

Level: 3

Utilities Engineering Technician

Pathway: Electrical

Paper Code: PRACTICE PAPER

This examination consists of 40 multiple-choice questions.

The Pass mark is 28 correct answers.

The duration of this examination is 60 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:

1 A B C D **ANSWER COMPLETED CORRECTLY**

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

1 A B C D **DO NOT** partially shade the answer circle
ANSWER COMPLETED INCORRECTLY

1 A B C D **DO NOT** use ticks or crosses
ANSWER COMPLETED INCORRECTLY

1 A B C D **DO NOT** use circles
ANSWER COMPLETED INCORRECTLY

1 A B C D **DO NOT** shade over more than one answer circle
ANSWER COMPLETED INCORRECTLY

This paper must be returned to EUIAS with the apprentice answer sheets.




You may use this page for rough work

Question 1	
How regularly should electrical safety equipment be inspected?	
Possible Answers	
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	
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	
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	
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	
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 accurate?

Possible Answers

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

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

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

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

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

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

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

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

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

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

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

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

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	
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	
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	
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

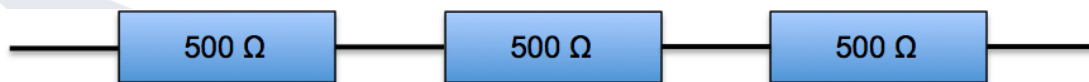
When two waves of the same frequency have the opposite phase, what is the phase angle between them?

Possible Answers

a)	0°
b)	90°
c)	180°
d)	360°

Question 22

What is the total resistance in this circuit?



Possible Answers

a)	1500 Ω
b)	500 Ω
c)	100 Ω
d)	50 Ω

[Please turn over for Question 23]

Question 23

In a control system, what does the transducer do?

Possible Answers

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

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

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

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

Question 27

On an electrical equipment label, what does the term 'd' refer to?

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

Possible Answers

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

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

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

a)	Mn
b)	Nm
c)	Tq
d)	N

Question 31

What type of maintenance is root cause analysis?

Possible Answers

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

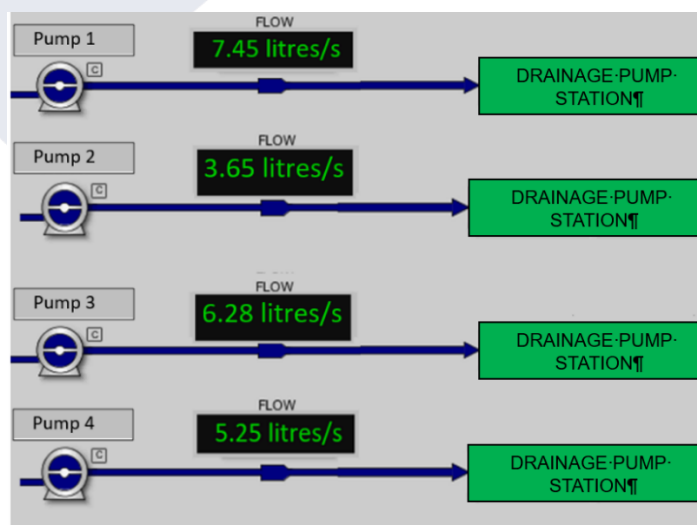
- | | |
|----|-------------------|
| a) | Electrical signal |
| b) | Instrument signal |
| c) | Hydraulic line |
| d) | Pneumatic line |



Question 33

Refer to the diagram below.

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



Possible Answers

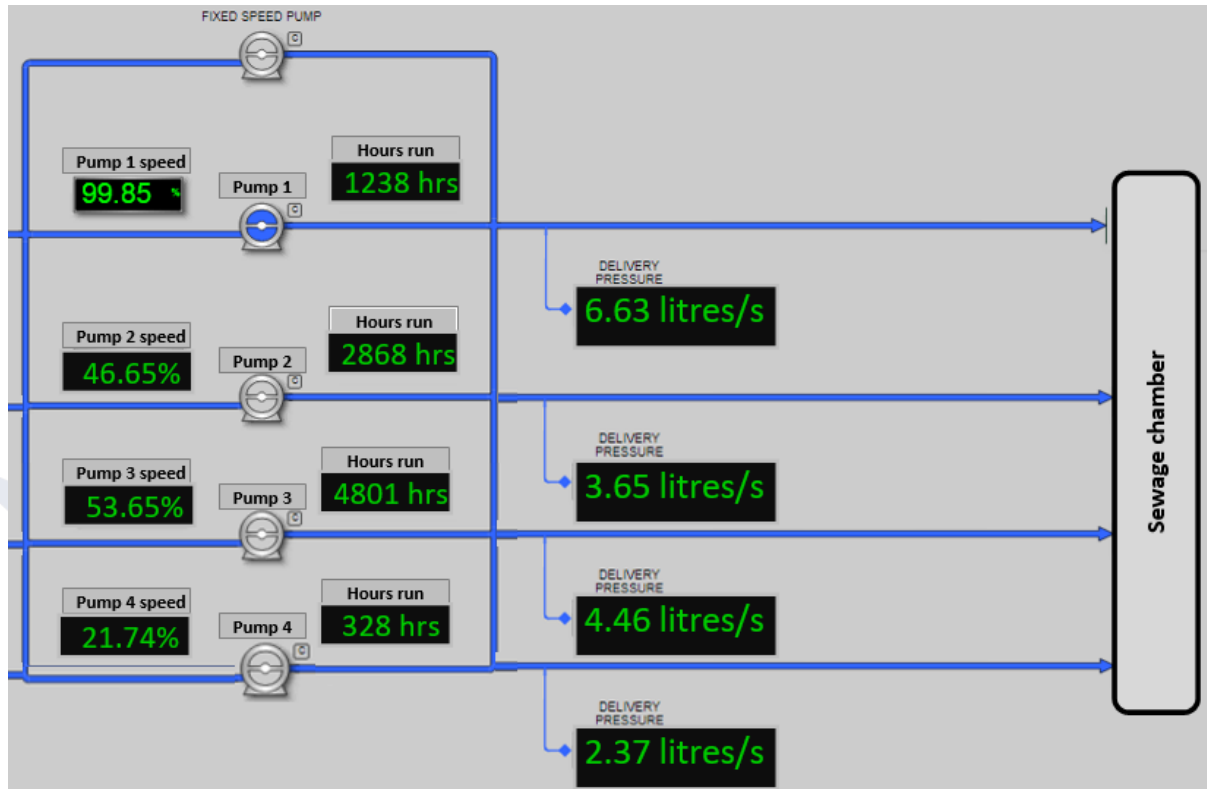
- | | |
|----|------------------------|
| a) | 3.25 litres per second |
| b) | 2.25 litres per second |
| c) | 2.20 litres per second |
| d) | 2.05 litres per second |



Question 34

Refer to the display below.

Identify the average hours run time on the pump sets.



Possible Answers

a)	3196.00 hours
b)	2308.80 hours
c)	55.47 hours
d)	4.27 hours

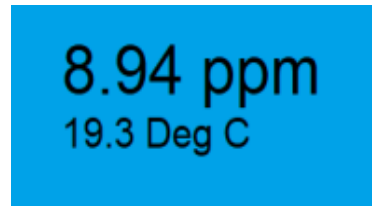
Question 35

Refer to the image below.

Which ONE of the following instruments would display this information?

Possible Answers

- | | |
|----|---------------------------|
| a) | Dissolved oxygen analyser |
| b) | Temperature transmitter |
| c) | Human Machine Interface |
| d) | pH probe |



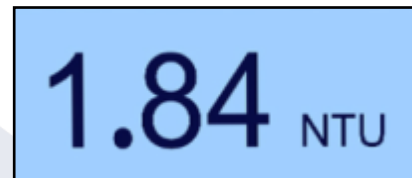
Question 36

Refer to the image below.

What measurement is the reading displaying?

Possible Answers

- | | |
|----|------------------------|
| a) | Signal velocity |
| b) | Viscosity of a liquid |
| c) | Capacitance Probe (RF) |
| d) | Turbidity |

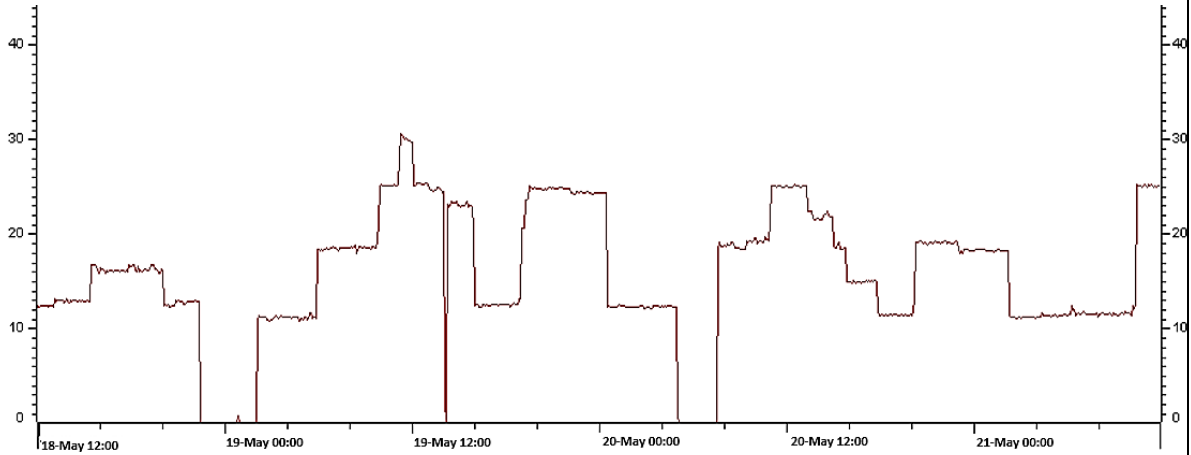


[Please turn over for Question 37]

Question 37

Refer to the trend analysis snapshot below of a pumping station.

On what day did the maximum flow rate occur?



Possible Answers

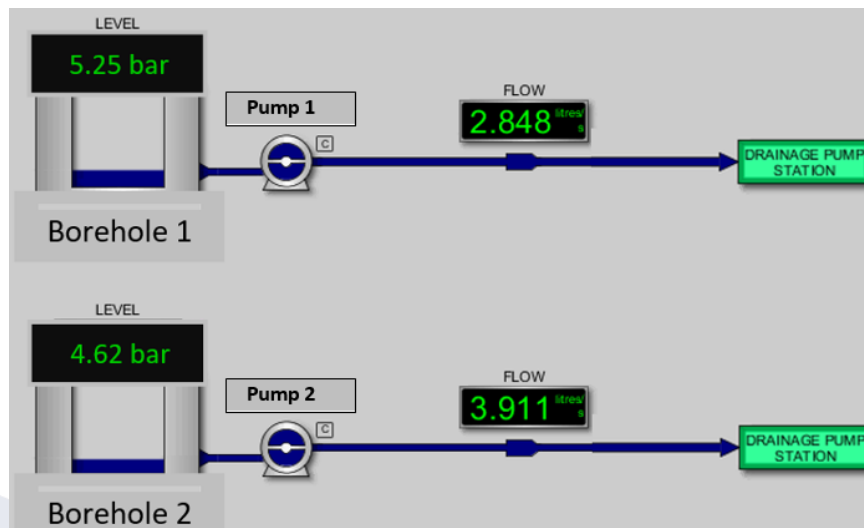
- | | |
|----|--------|
| a) | 18 May |
| b) | 19 May |
| c) | 20 May |
| d) | 21 May |

[Please turn over for Question 38]

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

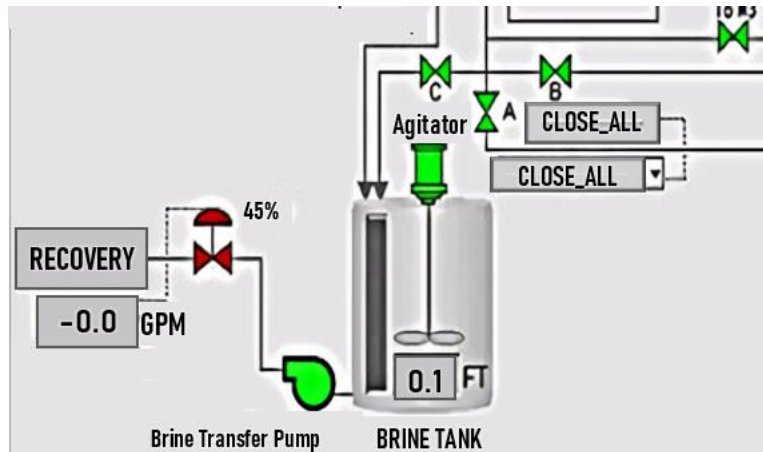
- | | |
|----|-------------------------|
| a) | 29.04 mH ₂ O |
| b) | 39.9 mH ₂ O |
| c) | 47.1 mH ₂ O |
| d) | 53.5 mH ₂ O |

[Please turn over for Question 39]

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

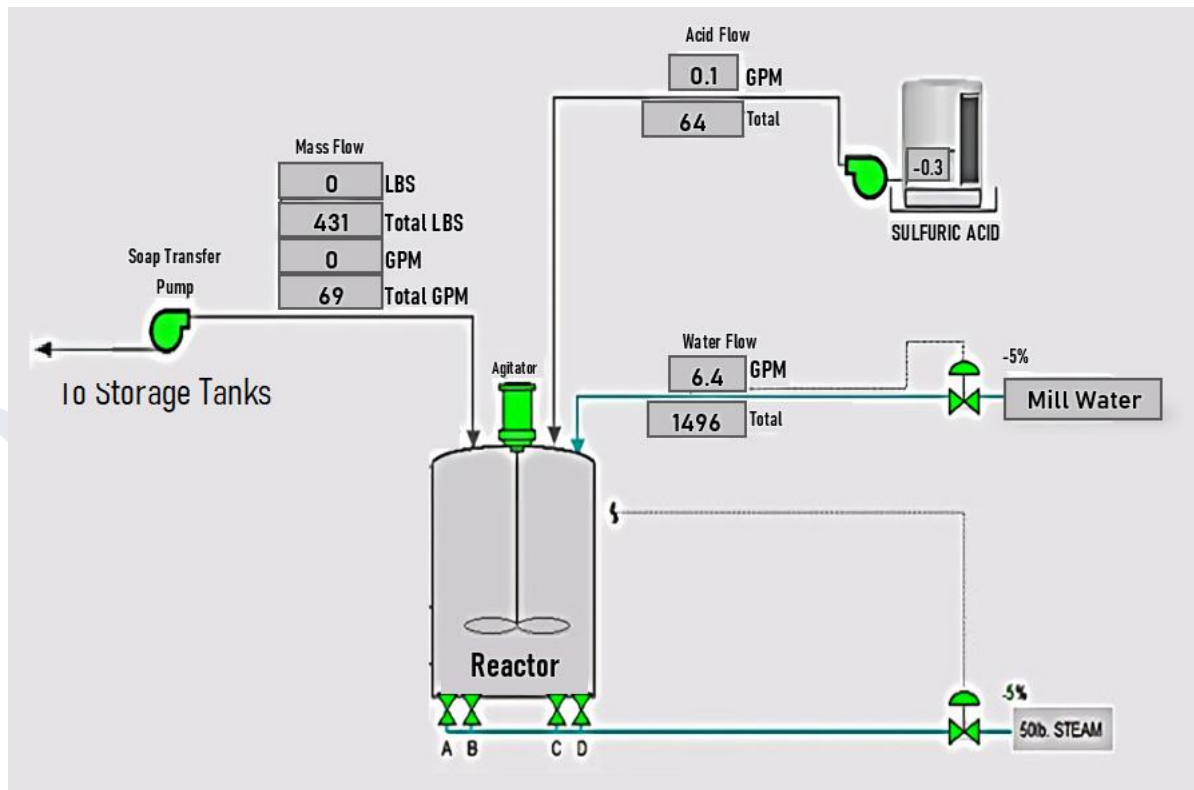
a)	-0.0 Gallons Per Minute
b)	The information is not in the display
c)	0.1 FT
d)	45%

[Please turn over for Question 40]

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

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

End of Questions

Answers

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		



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