

Sample Practice Assessment

Water Process Technician

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

Level: 3
Standard: Water Process
Pathway: Waste Water Treatment Technician
Duration: 1 hour 30 minutes

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 20 sample questions
- There will be 50 questions in the live knowledge assessment
- All questions should be attempted

Advice

- You are not permitted to leave the examination room for the first 45 minutes and the last 15 minutes of the examination
- Do not spend too long on one question
- Read all questions thoroughly before starting your examination
- Cheating: you will be asked to leave the examination room and will be classified an automatic fail and referred to your employer

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You can use this page to carry out any work but must not remove from the practice assessment paper.

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

Question 1		
RIDDOR (Reporting of Injuries, Diseases and Dangerous Occurrences) requires the reporting of dangerous occurrences at work.		
Which ONE of the following is not reportable as a dangerous occurrence?		
Possible answers		Answer
a)	The collapse or overturning of a crane	
b)	Contact with an overhead power line	
c)	The release or escape of a biological agent likely to cause severe human infection or illness	
d)	Accidental damage to a drain or sewer	

Question 2		
An employee has to carry out a work activity which involves a substance that can be hazardous to health.		
What should they do?		
Possible answers		Answer
a)	Carry on with the work regardless	
b)	Carry out the work, providing they have been suitably trained and have the necessary information from the COSHH assessment	
c)	Carry out the work using his/her own initiative to decide the sensible safety precautions	
d)	Refuse to carry out the work	

Question 3		
Which ONE of the following is the most common cause of workplace injury?		
Possible answers		Answer
a)	Falling from height	
b)	Attacks by animals	
c)	Manual handling injuries	
d)	Electric shocks	

Question 4		
Which ONE of the following weather conditions is classed, by the EA (Environment Agency), as unusual weather under the unusual weather condition in a permit?		
Possible answers		Answer
a)	Significant snow deposits	
b)	A period of 2 months with no rainfall	
c)	Temperatures above 34 degrees Celsius	
d)	High winds exceeding 70 mph	

Question 5		
Final effluent quality standards are usually based on numeric values for sanitary determinands.		
Which one of the following is NOT a sanitary determinand?		
Possible answers		Answer
a)	Ammonia	
b)	Iron	
c)	BOD	
d)	Suspended solids	

Question 6		
How can you tell if the rotating brush on an escalator type inlet screen needs adjusting?		
Possible answers		Answer
a)	By looking at the front face of the inlet screen, and checking if the elements are clean	
b)	By looking at the rotation of the brush drive gearbox, when the inlet screen is operating	
c)	By looking on the control panel of the inlet screen, and checking the lights are on	
d)	By looking at the rear of the screen, and checking if the elements are partially blinded	

Question 7		
What are the 4 stages of the process, as designed in a Primary Settlement Tank (PST)?		
Possible answers		Answer
a)	Inlet, outlet, settlement, sludge	
b)	Inlet, bottom, top, outlet	
c)	Inlet, hopper, bellmouth, flume	
d)	Crude, settlement, distribution, final	

Question 8		
A wastewater site has six primary tanks. Each tank has a capacity of 350m ³ . If the site has two tanks out of service for maintenance.		
What is the total primary settlement volume available?		
Possible answers		Answer
a)	1000m ³	
b)	1250m ³	
c)	1400m ³	
d)	1600m ³	

Question 09		
A circular primary tank needs emptying. The tank dimensions are 4m radius and 5m deep (the tank floor is flat). A temporary pump has been brought in to empty the tank. The pump will empty the tank at 100 l/sec. How long will it take to empty (to the nearest minute)?		
Possible answers		Answer
a)	15 minutes	
b)	42 minutes	
c)	64 minutes	
d)	90 minutes	

Question 10		
A centrifugal pump has worn internal parts caused by grit, sand and silt in the flow.		
Which one of the following is a likely early indicator?		
Possible answers		Answer
a)	Increasing noise levels	
b)	A drop in the closed valve head	
c)	Increasing vibration levels	
d)	A drop in the flow capacity of the pump	

Question 11		
Weeds are growing on the top of a percolating filter.		
Which one of the following statements about the weeds is correct?		
Possible answers		Answer
a)	The weeds should be removed as required to prevent disruption of the filter arms	
b)	The weeds show that the effluent is good quality and full of nutrients	
c)	The weeds assist with the removal of ammonia from the effluent	
d)	The weeds provide shelter for the grazers which are present in the film	

Question 12		
A single stage filter works (with recirculation) has 75000m ³ of filter media and a FTFT (Flow to Full Treatment) of 90500m ³ /d.		
What is the correct hydraulic loading of the site?		
Possible answers		Answer
a)	0.12m ³ /m ³ /d	
b)	12.0m ³ /m ³ /d	
c)	1.2m ³ /m ³ /d	
d)	0.83m ³ /m ³ /d	

Question 13

A works has a conventional activated sludge plant followed by a tertiary Biological Aerated Flooded Filter (BAFF). The maximum flow to treatment is 168MI/d and the final effluent consent is 2.0mg/l for ammonia. The performance for a week is given.

What is the likely cause of the failure for ammonia final effluent on Day 6?

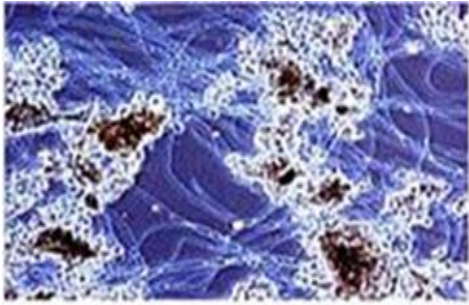
Day	Flow to treatment MI/d	Ammonia feed to BAFF mg/l	Ammonia load to BAFF Kg	Ammonia final effluent mg/l	Temperature feeds to BAFF °C	PH feed to BAFF	DO final effluent
1	65	12.7	826	1.4	15	7.0	6.0
2	64	11.7	749	0.9	15	7.1	5.8
3	64	11.9	762	1.1	16	7.3	5.9
4	75	10.6	795	1.3	16	7.4	4.8
5	79	10.3	814	1.4	15	7.2	6.2
6	73	11.4	832	5.2	15	7.0	0.0
7	64	12.3	787	1.9	16	7.3	5.4

Possible answers**Answer**

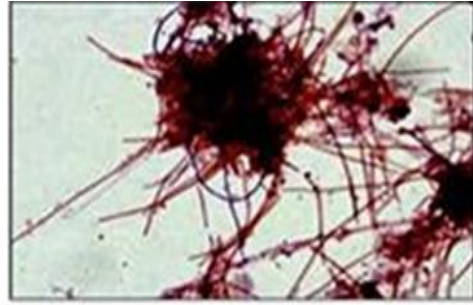
a)	Blower failure reducing oxygen supply	
b)	Low pH in BAFF feed	
c)	Increase in ammonia load to BAFF	
d)	Toxic discharge	

Question 14

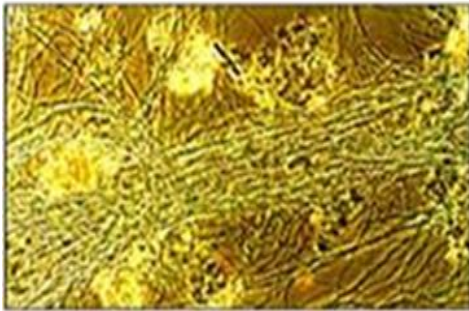
Study the photographs below of activated sludge from different plants. From the evidence in the photographs, which activated sludge will be the best settling?



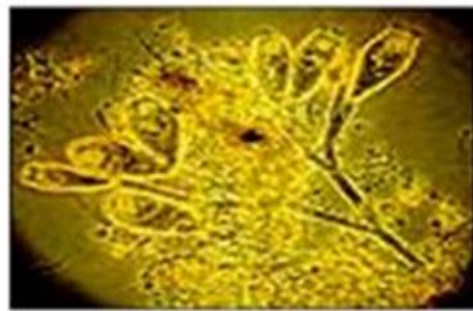
Activated Sludge 1



Activated Sludge 2



Activated Sludge 3



Activated Sludge 4

Possible answers		Answer
a)	Activated sludge 1	
b)	Activated sludge 2	
c)	Activated sludge 3	
d)	Activated sludge 4	

Question 15		
A modest increase in F:M ratio of an Activated Sludge process (ASP) is achieved by which one of the following options?		
Possible answers		Answer
a)	Increasing the MLSS (Mixed Liquor Suspended Solids)	
b)	Decreasing the MLSS	
c)	Increasing the DO (Dissolved Oxygen)	
d)	Building extra aeration tanks	

Question 16		
A BAFF has an average feed rate of 150MI/d with an ammonia concentration of 15mg/l. If the volume of media is 9000m ³ , what is the ammonia load per m ³ of media for the day (kg/m ³ /d)?		
Possible answers		Answer
a)	0.15	
b)	0.2	
c)	0.25	
d)	0.3	

Question 17		
With regard to the impact of sludge decant liquors, which one of the following statements is correct assuming an ammonia permit/consent of 5mg/l?		
Possible answers		Answer
a)	Sludge decant liquors should always be tankered away to another treatment works on sites with an ammonia consent of 5mg/l	
b)	The decant liquors should be stored and returned to the flow when the incoming sewage flow is high and the sewage is weak, thereby diluting the decant liquors	
c)	Poor control of the quality and the return rate of sludge decant liquors can result in failure to comply with sanitary consent conditions	
d)	Controlling the load of sludge decant liquors is unimportant as the quantities are too small to have a significant impact on the wastewater treatment processes	

Question 18		
Why is the wash water system on a Gravity Belt Thickener (GBT) necessary?		
Possible answers		Answer
a)	It cools the machine down	
b)	It thins the sludge down to less than 5% dry solids before adding to the belt	
c)	It cleans the belt to prevent blockages	
d)	It washes the sludge to increase the throughput	

Question 19		
A pollution incident occurs and has a significant effect on water quality, damage to aquatic ecosystem, reduction in amenity, short term persistence and impact on people.		
What EA (Environment Agency) pollution category is it?		
Possible answers		Answer
a)	Two	
b)	One	
c)	Four	
d)	Three	

Question 20		
According to DEFRA's 'Code of Practice on Odour Nuisance from Sewage Treatment Works (April 2006)', every wastewater plant with an odour problem should have what?		
Possible answers		Answer
a)	Covers and odour control equipment	
b)	An Odour Management Plan	
c)	A wet chemical scrubber	
d)	Odour monitoring equipment at the site boundary	

End of Sample Practice Assessment

Sample Practice Knowledge Assessment

Answer scheme

Question	Answer	Question	Answer
1	D	11	A
2	B	12	C
3	C	13	A
4	A	14	D
5	B	15	B
6	D	16	C
7	A	17	C
8	C	18	C
9	B	19	A
10	D	20	B