

QUESTIONNAIRE - MACHINE MAINTENANCE

Directions: Read each of the following statements carefully. If you think the statement is true write X in the True box. If you think the statement is false write X in the False box.

	True	False
1. If the cooling system contains a mixture of anti-freeze and water, topping up the system with water during the winter months is the correct procedure.	<input type="checkbox"/>	<input type="checkbox"/>
2. In a diesel engine, the engine oil level should always be checked with the engine running.	<input type="checkbox"/>	<input type="checkbox"/>
3. The water cooling system of a hot engine is usually pressurised, so extreme caution must be taken when removing the radiator cap.	<input type="checkbox"/>	<input type="checkbox"/>
4. If an engine fails to start, continuous operation of the starter motor is not recommended.	<input type="checkbox"/>	<input type="checkbox"/>
5. If the engine lubrication pressure gauge shows a low reading the operator should report this at the end of the day.	<input type="checkbox"/>	<input type="checkbox"/>
6. In general, all diesel engines are fitted with a device to aid 'cold weather starting'.	<input type="checkbox"/>	<input type="checkbox"/>
7. If a diesel engine stops because it has run out of fuel, by refilling the fuel tank, and engaging the starter, the engine will restart as normal.	<input type="checkbox"/>	<input type="checkbox"/>
8. An air restriction indicator fitted to a dry type air cleaner will show when the filter is dirty.	<input type="checkbox"/>	<input type="checkbox"/>
9. Black exhaust smoke could indicate a blocked air cleaner.	<input type="checkbox"/>	<input type="checkbox"/>
10. A battery with a low electrolyte level should be topped up with sulphuric acid.	<input type="checkbox"/>	<input type="checkbox"/>
11. The engine lubrication system pressure gauge gives an accurate indication of the level of oil in the sump.	<input type="checkbox"/>	<input type="checkbox"/>
12. If the engine cooling system radiator becomes blocked (dirt, leaves etc), the engine will run at a much lower temperature than normal.	<input type="checkbox"/>	<input type="checkbox"/>
13. Both water and air cooling systems are dependent on the fan to maintain cooling efficiency. The tension of the fan belts is most important.	<input type="checkbox"/>	<input type="checkbox"/>
14. On a diesel engine fitted with an alternator the alternator leads or battery leads must be disconnected if arc welding is to be carried out on the machine.	<input type="checkbox"/>	<input type="checkbox"/>
15. On a weekly service the operator should check the track tension or the tyre pressures (whichever applicable).	<input type="checkbox"/>	<input type="checkbox"/>
16. When checking the level of oil in the hydraulic reservoir the machine attachments must be set in position according to the manufacturers recommendations.	<input type="checkbox"/>	<input type="checkbox"/>
17. It is safe to keep the engine running when making any adjustments to the machine.	<input type="checkbox"/>	<input type="checkbox"/>
18. Transmission oil levels are always checked with the engine running.	<input type="checkbox"/>	<input type="checkbox"/>
19. Fuel tanks should be topped up at the end of the day to help prevent condensation in the fuel tank.	<input type="checkbox"/>	<input type="checkbox"/>
20. Corroded battery terminals could be the cause of an engine failing to start.	<input type="checkbox"/>	<input type="checkbox"/>

QUESTIONNAIRE - GENERAL SAFETY

Directions: Read each of the following statements carefully. If you think the statement is true write X in the True box. If you think the statement is false write an X in the False box.

	True	False
1. At the beginning of each working day the operator should check the operation of the machine to make sure it is in efficient working order.	<input type="checkbox"/>	<input type="checkbox"/>
2. Always make certain that the machine controls are in neutral before starting the engine.	<input type="checkbox"/>	<input type="checkbox"/>
3. Loose items of equipment such as grease guns, oil containers, tools should be left loose in the operators cab.	<input type="checkbox"/>	<input type="checkbox"/>
4. It is safe to travel the machine with a fully loaded bucket in the raised position.	<input type="checkbox"/>	<input type="checkbox"/>
5. Before leaving the machine unattended the attachments must be lowered to the ground.	<input type="checkbox"/>	<input type="checkbox"/>
6. The operator should always look forward when travelling.	<input type="checkbox"/>	<input type="checkbox"/>
7. The operator should always be alert to the possible presence of workers on foot or other machines working in the vicinity.	<input type="checkbox"/>	<input type="checkbox"/>
8. It is quite safe to coast downhill with the gears in neutral.	<input type="checkbox"/>	<input type="checkbox"/>
9. When loading vehicles never load over the cab.	<input type="checkbox"/>	<input type="checkbox"/>
10. Soil removed from a deep excavation should be dumped as close as possible to the edge of the excavation.	<input type="checkbox"/>	<input type="checkbox"/>
11. It is permissible to have passengers in the operators cab provided they stand clear of the machine controls.	<input type="checkbox"/>	<input type="checkbox"/>
12. When an operator climbs on or off the machine, he should always face the machine.	<input type="checkbox"/>	<input type="checkbox"/>
13. When travelling down a steep gradient with a fully loaded bucket it may be necessary to travel in reverse.	<input type="checkbox"/>	<input type="checkbox"/>
14. No extra precautions are necessary when the machine is being used to excavate material from a high face.	<input type="checkbox"/>	<input type="checkbox"/>
15. Heavy braking should be avoided when travelling and raising a fully loaded bucket.	<input type="checkbox"/>	<input type="checkbox"/>
16. A 'berm' of material should always be maintained near the edge of a deep excavation that is being backfilled.	<input type="checkbox"/>	<input type="checkbox"/>
17. Before commencing work on new excavations, check with a responsible person on the location of underground hazards.	<input type="checkbox"/>	<input type="checkbox"/>
18. On machines with powershift transmission it is perfectly safe to leave the machine in gear and climb off so long as the engine is on idle.	<input type="checkbox"/>	<input type="checkbox"/>
19. An operator should never work under a raised bucket unless it is supported by a safety bar.	<input type="checkbox"/>	<input type="checkbox"/>
20. No special precautions are necessary when working in confined or enclosed spaces.	<input type="checkbox"/>	<input type="checkbox"/>

NO 1

Category of Machine

Exercise - Travel the machine on site

The trainee is required to:

1. Carry out pre-start precautions and start machine (assume daily servicing is complete)
2. Drive and manoeuvre the machine on level terrain, gradients and on rough ground
3. Park and make the machine safe at the conclusion of the exercise

Equipment and Conditions

1. A tracked or wheeled loading shovel parked on level ground
2. A pre-determined travel route

Instructions

The trainee should be told to start the machine and travel it over a defined route; the route should include curves, inclines and rough ground. Travel should include employing forward and reverse gears, and the machine should be parked on level ground.

MARKING SHEET

Item	Key Points	Assessment
Pre-start	Correct procedures	<input type="checkbox"/>
Start	Correct procedures	<input type="checkbox"/>
Preparation	Attachments set in travel position	<input type="checkbox"/>
Travel	Continual observance all around	<input type="checkbox"/>
	Speed appropriate to terrain/conditions	<input type="checkbox"/>
	Control of machine when - steering	<input type="checkbox"/>
	- on inclines	<input type="checkbox"/>
	- rough ground	<input type="checkbox"/>
	- in reverse	<input type="checkbox"/>
Parking	Correct procedures	<input type="checkbox"/>
Safety	Personal	<input type="checkbox"/>
	Safety of others	<input type="checkbox"/>

The key points outlined above should be ticked if satisfactory and crossed if unsatisfactory

Category of Machine -Exercise - Excavate from a bank and form a stockpile

The trainee is required to:

1. Set the machine up for work
2. Excavate from a bank, and form a stockpile with the excavated material at 90° to the excavated face, the stockpile to be no higher than the maximum clear dumping height of the loader
3. Park and make the machine safe at the conclusion of the exercise

Equipment and Conditions

1. A tracked or a wheeled loading shovel fitted with a standard or 4 in 1 bucket parked on level ground
2. A bank of material
3. An area of ground, reasonably level and clear of hazards

Instructions

The trainee should be told to set the machine up for work; to excavate from the bank; to form a loose stockpile at 90° to the excavation face and to make the stockpile no higher than the maximum clear dumping height of the loader bucket, and to park the machine at the conclusion of the exercise

MARKING SHEET

Item	Key Points	Assessment
Starting	Correct procedures	<input type="checkbox"/>
Setting up the machine	Correct procedures	<input type="checkbox"/>
Excavating and stockpiling	Efficient cycles of operation	<input type="checkbox"/>
	No undercutting of bank	<input type="checkbox"/>
	No cutting below ground level	<input type="checkbox"/>
	Bucket in correct carry position	<input type="checkbox"/>
	Material dumped cleanly	<input type="checkbox"/>
Parking	Correct procedures	<input type="checkbox"/>
Safety	Personal	<input type="checkbox"/>
	Safety of others	<input type="checkbox"/>

The key points outlined above should be ticked if satisfactory and crossed if unsatisfactory

Category of MachineExercise - Reduced level excavation to line and level

The trainee is required to:

1. Set the machine up for work
2. Excavate and reduce the level of an area of ground by 1 metre; the area should be a minimum of 10 metres long by $2\frac{1}{2}$ times the width of the loader bucket
3. Place the excavated material to each side of the excavation to form an embankment approximately 1 metre high
4. Park and make the machine safe at the conclusion of the exercise

Equipment and Conditions

1. A tracked or a wheeled loader fitted with a standard or 4 in 1 bucket parked on level ground
2. An area of reasonably level ground clear of hazards

Instructions

The trainee should be told to set the machine up for work; reduce the level of the ground to specification; place the material to each side of the excavation to form an embankment and park the machine at the conclusion of the task

MARKING SHEET

Item	Key Points	Assessment
Starting	Correct procedures	<input type="checkbox"/>
Setting up machine	Correct procedures	<input type="checkbox"/>
Excavating and stockpiling	Efficient cycles of operation	<input type="checkbox"/>
	Smooth ramp into excavation	<input type="checkbox"/>
	Consistent depth	<input type="checkbox"/>
	Parallel sides	<input type="checkbox"/>
	Material clear of excavation edges	<input type="checkbox"/>
	Stockpile ramped up correctly	<input type="checkbox"/>
	Stockpile height maintained	<input type="checkbox"/>
	Excavation finished to required line and level	<input type="checkbox"/>
Parking	Correct procedures	<input type="checkbox"/>
Safety	Personal	<input type="checkbox"/>
	Safety of others	<input type="checkbox"/>

The key points outlined above should be ticked if satisfactory and crossed if unsatisfactory

Category of MachineExercise - Loading a vehicle

The trainee is required to:

1. Load a vehicle (lorry, dumptruck over 10 tonnes) from a stockpile
2. Park and make the machine safe at conclusion of the exercise

Equipment and Conditions

1. A tracked or wheeled loading shovel
2. A stockpile of material
3. An area of ground, reasonably level and clear of hazards
4. A vehicle (with a driver)

Instructions

The trainee should be told to set the machine up to excavate from the stockpile, ensure the vehicle is positioned for efficient loading; load the vehicle to capacity, and park the machine at the conclusion of the task

MARKING SHEET

Item	Key Points	Assessment
Pre-start	Correct procedures	<input type="checkbox"/>
Start	Correct procedures	<input type="checkbox"/>
Setting up machine	Correct procedures	<input type="checkbox"/>
Vehicle	Well positioned (efficient)	<input type="checkbox"/>
Loading	Efficient cycles	<input type="checkbox"/>
	Full buckets	<input type="checkbox"/>
	No contact with vehicle	<input type="checkbox"/>
	Vehicle evenly loaded and to capacity	<input type="checkbox"/>
	Spillage cleared up	<input type="checkbox"/>
	Ground level maintained	<input type="checkbox"/>
Parking	Correct procedures	<input type="checkbox"/>
Safety	Personal	<input type="checkbox"/>
	Safety of others	<input type="checkbox"/>

The keypoints outlined above should be ticked if satisfactory and crossed if unsatisfactory

Category of MachineExercise - Backfilling an open excavation and level the area

The trainee is required to:

1. Backfill an open excavation
2. Level backfilled area to match surrounding ground
3. Park and make machine safe at the conclusion of the exercise

Equipment and Conditions

1. A tracked or wheeled loading shovel
2. An open excavation with a stockpile of material in close proximity

Instructions

The trainee should be told to set the machine to backfill the open excavation; compact the backfill as far as possible with the machine; level off the backfilled area to match surrounding ground, and park the machine at the conclusion of the exercise

MARKING SHEET

Item	Key Points	Assessment
Pre-start	Correct procedures	<input type="checkbox"/>
Start	Correct procedures	<input type="checkbox"/>
Setting up	Correct procedures	<input type="checkbox"/>
Backfilling	Efficient cycles	<input type="checkbox"/>
	Load and carry	<input type="checkbox"/>
	Use of bucket to spread material	<input type="checkbox"/>
	Material spread in thin layers	<input type="checkbox"/>
	Compacted by tracking in	<input type="checkbox"/>
Levelling	Bucket positioning	<input type="checkbox"/>
	Matching level to surrounding ground	<input type="checkbox"/>
Parking	Correct procedures	<input type="checkbox"/>
Safety	Personal	<input type="checkbox"/>
	Safety of others	<input type="checkbox"/>

The keypoints outlined above should be ticked if satisfactory and crossed if unsatisfactory