

Practice Assessment

Utilities Engineering Technician

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

Level: 3
Standard: Utilities Engineering Technician
Pathway: Electrical

Duration: 1 hour

Materials

For this paper you must have:

- Pens
- Scientific calculator (non-programmable)

Instructions

- Use black 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

Below is a 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 40 questions
- The pass mark is 28
- All questions should be attempted

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 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**



Question 1		
How regularly should electrical safety equipment be inspected?		
Possible answers		Answer
a)	Daily	
b)	Weekly	
c)	Monthly	
d)	Prior to use	

Question 2		
State ONE purpose of completing a Control of Substances Hazardous to Health Regulations (COSHH) assessment in the workplace.		
Possible answers		Answer
a)	To decide how heavy chemical containers are	
b)	To collect information about employees' health	
c)	To decide how often to check chemical stock levels for re-ordering	
d)	To identify the potential for exposure to harmful substances	

Question 3		
In the image below, what does the red sign mean?		
Possible answers		Answer
a)	Mandatory behaviour	
b)	Prohibited behaviour	
c)	Information	
d)	Warning	



Question 4		
Which ONE of the following locations does NOT require a Confined Space Entry Permit?		
Possible answers		Answer
a)	Refrigeration Unit	
b)	Trench	
c)	Vessel	
d)	Ceiling Void	

Question 5		
What is the correct order of working at height control measures?		
Possible answers		Answer
a)	<ol style="list-style-type: none"> 1. Fall prevention 2. personal fall protection 3. avoid work at height 4. collective fall protection 	
b)	<ol style="list-style-type: none"> 1. Avoid work at height 2. fall prevention 3. collective fall protection 4. personal fall protection 	
c)	<ol style="list-style-type: none"> 1. Avoid work at height 2. collective fall protection 3. fall prevention 4. personal fall protection 	
d)	<ol style="list-style-type: none"> 1. Personal fall protection 2. collective fall protection 3. fall prevention 4. avoid work at height 	

Question 6		
Which ONE 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 should only be applied in the workplace	
d)	Correct manual handling reduces the risk of human injury	

Question 7		
Which ONE of the following regulations provide guidance on the use of handheld tools?		
Possible answers		Answer
a)	Control of Substances Hazardous to Health (COSHH)	
b)	Provision and Use of Work Equipment Regulations 1998 (PUWER)	
c)	Lifting Operations and Lifting Equipment Regulations 1998 (LOLER)	
d)	Control of Major Accident Hazards Regulations 2015 (COMAH)	

Question 8		
Which ONE of the following activities must be completed before working in a confined space?		
Possible answers		Answer
a)	Modify the area so entry is not necessary	
b)	Check the worker has the right qualification	
c)	Ensure there is a safe system for working inside the space	
d)	Provide access and egress routes	

Question 9		
Which ONE of the following is commonly classed as safety-critical?		
Possible answers		Answer
a)	Fuse	
b)	Control valve	
c)	Steam trap	
d)	Drain valve	

Question 10		
In accordance with Health and Safety Executive (HSE) guidelines, which ONE of the following can apply isolations?		
Possible answers		Answer
a)	Experienced people	
b)	Skilled people	
c)	Lead technicians	
d)	Authorised people	

Question 11		
In accordance with Health and Safety Executive (HSE) regulations, how would you know if a substance was regarded as hazardous?		
Possible answers		Answer
a)	The substance will give off a strong odour	
b)	The substance will have a label identifying the hazard	
c)	The substance will be contained in a glass receptacle	
d)	The substance will be in a red container	

Question 12		
What type of information is provided on the coloured tag on a piece of rigging equipment?		
Possible answers		Answer
a)	Certification period	
b)	Safe working load	
c)	Maximum working load	
d)	Safe to use	

Question 13		
What type of document should be fixed to a scaffold before use?		
Possible answers		Answer
a)	Risk assessment	
b)	Safety certificate	
c)	Permit to work	
d)	Approved Scafftag	

Question 14		
Assuming an emergency shower is close by, what should a technician do if they come into contact with hazardous substances whilst wearing a protective suit?		
Possible answers		Answer
a)	Remove all clothing and douse down under the shower	
b)	Stand under the shower immediately and douse down under the shower	
c)	Complete the task and then douse down under the shower	
d)	Stop work and immediately report to the first aid room	

Question 15		
A gas test has been completed within a confined space.		
Which oxygen reading would allow safe entry into the confined space?		
Possible answers		Answer
a)	19.5% - 23.5%	
b)	14% - 19%	
c)	6% - 14%	
d)	< 6%	

Question 16		
What procedure is used to inform employees about health and safety?		
Possible answers		Answer
a)	Isolation	
b)	Risk assessment	
c)	Site audit	
d)	Toolbox talk	

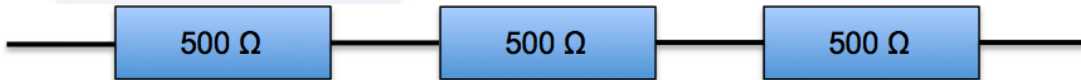
Question 17		
Which ONE of the following must be tested before entering a confined space?		
Possible answers		Answer
a)	Number of people wanting access	
b)	Oxygen content	
c)	Size of area	
d)	Noise levels	

Question 18		
What is the first action that should be taken when assessing a potentially hazardous substance?		
Possible answers		Answer
a)	Provide appropriate PPE (Personal and Protective Equipment)	
b)	Check the MSDS (Material Safety Data Sheet)	
c)	Check that there is space to store it safely	
d)	Conduct a risk assessment	

Question 19		
According to Health, Safety and Environment (HSE) guidelines which ONE of the following controls is the least effective?		
Possible answers		Answer
a)	Elimination	
b)	Engineering	
c)	PPE	
d)	Substitution	

Question 20		
Two technicians are working on the same piece of equipment which is isolated using a padlock.		
What safe isolation practice should be used?		
Possible answers		Answer
a)	Give each technician a key to the padlock	
b)	Use a multi padlock isolation tool	
c)	Leave the key tied to the padlock	
d)	Apply a long-term isolation	

Question 21		
When two waves of the same frequency have the opposite phase, what is the phase angle between them?		
Possible answers		Answer
a)	0°	
b)	90°	
c)	180°	
d)	360°	


Question 22		
What is the total resistance in this circuit?		
		
Possible answers		Answer
a)	1500 Ω	
b)	500 Ω	
c)	100 Ω	
d)	50 Ω	

Question 23		
In a control system, what does the transducer do?		
Possible answers		Answer
a)	Changes a digital signal to a data packet	
b)	Converts a physical measurement into an electrical signal	
c)	Stores information and sends it to the site Supervisory Control and Data Acquisition (SCADA) system	
d)	Enables the equipment to work on 110V or 230V input voltages	

Question 24		
What is the formula for working out wattage?		
Possible answers		Answer
a)	Watts = Amps / Volts	
b)	Watts = Volts x Resistance	
c)	Watts = Amps x Volts	
d)	Watts = Resistance / Volts	

Question 25		
Using Ohms law, when the current is 12A and the resistance is 6 Ω , what is the volts value?		
Possible answers		Answer
a)	0.5 volts	
b)	2 volts	
c)	18 volts	
d)	72 volts	

Question 26		
What device is created when an insulated wire in an electrical circuit is wrapped around an iron core?		
Possible answers		Answer
a)	Electromagnet	
b)	Motor	
c)	Generator	
d)	Magnet	

Question 27		
On an electrical equipment label, what does the term 'd' refer to?		
		
Possible answers		Answer
a)	Type of protection	
b)	Temperature group	
c)	Gas group	
d)	Explosion protection	

Question 28		
Which ONE of the following definitions best fits the terminology 'specification'?		
Possible answers		Answer
a)	The capacity to withstand continuous force	
b)	The standard when measured against another object of similar design	
c)	A detailed description of the design and materials of an object	
d)	The specified point beyond which certification is invalid	

Question 29		
Which device measures a change in process conditions?		
Possible answers		Answer
a)	Convertor	
b)	Microprocessor	
c)	PLC (programmable logic controller)	
d)	Sensor	

Question 30		
What is the metric SI (International System of Units) unit for torque?		
Possible answers		Answer
a)	Mn	
b)	Nm	
c)	Tq	
d)	N	

Question 31		
What type of maintenance is root cause analysis?		
Possible answers		Answer
a)	Preventative	
b)	Reflective	
c)	Planned	
d)	Reactive	

Question 32

What does the symbol below represent when seen on a British Standard convention drawing?

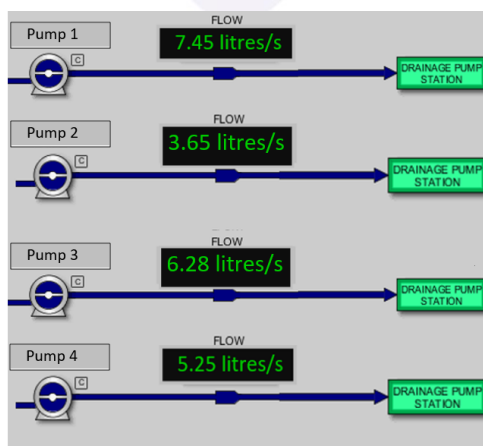


Possible answers		Answer
a)	Electrical signal	
b)	Instrument signal	
c)	Hydraulic line	
d)	Pneumatic line	

Question 33

Refer to the diagram below.

Calculate the difference between the flow rates of pump 1 and pump 4.

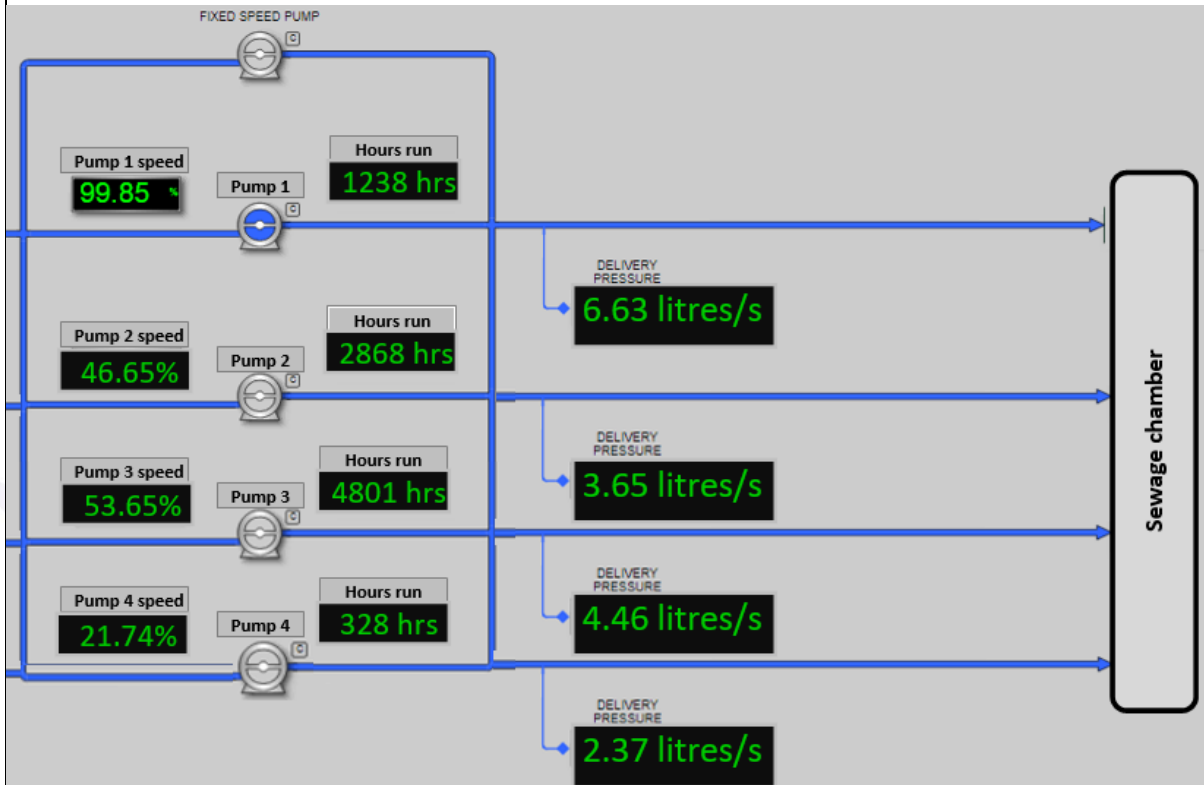


Possible answers		Answer
a)	3.25 litres per second	
b)	2.25 litres per second	
c)	2.20 litres per second	
d)	2.05 litres per second	

Question 34

Refer to the display below.

Identify the average hours run time on the pump sets.




Possible answers		Answer
a)	3196.00 hours	
b)	2308.80 hours	
c)	55.47 hours	
d)	4.27 hours	

Question 35

Refer to the image below.


Which ONE of the following instruments would display this information?

Possible answers		Answer
a)	Dissolved oxygen analyser	
b)	Temperature transmitter	
c)	Human Machine Interface	
d)	pH probe	

Question 36

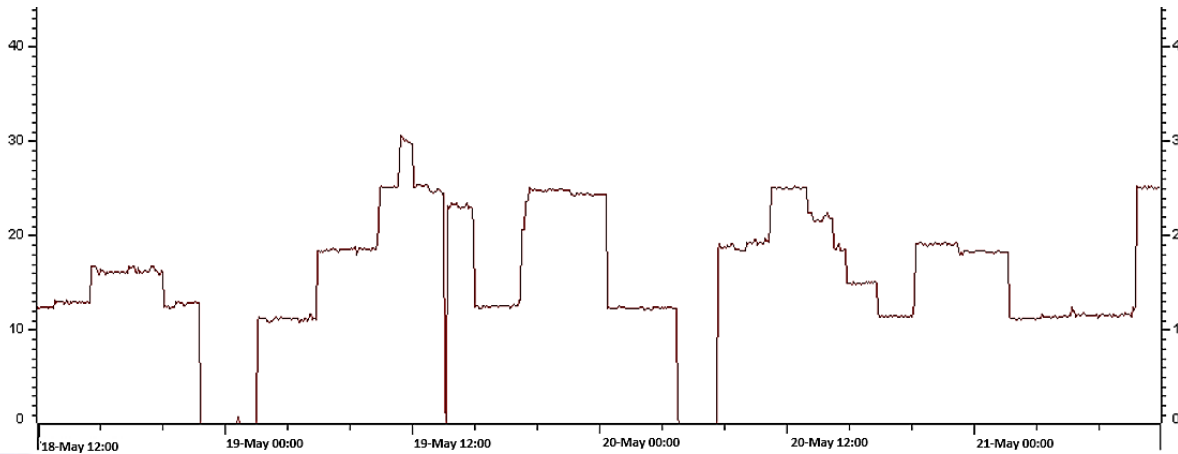
Refer to the image below.

What measurement is the reading displaying?

Possible answers		Answer
a)	Signal velocity	
b)	Viscosity of a liquid	
c)	Capacitance Probe (RF)	
d)	Turbidity	

Question 37

Refer to the trend analysis snapshot below of a pumping station.
On what day did the maximum flow rate occur?

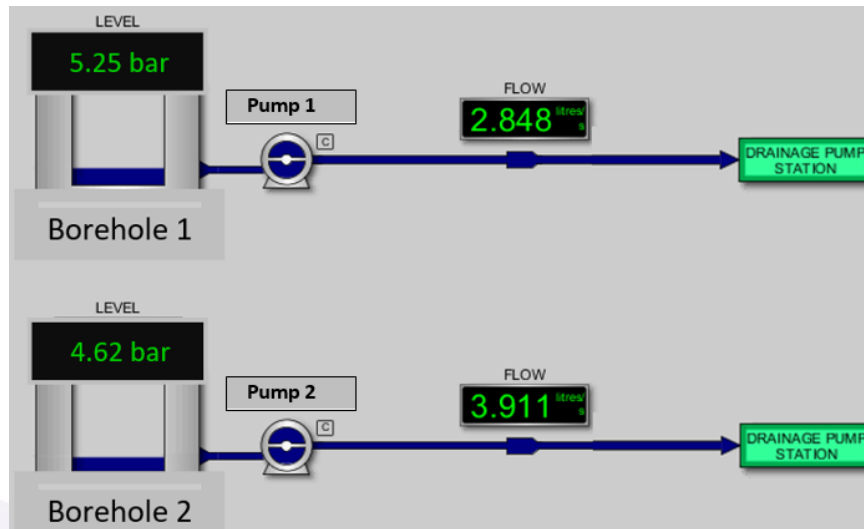


Possible answers		Answer
a)	18 May	
b)	19 May	
c)	20 May	
d)	21 May	

Question 38

Refer to the display below.

If 1.0 bar of pressure equals approximately 10.1972 mH₂O, what is the current level in mH₂O of bore hole 1

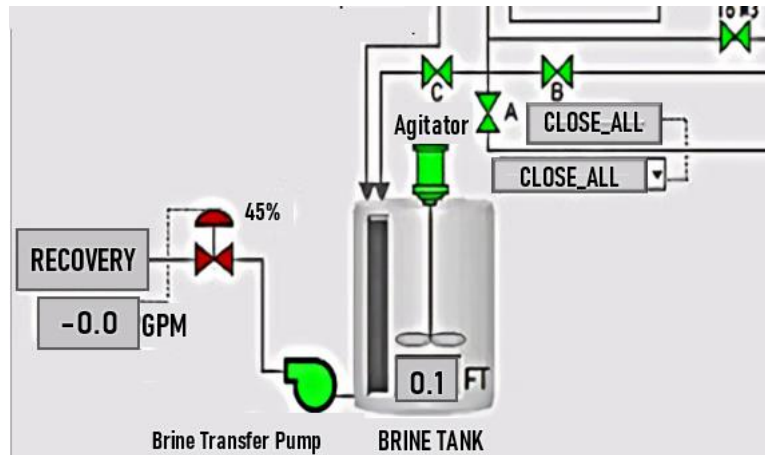


Possible answers		Answer
a)	29.04 mH ₂ O	
b)	39.9 mH ₂ O	
c)	47.1 mH ₂ O	
d)	53.5 mH ₂ O	

Question 39

Refer to the extract from a SCADA display.

Which ONE of the following figures is the flowrate from the brine tank to the Recovery?



Possible answers

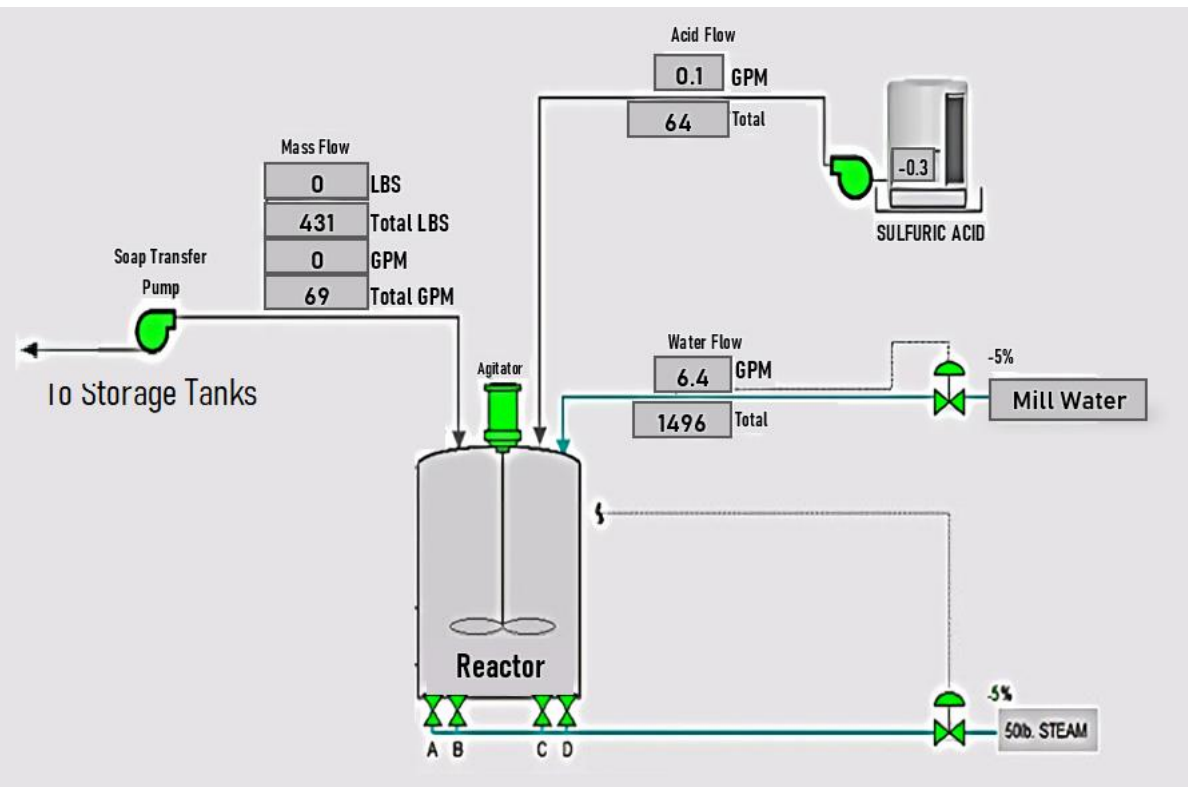
Answer

a)	-0.0 Gallons Per Minute	
b)	The information is not in the display	
c)	0.1 FT	
d)	45%	

Question 40

Refer to the extract from a SCADA display. There is no flow rate being measured from the mill tank to the reactor.

What could prevent the water flow reaching the reactor?



Possible answers		Answer
a)	High levels in the storage tank	
b)	Open pneumatic valve	
c)	Blockage from the West Storage	
d)	Closed pneumatic valve	

End of Practice Knowledge Assessment

Practice Knowledge Assessment

Answer scheme

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