Level 4 End-Point Assessment for Electrical Power Networks Engineer – Asset Management Engineer

EPA Specification Section 7 – Supporting Documents and Guidance

- Gateway Eligibility Report
- Practical Assessment Review Form
- Practice Knowledge Test Assessment, with Answer Scheme
- Practical Task Guidance

Contacts

This specification has been designed to provide all the advice and guidance you need to prepare yourself and your apprentices for end-point assessment. However, if you have any further questions please contact the EUIAS Help Desk using one of the following:

Help Desk email: enquiries@euias.co.uk

Help Desk telephone: 0121 713 8310

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EUIAS Level 4 End-point Assessment for Electrical Power Networks Engineer - Asset Management Engineer

Gateway Eligibility Report

(Standard Version: ST0475 version 1.0 dated 2017; Assessment Plan Version: ST0475/AP01)

Apprentice's details

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

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Eligibility requirements for Electrical Power Networks Engineer

The apprentice must confirm their achievement of the following:

Eligibility requirement	Achieved by the apprentice? Y/N	Evidence (scans of certificates MUST be included)
A competent work log has been produced and meets the Specification and Assessment Plan requirements		
Achieved English Level 2 or higher		
Achieved Maths Level 2 or higher		
Satisfactory completion of the formal training plan agreed with the apprentice by the employer		

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 EUIAS
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 EUIAS for quality assurance purposes
4. The apprentice has been on-programme for a minimum duration of 30 months
5. The apprentice has achieved Level 2 or higher English and maths requirements as detailed in this document
6. The apprentice has satisfactorily completed the formal training plan which was agreed with the apprentice by the employer
7. The apprentice has complied a work log throughout their apprenticeship and finalised the work log by gateway. The apprentice must have included sufficient quality evidence in their work log to demonstrate that they can apply the knowledge and skills as indicated in Annex A of the Assessment Plan and in Section 5 of the Specification
8. The apprentice, if successful, gives permission for EUIAS 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 the EUIAS Appeals Policy and Complaints Policy
10. The employer/training provider has given the EUIAS 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 EUIAS, the end-point assessment cannot take place

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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:

EUIAS use only:	
EUIAS Sign off:	
Comments/actions:	

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Electrical Power Networks Engineer – Asset Management Engineer

Practical Assessment Review Form

Introduction

The purpose of the 'Practical Assessment Review Form', is to provide support in ensuring that the practical task proposed for the apprentice is sufficiently complex to allow the apprentice to demonstrate the widest range of knowledge, skills and behaviours against the mandatory elements of the Electrical Power Network Engineer (EPNE) Assessment Plan.

Details of the mandatory elements are included in Section 4 of the EPNE EPA Specification.

Each Apprenticeship Standard and Assessment Plan details the content, form, and nature of the components of end-point assessment (EPA). The practical task will be set by EUIAS with the employer, taking account of workplace considerations in discussions with the apprentice's employer. Practical task may have a number of elements, but all tasks must be of equal size and complexity for each option.

The employer must ensure that the practical task is developed to allow the independent industry technical expert to observe the Asset Management Engineer being observed developing aspects of network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory returns.

The employer technical expert **must** complete and submit the 'Practical Assessment Review Form', to the EUIAS Service Delivery Team for approval 3 months before the start of the end-point assessment. The form should be accompanied by photographs and or video of the plant/equipment/network areas, including practical task and brief(s) which the apprentice will be working on.

The EUIAS approval process will be conducted by an independent examiner who will review the 'Practical Assessment Review Form', which will include information in relation to the workplace and or simulated environment appropriate to the practical task including the practical task, brief(s), plant/equipment including the network areas and site to ensure the assessment is fit for purpose. The outcomes will be recorded in this form and used to communicate with the employer to advise of all approval outcomes. The EUIAS will ensure this form is available for Internal Quality Assurance. The outcomes will be shared with the employer technical expert no later than 5 working days following the review. Where remedial action is required by the employer and or training provider the form will be accompanied by a notice to improve which will include those aspects that were of concern and a deadline for receipt of an appropriate remedial action plan. The employer or training provider **must not** conduct the practical task or use the brief(s), plant/equipment/network areas, site for the practical task until a final approval confirmation has been received from the EUIAS.

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Please be aware:

- Practical task review does not guarantee that the apprentice will pass the practical task
- No health and safety risk assessment has been carried out by EUIAS
- EUIAS review does not remove any of the provider's obligations to ensure full coverage of the standard, and full compliance with relevant legislation
- EUIAS review is based only on information supplied and is not a guarantee that the task and plant/equipment on the day of the practical will be sufficient for an EPA practical task
- The information provided in this Practical Assessment Review Form must not be shared with the apprentice

[Please turn to the next page for the Practical Assessment Review Form]

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Level 4 EPNE Practical Assessment Review Form

Return completed form to enquiries@euias.co.uk

Employer name and site address	
Training provider (if applicable) name and site address	
Standard	Electrical Power Networks Engineer
Pathway	Asset Management Engineer
Level	4
Practical Task Brief(s) Titles	
Name of site to be approved	
Contact Details: Employer technical expert full name, email address and contact number overseeing the setup of the practical task (documents and site)	
Date of review	

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Practical Task Assessment Criteria	Evidence Sampled
Please complete one form per apprentice: • Covering the aspects of network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory terms to cover the depth and breadth of the criteria • Explain in detail how you plan to meet the knowledge, skills, behaviours and specific skills required in the task(s) for the practical observation. Please answer all questions concisely and thoroughly, and provide accurate details to the questions listed below:	
Description of the practical task including the purpose for which this task is to be used for (i.e., List the specific tasks to be undertaken).	
Are the operations to be conducted in a real working live environment?	
Will the practical allow the assessor to observe the apprentice developing aspects of network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory returns?	
Is the practical task to be conducted in the workplace appropriate to the task(s)and are there any risks involved?	
Provide a description of the proposed practical task(s) for developing network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory terms. Or Attach the proposed planned practical task(s) document.	
Does the practical task(s) have a number of elements, if yes how many?	
Do the practical task elements meet the requirements of the Assessment Plan Annex A the Specification Section 5?	
Do the practical task(s) include separate briefs? If yes, please attach and send them to the EUIAS with this form.	
Does the practical task(s) meet the core selected technical	

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knowledge (CTK6; CTK9) as specified in Section 2 of the Specification?	
Does the practical task(s) meet the core selected core skills (CS1; CS2; CS4; CS8; CS11) as specified in Section 2 of the Specification?	
Does the practical task(s) meet ALL the behaviours (B1; B3; B4; B5) as specified in Section 2 of the Specification?	
Does the practical task(s) meet the Specific Skills for the Asset Management Engineer (SS2; SS3; SS4; SS5; SS6) as specified in Section 2 of the Specification?	
Provide details of the plant, equipment and networks that is to be used	
Provide site-specific details including access and or induction arrangements	
Will the technical experts require PPE?	
Will the apprentice require PPE?	

Remember: the specific detail of the tasks to be undertaken should be kept confidential from the apprentices, and you will require differing tasks where you have more than one apprentice to be assessed so that each apprentice cannot predict which task they will be given.

Practical Task, Photographic and or Video Evidence

Practical Task Scenario
Details of the practical task scenario including the purpose for which this scenario task is to be used for or state if the task is included for submission.
Practical Task per scenario
Details – List the specific tasks to be undertaken in the above scenario or state if the brief(s) are included for submission.

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Photographs and or Videos
Photograph and or Video 1: Insert Title –
Insert photograph
Photograph and or Video 2: Insert Title –
Insert photograph
Photograph and or Video 3: Insert Title -
Insert photograph
Photograph and or Video 4: Insert Title -
Insert photograph
Photograph and or Video 5: Insert Title -
Insert photograph

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Photograph and or Video 6: Insert Title -
Insert photograph
Please add more rows as required

EUIAS Office use only

Notice to improve including remedial action(s)	
Practical task scenario(s) approved	
Practical brief(s) approved	
Workplace approved	
Realistic work situation on a live electrical network up to 400kV environment approved	

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End-point Assessment
Knowledge Practice Assessment

Please write clearly in block capitals below	
Company name	
First name (s)	
Last name (s)	
Date of birth	
Apprentice number	
Apprentice signature	
Date of knowledge test	

Level: 4
Standard: Electrical Power Networks Engineer
Duration: 1 hour (60 minutes)

Materials

For this paper you must have:

- Pens
- Calculators
- The test is open book. The apprentices are **allowed** to have available and refer to any materials that they wish to consult during the test, including training manuals, company policies and procedures and work logs, but **MUST NOT** have access to any internet search engines

Instructions

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

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- 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
- There is spare paper on page 3 that you can use but **MUST NOT** be removed
- Additional spare paper will not be provided
- All questions are open 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

- The marks for questions are 1 mark each
- There are 40 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 SMART 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 question raise your hand and the invigilator will attend

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- Cheating: you will be asked to leave the examination room and will be classified an automatic failure and referred to your employer

THIS PAPER MUST NOT BE COPIED OR CIRCULATED WITHOUT THE WRITTEN PERMISSION OF THE EUIAS

Do not turn over the page or commence the knowledge test until the invigilator instructs you to

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

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Question 1		
Identify the material that is typically used in the design of a transformers core to reduce the level of hysteresis loss.		
Possible answers		**Answer**
a)	Limited brass	
b)	Cross link polyethylene	
c)	Silicon alloys	
d)	Tungsten carbide	

Question 2		
Identify the term that is used to describe the circulating movement of current back and forth in the core of a transformer creating heat.		
Possible answers		**Answer**
a)	Copper losses	
b)	Eddy currents	
c)	Lenz law	
d)	Electromotive force	

Question 3		
Identify the phrase that is correct for the following statement about the Root Mean Square (r.m.s) value. The r.m.s value of an a.c. circuit is _____ of direct current which would have the same effect or energy change as the alternating current.		
Possible answers		**Answer**
a)	Equal to value	
b)	Twice the value	
c)	Half the value	
d)	The square value	

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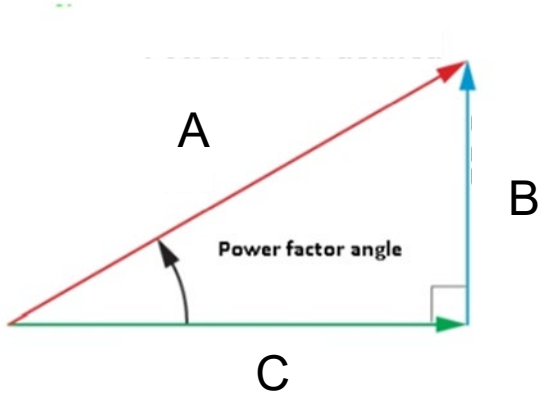
Question 4

Refer to the Power Factor diagram below. What do the letters A, B and C represent?



Possible answers		Answer
a)	A = Apparent Power, B = Real Power and C = Reactive Power	
b)	A = Reactive Power, B = Apparent Power and C = Real Power	
c)	A = Apparent Power, B = Reactive Power and C = Real Power	
d)	A = Reactive Power, B = Real Power and C = Apparent Power	

[Turn to next page for question 5]

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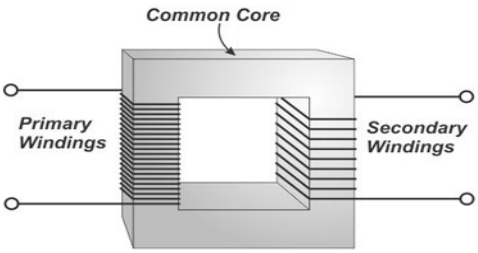
Question 5

The number of secondary windings on a transformer connected to an alternating current (AC) has been decreased.

What effect will this have on the output voltage?



Possible answers		Answer
a)	Decrease the output voltage	
b)	Decrease the input voltage	
c)	Increase the output voltage	
d)	Increase the input voltage	

Question 6

For a balanced three-phase system, which ONE of the following is the formula for calculating the PHASE voltage of a STAR connected transformer?

Abbreviations below stand for:
V_P – Phase Voltage
V_L – Line Voltage
I_L – Line Current
I_p – Phase Current
√ - Root 3 (root of three)

Possible answers		Answer
a)	$V_P = V_L \div \sqrt{3}$	
b)	$V_P = V_L$	
c)	$V_P = I_L \div I_p$	
d)	$V_P = V_L - \sqrt{3}$	

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Question 7		
In a balanced star-connected three-phase system the value of the phase current:		
Possible answers		**Answer**
a)	varies above and below the line current	
b)	is higher than the line current	
c)	is a third less than the line current	
d)	is equal to the line current	

Question 8		
In a balanced three-phase system with delta-connected load and 415 V line voltage, What would the value of the phase voltage be?		
Possible answers		**Answer**
a)	0 V	
b)	240 V	
c)	415 V	
d)	440 V	

Question 9		
In a balanced three-phase system with a star-connected load and 10 A line current, what would be the value of the phase current?		
Possible answers		**Answer**
a)	5.77 A	
b)	10 A	
c)	17.3 A	
d)	30 A	

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Question 10		
Which ONE of the following describes the effect of harmonics on a three-phase electrical network?		
Possible answers		**Answer**
a)	The networks current and voltage are distorted and deviate from their standard sinusoidal waveforms	
b)	The networks current and voltage are regulated and conform to their standard sinusoidal waveforms	
c)	The networks current is decreased, and the voltage increased proportionally to regulate their standard sinusoidal waveforms	
d)	The networks current and voltage is increased causing network problems and system faults	

Question 11		
Which harmonic typically causes neutral current to increase most significantly?		
Possible answers		**Answer**
a)	The third harmonic	
b)	The fifth harmonic	
c)	The seventh harmonic	
d)	The twelfth harmonic	

Question 12		
In a balanced three-phase system, what would be the value of the neutral current?		
Possible answers		**Answer**
a)	Zero	
b)	Line current	
c)	Phase current	
d)	3 x phase current	

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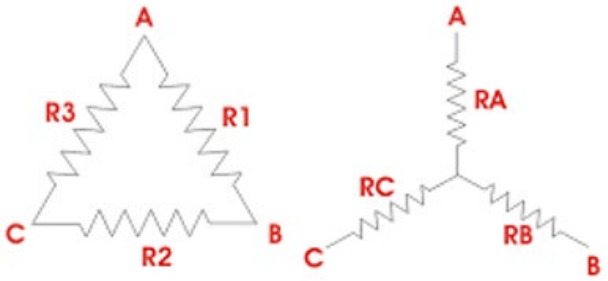
Question 13		
Three-phase transformers should only be connected in parallel under which ONE of the following conditions?		
Possible answers		**Answer**
a)	When they are identical in all respects	
b)	When they have exactly the same losses	
c)	When permission is obtained from the manufacturer	
d)	When they have the same secondary voltages	

Question 14		
Refer to the diagram below. In the order shown, which transformer wiring configurations does this diagram represent? 		
Possible answers		**Answer**
a)	Single-phase star, single-phase delta	
b)	Three-phase star, three-phase delta	
c)	Single-phase delta, single-phase star	
d)	Three-phase delta, three-phase star	

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Question 15		
The UK's electricity is typically generated in large commercial power stations. At what voltage is it generated?		
Possible answers		**Answer**
a)	11 kV	
b)	25 kV	
c)	132 kV	
d)	400 kV	

Question 16		
At what voltage is the transmission of electricity across the UK primarily conducted?		
Possible answers		**Answer**
a)	11 kV	
b)	132 kV	
c)	415 V	
d)	400 kV	

Question 17		
What are the typical voltage tolerances for high voltage (up to 132 kV) power networks?		
Possible answers		**Answer**
a)	High voltage ± 3% of nominal voltage	
b)	High voltage ± 6% of nominal voltage	
c)	High voltage +6% to -10% of nominal voltage	
d)	High voltage ± 10% of nominal voltage	

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Question 18		
Which statement describes the typical method for controlling the output voltage on a 33/11 kV transformer to keep it within its statutory limits?		
Possible answers		**Answer**
a)	An automatic voltage control relay monitors the transformers output voltage and regulates the voltage via a tap changer	
b)	A control engineer monitors the transformers output voltage and regulates the voltage via an automated tap changer	
c)	A current transformer (CT) monitors the transformers output voltage and regulates the voltage via a tap changer	
d)	An automated tap changer monitors the transformers output and regulates the voltage via an automatic voltage control relay	

Question 19		
An engineer needs to determine the electrical rating of a switchgear, that will be used on a power network. What critical factor should the engineer consider?		
Possible answers		**Answer**
a)	The manufacturer of the switchgear to be used	
b)	The location of the switchgear in the electrical circuit	
c)	The proximity of commercial and domestic buildings	
d)	The ability to operate the switchgear manually or remotely	

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Question 20		
‘A low voltage network which has the neutral bonded to earth at several different points in the system.’ What type of earthing system is the above known as?		
Possible answers		**Answer**
a)	Terra Neutral Split system	
b)	Terra Neutral Terra Firma system	
c)	Protective Multiple Earthing system	
d)	Earth Loop Impedance system	

Question 21		
A transformer which consists of a single winding and is used to step up or step down a constant supply voltage. What type of transformer is this known as?		
Possible answers		**Answer**
a)	Current transformer	
b)	Voltage transformer	
c)	Earthing transformer	
d)	Auto-transformer	

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Question 22		
What would be the effect of a fault on the protection of a low voltage network with a low earth loop impedance value?		
Possible answers		**Answer**
a)	The fault current would take longer to activate the protection, the lower the value	
b)	The fault current would activate the protection faster, the lower the value	
c)	The fault current would activate the protection at the same time regardless of the value	
d)	The fault current would not activate the protection if the value was below the UK standard	

Question 23		
When considering network protection there are devices that provide an advantage of being able to support overcurrent for a period of time and be reset. Which device would provide this advantage?		
Possible answers		**Answer**
a)	High Rupturing Capacity (HRC) fuses	
b)	Rewireable fuses	
c)	Contactor relays	
d)	Rewireable relays	

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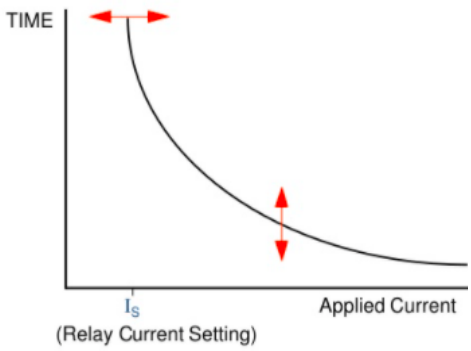
Question 24		
Which ONE of the following is an example of a 'Rise in Earth Potential' (ROEP)?		
Possible answers		**Answer**
a)	A ROEP is created by increasing the number of earth electrodes in a substation to prevent system faults	
b)	A ROEP is a phenomenon which occurs during long periods of high voltage switching in a substation which stresses the earth system	
c)	A ROEP is created by bonding all auxiliary steelwork to earth in a substation together to prevent system faults	
d)	A ROEP occurs when a large current flows to earth through the effects of a high voltage fault	

Question 25		
A relay operates by the principle that the higher the current value the lesser time it will take the relay to operate. What protocol does this follow?  		
Possible answers		**Answer**
a)	Immediate Delay Measured Sequence (IDMS) protocol	
b)	Inverse Definite Minimum Time (IDMT) protocol	
c)	Inverse Decision Time Measure (IDTM) protocol	
d)	Individual Delayed Time Sequence (IDTS) protocol	

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Question 26		
Which piece of network equipment does the following sentence describe? 'It reduces earth fault current and limits the amount of fault current returning to the transformer'.		
Possible answers		**Answer**
a)	A voltage transformer	
b)	A switch fuse	
c)	A neutral earthing resistor	
d)	A protective multiple earth	

Question 27		
Voltage transformers (VT) can be used for circuit control, safety protection and measurement. Which ONE of the following describes the principle of VTs operation?		
Possible answers		**Answer**
a)	A VT can be used to step down the voltage of the system to a value which is acceptable to the lower rating of meters and relays	
b)	A VT can be used to step up the voltage of the system to a value which is acceptable to the higher rating of meters and relays	
c)	A VT can be used to convert the alternating waveform of the system to a direct waveform to supply meters and relays	
d)	A VT can be used to accept the voltage of the system and connect it directly to the higher rated meters and relays	

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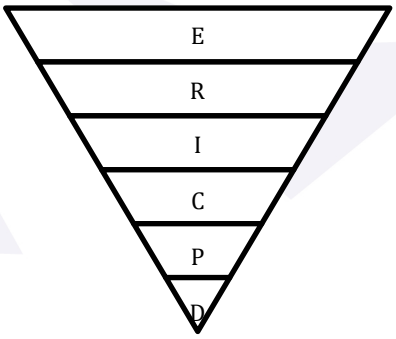
Question 28		
Which ONE of the following describes the typical capabilities of a high voltage switch?		
Possible answers		**Answer**
a)	The switch is load making but not load breaking or fault making	
b)	The switch is non-load making but is load breaking and fault making	
c)	The switch is load making and breaking, and fault making	
d)	The switch is non-load making or breaking but is fault making	

Question 29		
ERICPD is an acronym used by health and safety organisations as a risk assessment model to help prioritise health and safety measures in the workplace. What does ERICPD stand for?  		
Possible answers		**Answer**
a)	Eliminate, Report, Investigate to Control Potential Danger	
b)	Eliminate, Remove, Insulate, Caution, Protect and Discipline	
c)	Eliminate, Reduce, Isolate, Control, PPE and Discipline	
d)	Eliminating Risks Insures Complete Protection from Danger	

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Question 30		
Which ONE of the following identifies the primary purpose of a risk management strategy?		
Possible answers		**Answer**
a)	A risk management strategy provides a cost efficient approach to identifying, assessing, and managing the Company's financial risk	
b)	A risk management strategy provides a timely and effective method of measuring the exposure to risk in the event of an incident	
c)	A risk management strategy provides a structured and coherent approach to identifying, assessing, and managing risk	
d)	A risk management strategy provides an auditable process which protects a Company from any liability in the event of an incident	

Question 31		
Which ONE of the following describes the primary purpose of the Electricity at Work Regulations 1989?		
Possible answers		**Answer**
a)	They aim to prevent the loss of time or production in the process of maintaining an electrical supply in a work environment	
b)	They aim to prevent death or injury to any person from electrical causes while working or in a work environment	
c)	They aim to improve electrical working practices to provide a more efficient use of tools and equipment in a work environment	
d)	They aim to reduce death or injury to an acceptable level to any person from electrical causes while working or in a work environment	

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Question 32		
A 'permit-to-work' system is a formal written system used to control certain types of work that are potentially hazardous. Identify the elements which must be included on a 'permit-to-work' document?		
Possible answers		**Answer**
a)	Date of issue, description of work, points of contact, signature of document receiver	
b)	Date and time of issue, location of work, points of isolation, signatures of issuer and receiver	
c)	Date and time of issue, cost of work, points of switching, signature of Company director	
d)	Date and time of issue, description of work, points of switching, signatures of the working party	

Question 33		
In relation to commercial projects, the Construction Design and Management (CDM) Regulations 2015, require that under certain circumstances construction work is notifiable in writing to the HSE. Which statement identifies ONE of those circumstances?		
Possible answers		**Answer**
a)	Where planned construction work will last longer than 20 working days	
b)	Where planned construction work will last longer than 30 working days	
c)	Where planned construction work will last longer than 40 working days	
d)	Where planned construction work will last longer than 50 working days	

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Question 34		
The Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR) places duties to report certain incidents that may involve the safety of those not employed by the duty holder. Which of the following identifies ONE of these incidents?		
Possible answers		**Answer**
a)	Any single interruption of supply of 5 megawatts or more at the time of the interruption for a period of one hour or longer	
b)	Any single interruption of supply of 1 megawatt or more at the time of the interruption for a period of five hours or longer	
c)	Any multiple interruption of supply of 20 megawatts or more for more than two 5 minutes periods	
d)	Any single interruption of supply of 20 megawatts or more at the time of the interruption for a period of one hour or longer	

Question 35		
Which statement states the principles of maintenance as defined by the Electricity at Work Regulations 1989?		
Possible answers		**Answer**
a)	As may be financially viable to prevent danger, all systems shall be maintained so as to prevent, so far as is reasonably practicable, such danger	
b)	As may be necessary to improve performance, all systems shall be maintained on an annual basis to prevent any loss of power to the system	
c)	As may be convenient to prevent danger, all systems shall be isolated to prevent injury to operatives working on the system, based on the time and cost of the maintenance operation	
d)	As may be necessary to prevent danger, all systems shall be maintained so as to prevent, so far as is reasonably practicable, such danger	

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Question 36		
What is meant by the term achieving 'Safety from the System'?		
Possible answers		**Answer**
a)	Safeguards that all equipment shall be made dead, prior to any work activities being permitted on the electrical system	
b)	The condition which safeguards tools and equipment from the dangers of work being conducted on the electrical system	
c)	The condition which safeguards persons working on or near to equipment from the dangers which are inherent in that system	
d)	The condition which safeguards persons, tools, equipment, and plant when working near the electrical system	

Question 37		
Ofgem set price controls on the revenues of Transmission and Distribution Companies using the RIIO model to encourage Companies to consider a number of factors. What factors do the initials RIIO stand for?		
Possible answers		**Answer**
a)	Revenue = Ideas + Implementation + Outlay	
b)	Reward = Input + Investment + Outlay	
c)	Reward = Innovation + Ideas + Outputs	
d)	Revenue = Incentives + Innovation + Outputs	

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Question 38		
The Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR) place duties on persons to report certain instances. Which ONE of the following is reportable under ESQCR?		
Possible answers		**Answer**
a)	More interruptions to the electricity supply	
b)	Major interruptions to the electricity supply	
c)	All interruptions to the electricity supply	
d)	All planned interruptions to the electricity supply	

Question 39		
The Construction Design and Management Regulations 2015 (CDM) place certain responsibilities on duty holders involved in the work project to improve health and safety. Which ONE of following states an aim of the CDM regulations?		
Possible answers		**Answer**
a)	To appropriately cost the work so the tasks involved are managed to achieve financial success	
b)	To carefully plan the work so the risks involved are kept to a minimum and recorded for audit purposes	
c)	To plan the work to ensure the project is delivered within the set timescales	
d)	To sensibly plan the work so the risks involved are managed from start to finish	

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Question 40		
The regulator Ofgem set targets for the Energy Network Companies. Which ONE of the following identifies three of the targets?		
Possible answers		**Answer**
a)	Consumer value, economical network design and good waste disposal	
b)	Customer service, network reliability and environmental performance	
c)	Customer communication, network performance and cost reduction	
d)	Consumer interaction, network monitoring and reduced wastage	

End of Practice Assessment Questions

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Answers

Question	Answer	Question	Answer
1	C	**21**	D
2	B	**22**	B
3	A	**23**	C
4	C	**24**	D
5	A	**25**	B
6	A	**26**	C
7	D	**27**	A
8	C	**28**	C
9	B	**29**	C
10	A	**30**	B
11	A	**31**	B
12	A	**32**	B
13	D	**33**	B
14	D	**34**	A
15	B	**35**	D
16	D	**36**	C
17	B	**37**	D
18	A	**38**	B
19	B	**39**	D
20	C	**40**	B

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ENERGY & UTILITIES INDEPENDENT ASSESSMENT SERVICE

End-Point Assessment
Engineering Power Networks Engineer – Asset Management Engineer

Practical Task Guidance

Level 4

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Practical Task Guidance

This practical task guidance has been developed as part of the Electrical Power Networks Engineer (EPNE) – Asset Management Engineer Standard. This guidance provides details of the required knowledge, skills and behaviours on all the key aspects of the EPNE –Asset Management activity.

This end-point assessment should allow the apprentice to demonstrate the competence required to follow work instructions in order to develop aspects of network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory returns.

The practical task guidance is the minimum core technical standard of these requirements, but this does not preclude employers from enhancing the skills and knowledge of the learner through additional or company specific assessment.

Successful completion of this assessment should provide evidence that the apprentice has the required knowledge, skills and behaviours (KSBs).

What does this guidance look like?

To achieve the practical observation the apprentice must demonstrate their achievement of all assessment outcomes. The KSBs will be evidenced through the practical assessment, these being delivered in a realistic work situation on a live electrical network up to 400 kV. Evidence of the apprentice's achievement must be included in their work log.

What does the assessment include?

Electrical Power Networks Engineer – Asset Management Engineer apprentices will be expected to complete a practice activity that will be observed. This activity will be appropriate for their role and as detailed in Annex A of the Assessment Plan and in Section 5.2 of this Specification. This practical observation will assess the apprentice synoptically against core and specific knowledge, skills and behaviours in a real working environment as follows:

- developing aspects of network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory returns
- work safely at all times
- **CTK6** – know and interpret company requirements with regard to project management tools, techniques and processes

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- **CTK9** – know and interpret the company business planning and resource control measures

- **CS1** – comply with company and Industry health, safety and environmental standards, regulations, company operating procedures and working practices
- **CS2** – ensure that all safety considerations are incorporated and evident in all working practices
- **CS4** – produce timely communications providing information to stakeholders both in writing and verbally in relation to their role activities
- **CS8** – use company IT systems to provide accurate and reliable data to support business decisions
- **CS11** - uses company risk tools and techniques to evaluate and predict the reliability of engineering systems and equipment
- **CB1** – Health, Safety & Environment – follows health, safety and environmental policies and procedures and is prepared to challenge unsafe behaviour using appropriate techniques to ensure the protection of people and property when working alone and/or with teams. Demonstrates high concentration and the desire to reduce risks through regular monitoring and checking information
- **CB3** – Interpersonal skills - works well with people from different disciplines, backgrounds and expertise. Takes others' needs and concerns into account and supports them to accomplish an activity safely and on time
- **CB5** - Risk awareness – has the embedded desire to reduce risks through systematic monitoring and checking of information identifying mitigation actions on an on-going basis
- **SS2** – plan, develop and produce long term network reinforcement plans taking into account emerging technologies and projected future load requirements
- **SS3** – understand and interpret Regulatory requirements and business plans and contribute to the production of Regulatory technical returns
- **SS4** – assimilate complex external information to inform company decisions
- **SS5** – evaluate plant and equipment proposals and recommend company approaches

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- **SS6** – instigate, as appropriate, investigations into asset, systems or process failures as well as undertaking network performance analysis

Realistic Working Situation (RWS) Centre Requirements

Centres are responsible for ensuring that the RWS assessment is suitably controlled to ensure that assessment decisions are valid and reliable, and that work submitted for assessment by the apprentice is prepared and produced by them independently, without assistance from others, and free of plagiarism.

The practical task must be designed following the guidance and requirements given in this document and in Section 5.2 of this Specification. The employer technical expert checklist must be adhered to and cannot be altered without prior written consent from the EUIAS.

The necessary operational procedures should be made available to the apprentice throughout the assessment process.

Practical Assessment Centre Requirements

The assessment requirements are in the following areas:

An independent technical expert who is independent of the apprentice and approved by the EUIAS must assess the practical task. Please refer to Section 5.2 of this Specification for further details.

The assessment area must be designed to allow the apprentice to demonstrate the knowledge, skills and behaviours as prescribed in this section, Annex A of the Assessment Plan and in Section 5.2 of this Specification. Evidence for the practical aspects must be observed by an independent industry technical expert in a real working environment developing aspects of network reinforcement plans that include making plant and equipment proposals as well as including the plan information in regulatory returns. The use of a real working environment and tasks must be reviewed with the EUIAS beforehand by completing and submitting the 'Practical Assessment Review From', see Section 7 'Supporting documents' of this Specification.

Centres may create workbooks that will allow the apprentice to demonstrate their underpinning knowledge, skills and behaviours, see Section 2 'Mapping the Standard' of this Specification.

The office environment, equipment and network used for this assessment **must** be for assessment purposes only and the apprentice must not have had prior access to this.

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Apprentice Requirements

The practical observation must in all cases assess each apprentice synoptically against the core knowledge, skills and behaviours shown below, as detailed in this document, in Annex A of the Assessment Plan and in Section 5.2 of this Specification:

Core technical knowledge

- **CTK9** - Interpret the Company business planning and resource control measures
- **CTK6** – know and interpret company requirements with regard to project management tools, techniques and processes

Core Skills

- **CS1** - Comply with company and Industry health, safety and environmental standards, regulations, company operating procedures and working practices
- **CS2** - Ensure that all safety considerations are incorporated and evident in all working practices
- **CS4** – produce timely communications providing information to stakeholders both in writing and verbally in relation to their role activities
- **CS8** – use company IT systems to provide accurate and reliable data to support business decisions
- **CS11** - uses company risk tools and techniques to evaluate and predict the reliability of engineering systems and equipment

Core behaviours

- **CB1** – Health, Safety & Environment – follows health, safety and environmental policies and procedures and is prepared to challenge unsafe behaviour using appropriate techniques to ensure the protection of people and property when working alone and/or with teams. Demonstrates high concentration and the desire to reduce risks through regular monitoring and checking information
- **CB3** – Interpersonal skills - works well with people from different disciplines, backgrounds and expertise. Takes others' needs and concerns into account and supports them to accomplish an activity safely and on time
- **CB5** - Risk awareness – has the embedded desire to reduce risks through systematic

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monitoring and checking of information identifying mitigation actions on an on-going basis

In addition, for the role of an Asset Management Engineer, each apprentice must also be assessed on **EACH** of the specific skill requirements shown below, as detailed in Annex A of the Assessment Plan and in Section 5.2 of this Specification.

- **SS2** – plan, develop and produce long term network reinforcement plans taking into account emerging technologies and projected future load requirements
- **SS3** – understand and interpret Regulatory requirements and business plans and contribute to the production of Regulatory technical returns
- **SS4** – assimilate complex external information to inform company decisions
- **SS5** – evaluate plant and equipment proposals and recommend company approaches
- **SS6** – instigate, as appropriate, investigations into asset, systems or process failures as well as undertaking network performance analysis

Technical Expert Requirements

Apprentices carrying out the practical tasks will be observed by an EUIAS approved independent industry technical expert accompanied by an employer technical expert.

The independent industry technical expert will question the apprentice as they are carrying out the practical task, but the employer technical expert **must** remain unobstructive whilst the apprentice is carrying out tasks. Questions asked must be included in the feedback section of each assessment document and may cover the following areas:

- Practical experience and knowledge gained through work experience
- Technical questioning related to aspects of network reinforcement plans that include plant and equipment proposals as well as including the plan information in regulatory returns
- A variety of “what if” scenarios to determine problem solving skills
- Comprehension of basic operations or electrical principles related to plant and equipment
- Ability of apprentice to elaborate in their field of expertise

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- General attitude and enthusiasm of the apprentice

Apprentices should be able to demonstrate a depth and breadth of understanding of the practical principles of the systems they are working on.

Permissible allowances and reasons for immediate failure

- Apprentice fails to provide evidence to meet skill and behavioural requirements as detailed in the Standard, Annex A and in Section 5.2 of this specification
- Apprentices should ensure that the tasks are completed safely. It is permissible not to have identified all tools and safety equipment prior to the task starting but the additional requirements must be identified and acted upon appropriately as the task progresses
- Apprentices may not be able to return the equipment to service or check its operation at the end of the task due to other issues identified during the course of the work. If this occurs an assessment of the apprentice's competence in those areas can be made via technical questioning and professional discussion
- Apprentices must select and wear the correct PPE for the task
- Apprentices must follow safe control measures as set out in the risk assessment
- Apprentices must not put themselves or anyone else at danger
- Where an apprentice fails a component of the practical task this will not necessarily invalidate any other practical task or assessment components successfully completed

Grading

This assessment is graded as distinction, pass or fail by the independent industry technical expert, after discussion with the employer technical expert and will assign a preliminary mark. In the case of disagreement, the independent industry technical expert has the casting vote.

The independent industry technical expert must use EUIAS's approved documentation to record the outcomes and submit the documents to the Service Delivery team within 3 working days.

Where an apprentice fails a practical task or a component thereof this must be recorded on the EUIAS documentation. The apprentice must re-sit or retake the practical task within the 6

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month end-point assessment window. A new practical task checklist **must** be used for each subsequent attempt and the outcomes recorded using EUIAS approved record and the independent industry technical expert must state which attempt is being undertaken and this must be recorded on the checklist.

Apprentice Feedback

If an apprentice fails a practical task or a component the independent industry technical expert **must not** provide feedback, with or without corrective actions to be taken, to the apprentice. The independent industry technical expert should provide detailed feedback to the EUIAS and record the Standards not met in the EUIAS documentation including real time examples and submit to the Service Delivery team. Should an independent industry technical expert or the employer technical expert provide detailed feedback to the apprentice, this would be considered a conflict of interest and the entire practical task must be re-assessed by a different independent industry technical expert accompanied by a different employer technical expert.

Assessment Documentation and Duration

The duration of the practical observation will typically be one day i.e., between 5 and 6 hours depending on the activity(s) and a maximum of 6 hours. The actual time allowed will be based on the comparable time an industry competent worker would take to achieve successful task(s) completion. Therefore, the EUIAS will set the time allowed for the practical observation in consultation with the employer representative, by reviewing the 'Practical Assessment Review Form', see Section 7 'Supporting Documents', of this Specification.

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