledge of the Company process/s and/ or procedures for achieving and maintaining safety when working on systems within their work role and how they impact the work e.g. safe systems of work, documentation</li> </ul> <p><input type="checkbox"/></p> <ul style="list-style-type: none"> <li>• A clear understanding of the purpose of conducting risk assessments and the factors which affect the critical reasoning when making risk assessment decisions</li> </ul> <p><input type="checkbox"/></p> <ul style="list-style-type: none"> <li>• A knowledge of the Company procedure/s for reporting</li> </ul> |  | <p>arrangements and their applicability and adapting them for changing circumstances whilst still maintaining safety</p> <p><input type="checkbox"/></p> <ul style="list-style-type: none"> <li>• How they have readily accepted additional health, safety and environmental responsibility / autonomy to maintain / improve work safety standards</li> </ul> |  | <p>and environmental deficiencies and then implementing the appropriate solution/s in line with</p> <ul style="list-style-type: none"> <li>• Company policies / procedures</li> <li>• How they have challenged unsafe behaviour / practices using appropriate techniques</li> </ul> | <p><input type="checkbox"/></p> <p><input type="checkbox"/></p> |







| <b>K4 The relevant engineering theories and principles relative to their occupation</b>  |  |  |  |   |
|--|--|--|--|---|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |
| <ul style="list-style-type: none"> <li>A working knowledge of how to apply the relevant operational formulae which can be used to support their work activities</li> </ul> |  |  |  | support the effects of current or future technologies |
| <b>Assessor must ask the following standardised questions.</b>   |  | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                            |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |  |  |  | <b>Mark awarded.</b>                                  |

| <b>S5 Locate, and rectify faults on plant and equipment</b>   |  |   |  |  |
|---|--|---|--|--|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>  |
| <ul style="list-style-type: none"> <li>A working knowledge of the Company policies and procedures for the location of faults on plant and equipment worked on <input type="checkbox"/></li> <li>A clear understanding of the Company policies and procedures in relation to <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>A detailed knowledge of the Company processes and procedures by explaining additional technical detail for the fault location methods / procedures conducted on plant/ equipment/systems <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>An excellent knowledge / understanding in relation to fault location / rectification procedures within their job role <input type="checkbox"/></li> <li>How they have used a range of methods to locate, and rectify faults on plant and equipment, with a detailed explanation / <input type="checkbox"/></li> </ul> |



| <b>S5 Locate, and rectify faults on plant and equipment</b>   |  |  |  |   |
|---|--|--|--|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>How they have recorded / reported the results of fault-finding activities in line with Company procedures</li> </ul> |  |  |  |   |
| <b>Assessor must ask the following standardised questions.</b>  |  | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |  |  | <b>Mark awarded.</b>                                |

| <b>S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation</b>   |  |   |  |   |
|--|--|---|--|---|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>A working knowledge of the range of information which can be gained from Company policies and procedures which affect their work</li> <li>A working knowledge of the range and type of technical</li> </ul> |  | <ul style="list-style-type: none"> <li>How they have taken a lead in interpreting / relaying technical information to progress work or support others understanding</li> <li>How they have questioned / clarified information which was unclear or incorrect</li> </ul> |  |   |





| <b>S7 Inspect and maintain appropriate plant and equipment to meet operational requirements</b>  |  |  |  |   |
|--|--|--|--|---|
| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |
| plant / equipment to confirm that the work completed met with Company operational requirements<br><ul style="list-style-type: none"> <li>How they have reported / recorded the outcome of their inspection and maintenance operations</li> </ul> |  |  |  |   |
| <b>Assessor must ask the following standardised questions.</b>   |  | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |  |  |  | <b>Mark awarded.</b>                                |

| <b>S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification</b>  |  |   |  |  |
|---|--|---|--|--|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>  |
| <ul style="list-style-type: none"> <li>A working knowledge of their role and responsibilities in the handover of the system /</li> </ul> <input type="checkbox"/> |  | <ul style="list-style-type: none"> <li>How they have taken a pro-active lead in the handover process by effectively communicating the detail of</li> </ul> <input type="checkbox"/> |  | <ul style="list-style-type: none"> <li>How they have consulted / involved team members / other relevant persons to achieve</li> </ul> <input type="checkbox"/> |



| <b>S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification</b>  |  |  |  |   |
|---|--|--|--|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |
| <ul style="list-style-type: none"> <li>How they have completed the Company process for reporting / recording the handover of plant / equipment back into service in line with Company procedures</li> </ul> |  |  |  |   |
| <b>Assessor must ask the following standardised questions.</b>  |  | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |  |  | <b>Mark awarded.</b>                                |



| <b>E1 Position, assemble, install and dismantle electrical plant and equipment to agreed specifications</b>   |                          |  |  |   |                      |
|---|--------------------------|--|--|---|----------------------|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| Company / operational requirements <ul style="list-style-type: none"> <li>• How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities</li> <li>• How they have reported / recorded the work conducted and returned the work area to a safe condition in line with Company procedures</li> </ul> | <input type="checkbox"/> | work activities which has led to a successful completion   |  |   |                      |
| <b>Assessor must ask the following standardised questions.</b>  |                          | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |                          |  |  |   |                      |

| <b>E2 Carry out planned, unplanned and preventative maintenance on electrical plant and equipment</b>   |  |  |  |   |  |
|---|--|--|--|---|--|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of work activities within their job role <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of maintenance procedures work activities <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of maintenance procedures in compliance with all Company health, safety and environmental processes, policies and regulatory requirements <input type="checkbox"/></li> <li>• How they have conducted the required checks / test procedures to confirm the <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• A detailed understanding of the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of methods / techniques used for maintenance work undertaken <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising / controlling their conducted work activities which has led to a successful completion <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical maintenance requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company maintenance methods / processes / procedures used for the range of plant and equipment worked on <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their maintenance work activities <input type="checkbox"/></li> </ul> |  |

| <b>E2 Carry out planned, unplanned and preventative maintenance on electrical plant and equipment</b>   |                          |  |  |   |
|---|--------------------------|--|--|---|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |
| completed maintenance work meets Company requirements<br><ul style="list-style-type: none"> <li>• How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities</li> <li>• How they have reported / recorded the work conducted and returned the work area to a safe condition in line with Company procedures</li> </ul> | <input type="checkbox"/> |  |  |   |
| <b>Assessor must ask the following standardised questions.</b>  |                          | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |                          |  |  | <b>Mark awarded.</b>                                |

**E3 Replace, repair and/or remove components in electrical plant and equipment and ensure its return to operational condition  
AND  
E4 Diagnose and determine the cause of faults in electrical plant and equipment**

| <b>Pass Criteria – All to be met</b>   |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
|--|--|--|--|---|--|
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of replace / repair activities</li> <li>• How they have used Company policies / procedures / specifications to conduct a range of replace / repair work procedures</li> <li>• How they have used tools and equipment to conduct a range of replace / repair procedures in compliance with all Company health, safety and environmental processes, policies and regulatory requirements</li> </ul> | <input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/> | <ul style="list-style-type: none"> <li>• A detailed understanding of the methods and technical requirements for the range of plant and equipment replaced / repaired</li> <li>• A detailed technical understanding for the range of causes and effects which lead to plant and equipment being replaced / repaired</li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems</li> <li>• How they have taken a pro-active lead in organising /</li> </ul> | <input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/> | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment replaced / repaired</li> <li>• Their ability to explain / justify the Company methods / processes / procedures used for the range of plant and equipment replaced / repaired</li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their replace / repair work activities</li> </ul> | <input type="checkbox"/><br><br><input type="checkbox"/><br><br><input type="checkbox"/> |

| E3 Replace, repair and/or remove components in electrical plant and equipment and ensure its return to operational condition<br>AND   |  |   |                            |
|---|--|---|----------------------------|
| E4 Diagnose and determine the cause of faults in electrical plant and equipment   |  |   |                            |
| Pass Criteria – All to be met   |  | Merit Criteria – Minimum two to be met  |                            |
| <ul style="list-style-type: none"> <li>How they have conducted the required checks / test procedures to confirm the plant / equipment worked on can be returned to operational service</li> <li>How they have used critical reasoning to identify and resolve technical problems within their control</li> <li>How they have returned plant / equipment worked on to operational service in line with Company procedures</li> </ul> | <input type="checkbox"/>   | controlling their conducted replace / repair work activities which has led to a successful completion |                            |
| <b>Assessor must ask the following standardised questions.</b>  | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |   | <b>Recording timeline.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |   | <b>Mark awarded.</b>       |

## Pathway: Mechanical Role Specialist Skills

| <b>M1 Position, assemble, install and dismantle mechanical plant and equipment to agreed specifications</b>   |   |  |  |
|---|---|--|--|
| <b>Pass Criteria – All to be met</b>  |   | <b>Merit Criteria – Minimum two to be met</b>  |  |
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of work activities within their job role <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of position, assemble, install and dismantle work activities <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of position, assemble, install and dismantle activities in compliance with specifications and regulatory requirements <input type="checkbox"/></li> <li>• How they have conducted the required checks / test procedures to confirm the completed work meets <input type="checkbox"/></li> </ul> | <ul style="list-style-type: none"> <li>• A detailed understanding of the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of methods / techniques used for their position, assemble, install and dismantle work activities <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising / controlling their conducted <input type="checkbox"/></li> </ul> | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company methods / processes / procedures used for the range of plant and equipment worked on <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their position/ assemble / install / dismantle work activities <input type="checkbox"/></li> </ul> |  |

| <b>M1 Position, assemble, install and dismantle mechanical plant and equipment to agreed specifications</b>   |                          |  |  |   |                      |
|---|--------------------------|--|--|---|----------------------|
| <b>Pass Criteria – All to be met</b>  |                          | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| Company / operational requirements <ul style="list-style-type: none"> <li>• How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities</li> <li>• How they have reported / recorded the work conducted and returned the work area to a safe condition in line with Company procedures</li> </ul> | <input type="checkbox"/> | work activities which has led to a successful completion   |  |   |                      |
| <b>Assessor must ask the following standardised questions.</b>  |                          | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |                          |  |  |   |                      |

**M2 Carry out planned, unplanned and preventative maintenance procedures on mechanical plant and equipment**

| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
|---|--|--|--|---|--|
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of work activities within their job role <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of maintenance procedures work activities <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of maintenance procedures in compliance with all Company health, safety and environmental processes, policies and regulatory requirements <input type="checkbox"/></li> <li>• How they have conducted the required checks / test procedures to confirm the <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• A detailed understanding of the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of methods / techniques used for maintenance work undertaken <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising / controlling their conducted work activities which has led to a successful completion <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical maintenance requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company maintenance methods / processes / procedures used for the range of plant and equipment worked on <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their maintenance work activities <input type="checkbox"/></li> </ul> |  |

| <b>M2 Carry out planned, unplanned and preventative maintenance procedures on mechanical plant and equipment</b>  |  |  |  |   |
|---|--|--|--|---|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |
| completed maintenance work meets Company requirements<br><ul style="list-style-type: none"> <li>• How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities</li> <li>• How they have reported / recorded the work conducted and returned the work area to a safe condition in line with Company procedures</li> </ul> |  |  |  |   |
| <b>Assessor must ask the following standardised questions.</b>  |  | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          |
| <b>Questions</b><br><i>Develop some open ended questions</i>  |  |  |  | <b>Mark awarded.</b>                                |

**M3** Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition

**AND**

**M4** Diagnose and determine the cause of faults in mechanical plant and equipment

| Pass Criteria – All to be met  |  | Merit Criteria – Minimum two to be met  |  | Distinction Criteria – Minimum two to be met  |  |
|--|--|---|--|---|--|
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of replace / repair activities undertaken <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of replace / repair work procedures <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of replace / repair procedures in compliance with all Company health, safety and environmental processes, policies and regulatory requirements <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• A detailed understanding of the methods and technical requirements for the range of plant and equipment replaced / repaired <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of causes and effects which lead to plant and equipment being replaced / repaired <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising /</li> </ul> |  | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment replaced / repaired <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company methods /processes / procedures used for the range of plant and equipment replaced / repaired <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their replace / repair work activities <input type="checkbox"/></li> </ul> |  |



**M3** Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition

**AND**

**M4** Diagnose and determine the cause of faults in mechanical plant and equipment

**Questions**

*Develop some open ended questions*

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

## Pathway: Electromechanical Role Specialist Skills

| <b>EM1 Position, assemble, install and dismantle integrated electromechanical power and control systems</b>   |  |   |  |  |
|---|--|---|--|--|
| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>   |  | <b>Distinction Criteria – Minimum two to be met</b>  |
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of work activities within their job role <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of position, assemble, install and dismantle work activities <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of position, assemble, install and dismantle activities in compliance with specifications and regulatory requirements <input type="checkbox"/></li> <li>• How they have conducted the required checks / test procedures to confirm the completed work meets <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• A detailed understanding of the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of methods / techniques used for their position, assemble, install and dismantle work activities <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problem <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising / controlling their conducted work activities which has led to a successful completion <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company methods / processes / procedures used for the range of plant and equipment worked on <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their position/ assemble / install / dismantle work activities <input type="checkbox"/></li> </ul> |

| <b>EM1 Position, assemble, install and dismantle integrated electromechanical power and control systems</b>  |                          |  |  |   |                      |
|--|--------------------------|--|--|---|----------------------|
| <b>Pass Criteria – All to be met</b>   |                          | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b> |                      |
| Company / operational requirements<br><ul style="list-style-type: none"> <li>How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities</li> <li>How they have reported / recorded the work conducted and returned the work area to a safe condition in line with Company procedures</li> </ul> | <input type="checkbox"/> |  |  |   |                      |
| <b>Assessor must ask the following standardised questions.</b>   |                          | <b>Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.</b> |  | <b>Recording timeline.</b>                          | <b>Mark awarded.</b> |
| <b>Questions</b><br><i>Develop some open ended questions</i>   |                          |  |  |   |                      |

**EM2 Carry out planned, unplanned and preventative maintenance on integrated electromechanical plant and equipment**

| <b>Pass Criteria – All to be met</b>  |  | <b>Merit Criteria – Minimum two to be met</b>  |  | <b>Distinction Criteria – Minimum two to be met</b>   |  |
|---|--|--|--|---|--|
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of work activities within their job role <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of maintenance procedures work activities <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of maintenance procedures in compliance with all Company health, safety and environmental processes, policies and regulatory requirements <input type="checkbox"/></li> <li>• How they have conducted the required checks / test procedures to confirm the <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• A detailed understanding of the range and technical requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of methods / techniques used for maintenance work undertaken <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising / controlling their conducted work activities which has led to a successful completion <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical maintenance requirements of the plant and equipment worked on <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company maintenance methods / processes / procedures used for the range of plant and equipment worked on <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their maintenance work activities <input type="checkbox"/></li> </ul> |  |



**EM3** Replace, repair and/or remove components within integrated electromechanical plant and equipment and ensure its return to operational condition

AND

**EM4** Diagnose and determine the cause of faults within integrated electromechanical plant and equipment

| Pass Criteria – All to be met  |  | Merit Criteria – Minimum two to be met   |  | Distinction Criteria – Minimum two to be met   |  |
|--|--|--|--|--|--|
| <ul style="list-style-type: none"> <li>• A working knowledge of their responsibilities for the range of replace / repair activities undertaken <input type="checkbox"/></li> <li>• How they have used Company policies / procedures / specifications to conduct a range of replace / repair work procedures <input type="checkbox"/></li> <li>• How they have used tools and equipment to conduct a range of replace / repair procedures in compliance with all Company health, safety and environmental processes, policies and regulatory requirements <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• A detailed understanding of the methods and technical requirements for the range of plant and equipment replaced / repaired <input type="checkbox"/></li> <li>• A detailed technical understanding for the range of causes and effects which lead to plant and equipment being replaced / repaired <input type="checkbox"/></li> <li>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems <input type="checkbox"/></li> <li>• How they have taken a pro-active lead in organising / <input type="checkbox"/></li> </ul> |  | <ul style="list-style-type: none"> <li>• An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment replaced / repaired <input type="checkbox"/></li> <li>• Their ability to explain / justify the Company methods / processes / procedures used for the range of plant and equipment replaced / repaired <input type="checkbox"/></li> <li>• How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their replace / repair work activities <input type="checkbox"/></li> </ul> |  |



**EM3** Replace, repair and/or remove components within integrated electromechanical plant and equipment and ensure its return to operational condition

AND

**EM4** Diagnose and determine the cause of faults within integrated electromechanical plant and equipment

**Questions**

*Develop some open ended questions*

|  |  |  |
|--|--|--|
|  |  |  |
|--|--|--|

## Appendix G: Portfolio Mapping Document

### Introduction

Throughout the on-programme part of the apprenticeship, the apprentice will need to compile a portfolio of evidence to support the requirements of the technical interview which is based on the portfolio. The evidence within the portfolio will need to be mapped by the apprentice to the KSB requirements using the portfolio mapping document below.

The independent assessor will use the portfolio mapping document to review the evidence in the apprentice's portfolio in preparation for the technical interview.

The portfolio mapping document below consists of the core requirements and specialist skills.

### Apprentices next steps

1. Complete all the details on the first page and include employer details of where relevant competencies from their experience at work was gained.
2. Ensure each piece of evidence is signed off by their tutor/supervisor/mentor and training provider. The apprentice can use a number of different types of evidence to demonstrate their competence as described in Section 5 of the Specification – 'What to include in the portfolio of evidence'. For further guidance, the apprentice must seek advice from their tutor/supervisor/mentor and training provider.
3. Map evidence to the criteria in the following pages using a referencing system indicating where the evidence for the criteria is located in the portfolio e.g., work based evidence Job 1 (J1) page 5 paragraph 2. This will allow the independent assessor, appointed by Energy & Environment Awards to locate the section or specific piece of evidence being discussed and referred to during the interview.
4. Place the portfolio mapping document at the front of the portfolio of evidence.

The apprentice's training provider must make arrangements for Energy & Environment Awards to have access to the apprentice's portfolio including the portfolio mapping document at Gateway. For those using e-portfolios such as ONEFILE or SMARTASSESSOR the reference used must simply be the file or folder name you used when uploading the evidence to such systems.

## Portfolio Mapping Document

This document must be placed at the front of the Portfolio and submitted to Energy & Environment Awards with the Portfolio.

### Mapping Sign off on Completion:

| Apprentice Full Name<br>(Print) | Apprentice<br>Signature | Training<br>Provider<br>(Company) | Training<br>Provider Full<br>Name of<br>Signatory | Date of<br>Sign Off |
|---------------------------------|-------------------------|-----------------------------------|---|---------------------|
|                                 |                         |                                   |   |                     |

### Core Knowledge

| Ref.                      | Apprenticeship Standard Criteria   | PORTFOLIO<br>REVIEW<br>(Apprentice<br>Input) |   |   |
|---------------------------|--|--|---|---|
|                           |  | 1  | 2 | 3 |
| K1                        | First principles relating to operation and maintenance of plant and equipment                            |  |   |   |
| K2                        | Relevant industry health and safety standards, regulations and environmental and regulatory requirements |  |   |   |
| K3                        | Maintenance and operational practices, processes and procedures  |  |   |   |
| K4                        | Relevant engineering theories and principles   |  |   |   |
| <b>Assessor Comments:</b> |  |  |   |   |

### Core Skills

| Ref.                      | Apprenticeship Standard Criteria  | PORTFOLIO REVIEW<br>REVIEW<br>(Apprentice Input) |   |   |
|---------------------------|---|--|---|---|
|                           |   | 1  | 2 | 3 |
| S5                        | Locate, and rectify faults on plant and equipment   |  |   |   |
| S6                        | Read, understand, interpret and work to technical information                                 |  |   |   |
| S7                        | Inspect and maintain plant and equipment  |  |   |   |
| S8                        | Communicate, handover and confirm that the appropriate engineering process has been completed |  |   |   |
| <b>Assessor Comments:</b> |   |  |   |   |

### Core Behaviours

| Ref.                      | Apprenticeship Standard Criteria | PORTFOLIO REVIEW<br>REVIEW<br>REVIEW<br>(Apprentice Input) |   |   |
|---------------------------|----------------------------------|--|---|---|
|                           |                                  | 1  | 2 | 3 |
| B5                        | Critical reasoning               |  |   |   |
| <b>Assessor Comments:</b> |                                  |  |   |   |

## Pathway: Electrical Specific Skills

| Ref.                      | Apprenticeship Standard Criteria  | PORTFOLIO<br>REVIEW<br>REVIEW<br>(Apprentice Input) |   |   |
|---------------------------|---|---|---|---|
|                           |   | 1   | 2 | 3 |
| E1                        | Position, assemble, install and dismantle electrical plant and equipment to agreed specifications                         |   |   |   |
| E2                        | Carry out planned, unplanned and preventative maintenance on electrical plant and equipment                               |   |   |   |
| E3                        | Replace, repair and/or remove components in electrical plant and equipment and ensure its return to operational condition |   |   |   |
| E4                        | Diagnose and determine the cause of faults in electrical plant and equipment  |   |   |   |
| <b>Assessor Comments:</b> |   |   |   |   |

## Pathway: Mechanical Specific Skills

| Ref.                      | Apprenticeship Standard Criteria  | PORTFOLIO<br>REVIEW<br>REVIEW<br>(Apprentice Input) |   |   |
|---------------------------|---|---|---|---|
|                           |   | 1   | 2 | 3 |
| M1                        | Position, assemble, install and dismantle mechanical plant and equipment to agreed specifications                         |   |   |   |
| M2                        | Carry out planned, unplanned and preventative maintenance procedures on mechanical plant and equipment                    |   |   |   |
| M3                        | Replace, repair and/or remove components in mechanical plant and equipment and ensure its return to operational condition |   |   |   |
| M4                        | Diagnose and determine the cause of faults in mechanical plant and equipment  |   |   |   |
| <b>Assessor Comments:</b> |   |   |   |   |

## Pathway: Electromechanical Specific Skills

| Ref.                      | Apprenticeship Standard Criteria  | PORTFOLIO<br>REVIEW<br>REVIEW<br>(Apprentice Input) |   |   |
|---------------------------|---|---|---|---|
|                           |   | 1   | 2 | 3 |
| EM1                       | Position, assemble, install and dismantle integrated electromechanical power and control systems  |   |   |   |
| EM2                       | Carry out planned, unplanned and preventative maintenance on integrated electromechanical plant and equipment                                   |   |   |   |
| EM3                       | Replace, repair and/or remove components within integrated electromechanical plant and equipment and ensure its return to operational condition |   |   |   |
| EM4                       | Diagnose and determine the cause of faults within integrated electromechanical plant and equipment  |   |   |   |
| <b>Assessor Comments:</b> |   |   |   |   |

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