MOET Practice Assessment

Please write clearly in block capitals below	
Company Name	
Forename (s)	
Surname (s)	
Date of Birth	
Apprentice Number	
Apprentice Signature	
Date of Knowledge Test	

Level: 3
Standard: Maintenance and Operations Engineering Technician
Pathway: Electrical Systems and Process Control
Duration: 45 minutes

Materials

For this paper you must have:

- Pens
- Calculators and reference documents are not required

Instructions

- Use black or blue ink or black ball-point pen
- Fill in the boxes at the top of this page
- Answer **all** questions
- There are questions, possible answers as well as a column for you to mark your answer

- Mark your answer with an ☒ against the possible answer you think is correct- if you wish to change your answer please put a line through ~~☒~~ and re-select with another ☒
- Only one answer per question allowed. Answers which do not follow the rules of selection will be disallowed. This may impact on the grade awarded
- Do all rough work in this answer book, spare paper is provided in this answer booklet and can be used but **MUST NOT** be removed
- Additional spare paper will not be provided
- All questions are closed book

Sample:

London is the capital of….

Example Question		
London is the capital of…		
Possible answers		**Answer**
a)	Wales	~~**X**~~
b)	Scotland	
c)	Northern Ireland	
d)	England	**X**

Information

- There are 30 questions in total
- All questions should be attempted

Advice

- You are not permitted to leave the examination room for the duration of the assessment
- 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 i.e. you

may not speak to other candidates, if you have a problem raise your hand and the invigilator will attend

- 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 or commence the knowledge test until the invigilator instructs you to

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ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

DO NOT DETACH

Spare paper for to use for calculations or working out

(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		
The maximum and or minimum values that are permitted for specific maintenance operations are commonly described as what?		
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)	safety critical equipment does not need testing	
b)	more frequently that non safety critical equipment	
c)	less frequently that 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		
When seen on a piece of equipment, what do the initials **IP** followed by **2 numbers** refer to?		
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	

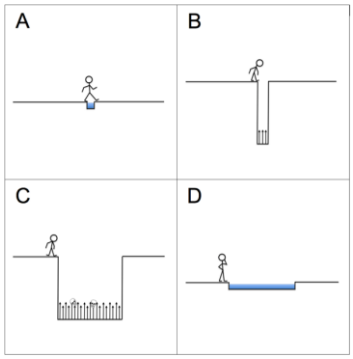
(B) Relevant industry health and safety standards, regulations, and environmental and regulatory requirements (9 Questions)

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 Scafftag	
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 advised	
c)	PPE is good practice	
d)	PPE is mandatory	

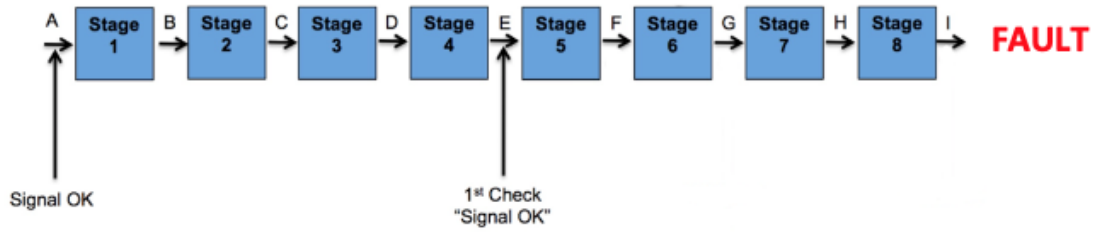
Question 13		
In accordance with **HSE regulations**, how would you know if a substance was regarded as hazardous?		
Possible answers		**Answer**
a)	The container will be coloured red	
b)	It will be contained in a glass receptacle	
c)	It will have a label identifying the hazard	
d)	It will give off a 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 the information provided in the image, at which position should you logically 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	
Ohms law can be expressed as ...	

Possible answers		**Answer**
a)	V = I + R	
b)	V = I ÷ R	
c)	V = I x R	
d)	V = I – R	

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

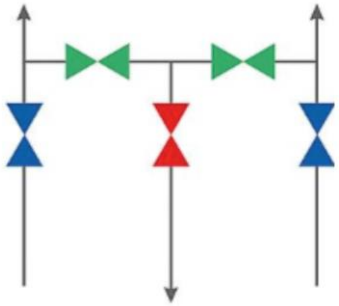
Question 22	
What type of sensing device is used on this flow installation?	

Possible answers		**Answer**
a)	RF probe	
b)	Orifice plate	
c)	Venturi tube	
d)	Turbine meter	

Question 23	
What effect would a loose connection have on a Resistance Temperature Device temperature loop?	

Possible answers		**Answer**
a)	Fluctuating signal	
b)	Low reading	
c)	Static signal	
d)	No effect	

Question 24		
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 25		
On this pressure manifold, what is the purpose of the red handle valve? 		
Possible answers		**Answer**
a)	Isolating pressure to transmitter	
b)	Isolating mains pressure	
c)	Venting pressure	
d)	Equalising pressure	

Question 26		
A pressure transmitter with a range of 0-200 mbar and a feedback signal of 4-200mA is showing a feedback signal of 16mA. Assuming that the transmitter is calibrated correctly what is the actual line pressure?		
Possible answers		**Answer**
a)	100mbar	
b)	120mbar	
c)	150mbar	
d)	160mbar	

Question 27		
What is the name given to the process of routinely inspecting electrical appliances?		
Possible answers		**Answer**
a)	Resistance testing	
b)	PAT testing	
c)	Planned maintenance	
d)	Breakdown maintenance	

Question 28		
What does the third wire on a 3 wire Resistance Temperature Device do?		
Possible answers		**Answer**
a)	Acts as a spare wire	
b)	It is the power wire	
c)	Cancels out the resistance	
d)	It is the earth wire	

Question 29		
What is the normal output range of a pneumatic transmitter?		
Possible answers		**Answer**
a)	1 to 1.9 bar	
b)	0 to 15 bar	
c)	2 to 20 bar	
d)	0.2 to 1.0 bar	

Question 30		
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	

End of Practice Knowledge Assessment

MOET – Electrical Systems and Process Control Technician Practice Paper

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	B
8	A	23	A
9	C	24	C
10	C	25	C
11	A	26	C
12	D	27	B
13	C	28	C
14	B	29	D
15	B	30	D

MOET Portfolio Readiness Checklist – Electrical Systems and Process Control Technician Pathway

Use this form to check your portfolio covers the required parts of the standard

Apprentice Name	Company/Location

Brief description of the work-based tasks

Core Knowledge					
CK1	First principles relating to operation and maintenance of plant and equipment	☐	CK2	Relevant industry health and safety standards, regulations and environmental and regulatory requirements	☐
CK3	Maintenance and operational practices, processes and procedures	☐	CK4	Relevant engineering theories and principles	☐
Core Skills and Behaviour					
CS5	Read, understand, interpret and work to technical information	☐	CS6	Locate and rectify faults on plant & equipment	☐
CS7	Inspect and maintain plant & equipment	☐	CS8	Communicate, handover & confirm that the appropriate engineering process has been completed	☐
B5	Critical reasoning	☐			
Specific Skills					
EP1	Position/assemble/install and dismantle plant & equipment	☐	EP2	Planned, unplanned & preventative maintenance	☐
EP3	Replace/repair and or remove components	☐	EP4	Diagnose and determine the cause of faults	☐
EP5	Calibrate and configure instrument and control systems	☐			

The apprentice's manager/mentor is required to complete the details below to confirm the authenticity of the evidence portfolio

By signing below I confirm that the evidence in the apprentice's portfolio is his/her own work.		
Witness Name	Witness Signature	Date

MOET Portfolio Index

Evidence ref, including portfolio page number	Short description of evidence	Standard(s) covered
eg. Job 2, page 4, Ref. 1		**eg. CK3**

Continue index as required

Practical Observation Approval Form Guidance

Guidance

The purpose of the Practical Observation Approval Form is to ensure that the activity, proposed for the apprentice to complete during the MOET Practical Observation Assessment, is sufficiently complex to allow the apprentices to demonstrate the widest range of knowledge, skills and behaviours against the mandatory elements of the MOET EPA Standard.

Details of the mandatory elements are in Section 4 of the Specification.

Unless the site and tasks have previously been approved by EUIAS, the Approval Form should be completed and submitted to EUIAS a minimum of 20 working days before the expected date of the first practical observation. The form should be accompanied by photographs of the plant/ machinery which the apprentice will be working on.

A “complex” activity is defined as one that is completed in a number of individual stages in order to complete the activity. As an example, these stages could be broken down into the following sequence:

- Comply with industry health, safety and environmental working practices and regulations
- Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities
- Communicate with and provide information to stakeholders in line with personal role and responsibilities
- Read, understand and interpret information and work in compliance with technical specifications and supporting documentation
- Inspect and maintain appropriate plant and equipment to meet operational requirements
- Locate, and rectify faults on plant and equipment
- Assess and test the performance and condition of plant and equipment
- Communicate, handover and confirm that the appropriate engineering process has been completed to specification

The above sequence comprises of the Core Skills elements of the MOET EPA, which closely reflects the practices and processes of facilitating work activities in the industry sectors, which are identified in the MOET Assessment Plan.

In addition to the Core Skill elements detailed above, the proposed activity must also allow the apprentice to demonstrate their knowledge, skills and behaviours against one of the Specific Skill elements detailed in Section 4 of the Specification.

It is important to note that if, during the assessment, any aspect of the performance that needs to be assessed does not occur naturally, the independent assessor (technical expert) will ask the apprentice questions to give them the opportunity to cover the area of the standard.

The time taken to complete the proposed activity(s) should typically take no longer than one day. However, the actual time allowed should be based on the comparable time that an industry competent worker would take to achieve successful activity(s) completion.

As a rule of thumb, an activity(s) that would take only 2 hours to complete would be considered to be insufficiently complex and would likely restrict the opportunity for the apprentice to demonstrate their full range of knowledge, skills and behaviours.

MOET Practical Observation Approval Form

Return completed form to enquiries@euias.co.uk

Apprentice Name	
MOET Pathway	
Employer/provider and Site Address:	
Contact name for the Practical Observation, with contact details	
PPE Required for the Assessor	
Site-specific access/induction arrangements	
Plant/machinery photographs included?	YES/NO
Description of the proposed task(s)	