

# Maintenance and Operations Engineering Technician – Electrical pathway

## Practice Knowledge Assessment – paper A

Forename (s)	
Surname (s)	
Date	

**Duration: 45 minutes**

### Instructions

- Use black or blue ink or black ball-point pen
- Fill in the boxes at the top of this page
- There are 30 questions, you should attempt all of them
- Mark your answer with an ☒ - if you wish to change your answer please put a line through ☒ and re-select with another ☒
- Only one answer per question allowed

### Sample:

London is the capital of....


Example Question		
London is the capital of...		
Possible answers		Answer
a)	Wales	<input checked="" type="checkbox"/>
b)	Scotland	<input type="checkbox"/>
c)	Northern Ireland	<input type="checkbox"/>
d)	England	<input checked="" type="checkbox"/>

## Advice

- Do not spend too long on one question
- Read all questions thoroughly before starting your examination
- Mobile phones and watches must not be taken into the examination room.
- The examination must be conducted under examination conditions
- Cheating: you will be asked to leave the examination room and will be classified an automatic fail and referred to your employer

Do not turn over the page until the invigilator instructs you to.

(A) First principles relating to the operation and maintenance of appropriate plant and equipment (7 Questions)

Question 01		
On what type of installation would you fit this design of washer?		
Possible answers		Answer
a)	High corrosion	
b)	High temperature	
c)	High vibration	
d)	High pressure	

Question 02		
Maximum and/or minimum values that are permitted for specific maintenance operations are commonly described as:		
Possible answers		Answer
a)	Factors of safety	
b)	Rules of thumb	
c)	Margins	
d)	Tolerances	

Question 03		
Which statement is correct? Safety critical equipment should be maintained ....		
Possible answers		Answer
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 04**

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

**Possible answers****Answer**

- |    |   |  |
|----|---|--|
| 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 05**

What type of maintenance is applied when something stops working?

**Possible answers****Answer**

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

**Question 06**

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

**Possible answers****Answer**

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

**Question 07**

Which of the following is commonly classed as safety critical?

**Possible answers****Answer**

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

(B) Relevant industry health and safety standards, regulations, and environmental and regulatory requirements (9 Questions)

**Question 08**

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

**Possible answers****Answer**

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

**Question 09**

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

**Possible answers****Answer**

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

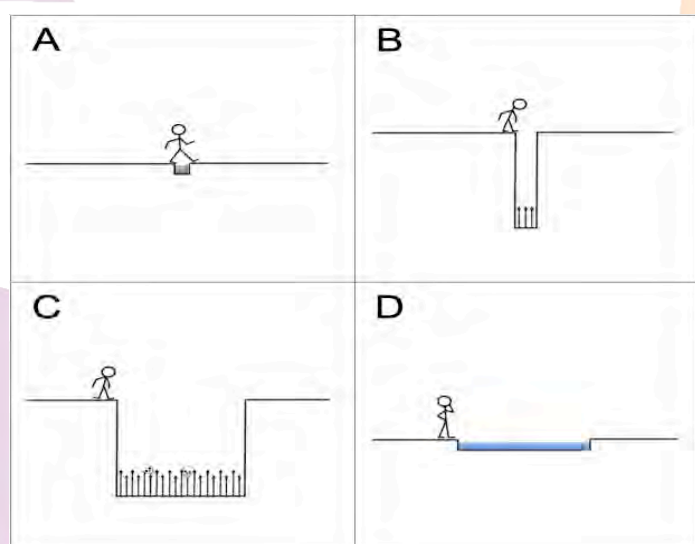
### Question 10

What document should be fixed to a scaffold before you use it?

Possible answers		Answer
a)	Risk assessment	
b)	Safety certificate	
c)	Approved Scaffoldtag	
d)	Permit to work	

### Question 11

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



Possible answers		Answer
a)	A	
b)	B	
c)	C	
d)	D	

**Question 12**

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

Possible answers		Answer
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 you know if a substance was regarded as hazardous?

Possible answers		Answer
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		Answer
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		Answer
a)	Lead technicians	
b)	Training and authorised people	
c)	skilled people	
d)	experienced people	

**Question 16**

Which of the following manual handling statements is true?

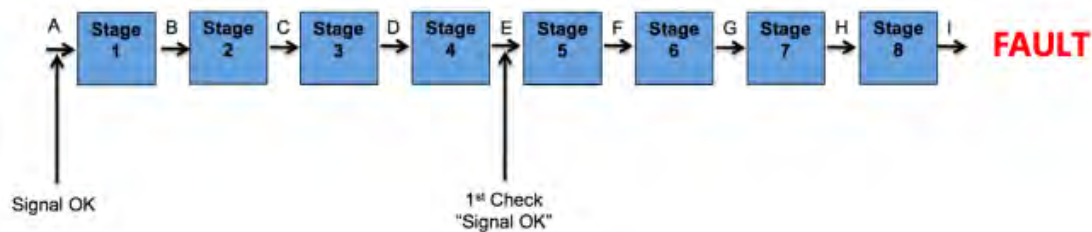
Possible answers		Answer
a)	Correct manual handling prevents all accidents	
b)	Correct manual handling prevents damage to equipment	
c)	Correct manual handling reduces the risk of human injury	
d)	Correct manual handling should only be applied in the workplace	



(C) Maintenance and operational practices, processes and procedures covering a range of plant and equipment (5 Questions)

### Question 17

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



#### Possible answers

#### Answer

- 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

#### Answer

- a) PUWER
- b) COMAH
- c) LOLER
- d) COSHH

### Question 19

What is being measured in this image?



#### Possible answers

#### Answer

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

### Question 20

When seen on a British Standard convention drawing, what does this symbol represent?



#### Possible answers

#### Answer

- a) Electrical signal
- b) Pneumatic line
- c) Hydraulic line
- 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****Answer**

a) Preventative

b) Risk based

c) Condition based

d) Corrective

**(D) The relevant engineering theories and principles relative to their occupation (9 Questions)**

**Question 22**

Ohm's law can be expressed as ..

**Possible answers****Answer**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****Answer**

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****Answer**

- |    |                       |  |
|----|-----------------------|--|
| 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****Answer**

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

**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****Answer**

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

**Question 27**

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

Possible answers		Answer
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	

**Question 28**

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

Possible answers		Answer
a)	180°	
b)	360°	
c)	90°	
d)	0°	

**Question 29**

What hidden hazard can a capacitor have?

Possible answers		Answer
a)	Sharp edges	
b)	Stored energy	
c)	Spring under tension	
d)	Trapped pressure	

**Question 30**

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

Possible answers		Answer
a)	Green	
b)	Brown	
c)	Red	
d)	Yellow	

# End of Practice Knowledge Assessment

## Practice Knowledge Assessment

### Answer scheme

Question	Answer	Question	Answer
1	C	16	C
2	D	17	C
3	B	18	A
4	C	19	B
5	C	20	B
6	C	21	C
7	B	22	C
8	A	23	C
9	C	24	A
10	C	25	A
11	A	26	B
12	D	27	D
13	C	28	A
14	B	29	B
15	B	30	B