

EXTERNAL INTEGRATED SUMMATIVE ASSESSMENT

EXEMPLAR 1C

STUDENT NAME & SURNAME	
ID NUMBER	
EISA REGISTRATION NUMBER	
ASSESSMENT CENTRE	
ASSESSMENT CENTRE ACCREDITATION NUMBER	
QUALIFICATION	Occupational Certificate: Maintenance Planner
SAQA ID	101874
CREDITS	261
PAPER	1C (there are 3 papers to be written: 1A; 1B and 1C)
DATE OF EISA	
DURATION	3 Hours
TOTAL MARKS	160

GENERAL EISA RULES

1. Students are only allowed to use the supplied EISA booklets.
2. Students are only allowed to use a black pen for their answers.
3. Students to ensure that their name, surname and EISA registration number appears on the front of your EISA booklet.
4. This is a closed book examination; therefore, no other material or belongings are to be brought into the assessment centre. Should you bring any other material or belongings into the assessment centre, you will be required to leave such at the front of the assessment centre examination room. The assessment centre will not be held liable for any loss or damage to property brought into the assessment centre examination room.
5. All EISA booklets must be handed back to the invigilator intact. No pages may be torn off from the EISA booklet. The removal of EISA booklets from the examination room is prohibited.
6. Students may make use of a calculator in this EISA.
7. Unless this is an online examination where access to a computer will be made available to you; the use of any communication devices, including smart watches, cell phones, tablets, i-Pads, headphones and laptops are prohibited.
8. All cell phones are to be switched off for the duration of the EISA.
9. The invigilator will not assist you with the explanation of questions related to the EISA.
10. Students are prohibited from conversing in any manner with other students.
11. Students may not leave the examination venue within one hour of the start of the examination and in the last 10 minutes of the allotted examination period.
12. Students who are found to be disruptive and unruly in the assessment centre will be requested to leave the assessment centre by the invigilator.

I HEREBY CONFIRM THAT I HAVE READ THE ABOVE EISA RULES AND DECLARE THAT I UNDERSTAND AND ACCEPT THE RULES.

SIGNATURE OF STUDENT

CANDIDATE INSTRUCTIONS

- Candidates must complete all questions in this EISA.
- Candidates must ensure that they use only a black pen when completing this EISA.
- Should you require additional space to complete your answer, please request additional paper from your invigilator. Ensure that you indicate your name, surname and EISA registration number at the top of the additional paper. Also ensure that the question number is clearly marked on your additional paper

EXEMPLAR

ELO 2: Coordinate the implementation and execution of the schedule

Question 1.1 Coordinate the execution of tasks

(45 marks)

INFORMATION PACK

Extract from Master Plan

Item	Functional location	Task Description	Work center	Duration	Planned date
1	Mixing	Replace Motor	ZM- Elect	4hrs	3 May 2021

User Department: Finishing

Job plan information

Task description: Replace Motor (75 kW)

Department: Mixing Department

Location: Line 1

Skilled required: 1 x Fitter

1 x Electrician

1 x Rigger

1 x Laser and vibration Technician (External services)

Hours required: 4 hours

Parts:

Part# 11111 Motor, Electric

Special tools: Torque wrench

Laser alignment

Vibration analysis

Slings

Special equipment: Jib Crane / Forklift

Steps:

Step 1: Lock out / tag out

Step 2: Disconnect motor, mark/label wires

Step 3: Unbolt coupling, inspect coupling and remove motor bolts

Step 4: Remove motor using jib crane available

Step 5: Install new motor (check motor is rotating freely)

Step 6: Connect coupling

Step 7: Alignment

Step 8: Connect the motor and check for right rotation

Step 9: Vibration analysis

Step 8: Test run

Step 9: Clean up and return motor to service

Step 10: Close out the work order detailing what was done

Question 1.1.1 (10 marks)

Refer to **Information Pack** above and answer the following:

The work pack consists of several items that are essential for effective and efficient execution of maintenance task in the schedule.

1.1.1.1 List and explain any five (5) items which form part of the work pack.

(5 marks)

Blank lined paper with a large, faint, diagonal watermark reading "MPDAR" across the center.

1.1.1.2 Outline the process you will follow to coordinate and confirm the items in the work pack prior to execution.

(5 marks)

[illegible]

Question 1.1.2 (15 marks)

Question 1.1.2 (15 marks)

1.1.2.1 The work pack has been confirmed, issued and is at execution stage. As a maintenance planner illustrate the process you will follow to further ensure that all resources in work pack are readily available on the planned date of task execution.

(10 marks)

EXEMPLAR

1.1.2.2 Identify any five (5) delays that may occur during the execution of this maintenance task. **(5 marks)**

ADLAR

Question 1.1.3

(20 marks)

1.1.3.1 The maintenance planner needs to have various skills to coordinate and provide support to the maintenance and operations/production departments during maintenance task execution.

List and explain various skills the maintenance planner should have in order to fulfill this role efficiently and effectively. Illustrate your answer with practical example within maintenance planning

(10 marks)

[illegible]

ELO 3: Close all work requests successfully and review the outcomes
List of tables to refer to for next section – Questions 2.1 and 2.2 where applicable as instructed

<table border="1"> <thead> <tr> <th>Status</th><th>Description</th></tr> </thead> <tbody> <tr> <td>COM</td><td>Complete, job done</td></tr> <tr> <td>WIP</td><td>Work in progress</td></tr> <tr> <td>OUT</td><td>Outstanding</td></tr> <tr> <td>CAN</td><td>Cancelled, no longer required</td></tr> <tr> <td>RES</td><td>Rescheduled</td></tr> </tbody> </table> <p><i>Table 1: Illustrates various types of work order statuses</i></p>	Status	Description	COM	Complete, job done	WIP	Work in progress	OUT	Outstanding	CAN	Cancelled, no longer required	RES	Rescheduled	<table border="1"> <thead> <tr> <th>Work Order Type</th><th>Description</th></tr> </thead> <tbody> <tr> <td>PM01</td><td>Corrective Maintenance (Planned, Unplanned)</td></tr> <tr> <td>PM02</td><td>Preventive Maintenance</td></tr> <tr> <td>PM03</td><td>Predictive Maintenance</td></tr> <tr> <td>PM04</td><td>Statutory Maintenance (Legal)</td></tr> <tr> <td>PM05</td><td>Change Management</td></tr> </tbody> </table> <p><i>Table 2: Illustrates various types of work orders</i></p>	Work Order Type	Description	PM01	Corrective Maintenance (Planned, Unplanned)	PM02	Preventive Maintenance	PM03	Predictive Maintenance	PM04	Statutory Maintenance (Legal)	PM05	Change Management
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Work Centre	Description																								
ZFEL	Electrical Foreman																								
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Schedule Week: Week 09,

Schedule Date: 03 March 2021 – 05 March 2021

FUNCTIONAL LOCATION	MAIN WORK CENTER	WORK ORDER	DUR. (H)	TASK DESCRIPTION	ORDER TYPE	SCHED. START DATE	START TIME	RESOURCE	FEEDBACK	STATUS
Line 1	ZFEL1	2021001	2,0	Change fan motor	PM01	03 March 2021	09:00	Artisan A	Job done. Create a 1Monthly maintenance plan to lubricate fan bearings for 1 hour. See approval docs)	COM
Line 1	ZFEL1	2021002	2,0	1W MIXER ELEC INSPECTION	PM03	03 March 2021	09:00	Artisan A	Mixer is obsolete, please delete schedule (see approval docs).	COM
Line 1	ZFEL1	2021003	2,0	Replace cooling fan	PM01	03 March 2021	09:00	Artisan A	Job not done, spare item was supplied with a wrong shaft size. Lifting equipment also not available	WIP
Line 1	ZFEL1	2021004	2,0	1M GEARBOX MOTOR INSPECTION	PM03	03 March 2021	09:00	Artisan A	Job not done, reschedule Artisan not available	OUT
Line 1	ZFIN1	2021005	2,0	1W TANK LOAD CELL CALIBRATION	PM02	04 March 2021	09:00	Artisan B	Job not done, reschedule Production did not handover Equipment not available to do the task	CAN
Line 1	ZFIN1	2021006	2,0	1W SCALE CALIBRATION	PM02	04 March 2021	09:00	Artisan B	Job done. Final report submitted. Certificates to be submitted.	OUT
Line 1	ZFMEX	2021007	2,0	1M GEARBOX VIBRATION ANALYSIS	PM03	04 March 2021	09:00	Artisan C, Contractors	<u>Findings</u> Increase in the overall vibration levels in the motor and plummer bearing spectrums <u>Recommendations</u> Inspect the security of the plummer bearing spectrums.	COM
Line 1	ZFME1	2021008	2,0	3YEARLY PRESSURE TEST ON AIR RECEIVER	PM04	03 March 2021	09:00	Artisan C	Job done, no fault found. Final report submitted. Certificates to be submitted.	COM
Line 1	ZFMEX	2021009	3,0	Change gearbox	PM01	03 March 2021	09:00	Artisan C, Contractors	Job done but was handed over late to operations by 4 hours. SLA not complied with.	COM
Line 1	ZFME1	2021010	3,0	Change bearings	PM01	03 March 2021	09:00	Artisan C	Job done, no fault found	COM
Line 1	ZFME1	2021011	3,0	3YEARLY PRESSURE TEST ON PRESSURE RELIEF VALVE	PM04	05 March 2021	09:00	Artisan C	Job done, no fault found. Final report submitted.	COM
Line 1	ZFME1	2021012	2,0	3YR PASSENGER LIFT LOAD TEST	PM04	05 March 2021	09:00	Artisan C	Job done, no fault found. Final report submitted.	COM

Table 5: Summary report which illustrates a schedule for week 09.

Question 2.1	Close out documentation	80 marks
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Question 2.1.1 **(15 marks)**

Outline the list of items that you will evaluate in this work order and related documentation in order to ensure that the feedback provided is completed accurately and correctly. Illustrate your answer with any statutory equipment that you are familiar with.

EXAMPLE

Question 2.1.2 (15 Marks)

Question 2.1.2 (15 Marks)

As maintenance planner your function is to review completed tasks, capture work history in CMMS and provide necessary feedback to various role players and departments.

In your role as maintenance planner outline how you will do the following:

2.1.2.1 The process to review completed tasks.

(5 marks)

EXEMPLAR

2.1.2.2 The process of capturing history in CMMS.

(5 marks)

Blank lined paper with a faint 'DOLAR' watermark.

2.1.2.3 The process of providing feedback where necessary.

(5 marks)

EXEM

Question 2.1.3**(20 marks)**

Maintenance reports provides an opportunity to review the performance of the maintenance department. Maintenance planning plays an important roles in reporting on various Key Performance Indicators (KPIs).

2.1.3.1 What is your understanding of the following Key Performance Indicators (KPIs) in planning? Select and answer any five (5) KPIs below.

or

Alternatively you may list and explain any five (5) Key Performance Indicators (KPIs) in planning that you are familiar with.

(10 marks)

a) Work order turnover

(2 marks)

b) Backlog

(2marks)

c) Schedule compliance

(2 marks)

d) Statutory compliance

(2 marks)

e) Labour utilization

(2 marks)

f) Planning Degree

(2 marks)

g) Scheduling Efficiency

(2 marks)

h) Schedule adherence

2.1.3.1 Refer to Table 5: Summary report above

Calculate any of the following five (5) KPIs. You are required to indicate the formula used.

or

Alternatively you may calculate any five (5) key performance indicators that you are familiar with. You are required to indicate the formula used.

(10 marks)

a) Work order turnover

(2marks)

b) Backlog

(2 marks)

c) Schedule compliance

(2 marks)

d) Statutory compliance

(2 marks)

e) Labour utilization

(2 marks)

f) Planning Degree

(2 marks)

g) Scheduling Efficiency

(2 marks)

i) Schedule adherence

Question 2.1.4

(15 marks)

Service Level Agreement Scenario:

The service provider is contracted to service Switch Gear for Line 2. The service level agreements standards are outlined in the table below.

KPIs and Metrics		
Metric	Commitment	Measurement
Availability	100%	MTTR
Reliability	100%	MTTF

Service Levels, Rankings, and Priority		
Severity Level	Description	Target Response
1. Outage	Switch gear down	Immediate 30 minutes
2. Critical	High risk of Switch gear downtime	Within 1 hour minutes
3. Urgent	End-user impact initiated	Within 20 minutes
4. Important	Potential for performance impact if not addressed	Within 2 hours

According to your record the monthly summary report is as follows:

- Availability is 96%
- Reliability is 98%
- Response time for severity 2 critical was 2 hours

Contractor's Report: the service provider has submitted a report stating that all the service levels have been complied with satisfactorily.

Answer the following:

2.1.4.1 What is your understanding of the Service Level Agreement (SLA) and what is its importance to in maintenance planning function? List any five (5) explanations associated with Service Level Agreement.

(5 marks)

2.1.4.2 According to your understanding of the SLA how would you verify the submitted report as a maintenance planner and how would you enforce deviations of non-conformances?

(10 marks)

Question 2.2**Review the execution outcomes of the work management process****35 marks****Question 2.2.1****(10 marks)**

You are required to identify scheduling constrains and improvement opportunities.

Refer to Table 5(summary report week 9)

a) Identify any five (5) scheduling constrains

(5 marks)

b) List any five (5) improvement any opportunities
marks)

(5

Question 2.2.2**(10 marks)**

Based on the summary report on table 5, identify any two (2) work orders that require system or master data updates. List steps or process you will follow when updating master data.

Master Update 1

(5 marks)

Master Update 2

(5 marks)

Question 2.2.3

You are required to outline a process on how to you go about to identify, formulate and implement areas that require improvements in planning.

To answer this question analyse summary report week 9 on table 5. Further compare the actual KPIs you calculated in question 2.1.3.2 against the Target KPI on Table 4.

(10 marks)

EXEMPLAR

(TOTAL MARKS FOR THE EXAM: 160)

MARK ALLOCATION GRID (For use by the Assessor only)

QUESTION	MARK	MARKS AWARDED
1.1.1	10	
1.1.2	15	
1.1.3	20	
TOTAL QUESTION 1.1	45	
2.1.1	15	
2.1.2	15	
2.1.3	20	
2.1.4	15	
2.1.5	5	
2.1.6	10	
TOTAL QUESTION 2.1	80	
2.2.1	10	
2.2.2	10	
2.2.3	15	
TOTAL QUESTION 2.2	35	
GRAND TOTAL	160	

ASSESSORS DETAILS

ASSESSOR NAME & SURNAME	
REGISTRATION NUMBER	
SIGNATURE	
DATE	

INTERNAL MODERATOR DETAIL

MODERATOR NAME & SURNAME	
REGISTRATION NUMBER	
SIGNATURE	
DATE	