







ELECTRICAL MACHINE WINDING TECHNICIAN



ASSESSMENT PACKAGE

National Vocational Certificate Level 3

Version 1 - September, 2018





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ELECTRICAL MACHINE WINDING TECHNICIAN



ASSESSMENT PACKAGE
National Vocational Certificate Level 3

Version 1 - September, 2018

This formative assessment relates to the training programme:	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title: Apply Work Health and Safety Practices (WHS)	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:				
	Registration/Roll Number:				
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):				
Guidance for Candidate	Assessment Task 1. Implement safe work practices at work place Assessment Task 2. Participate in hazard assessment activities a work place Assessment Task 3. Follow emergency procedures at workplace Participate in OHS consultative processes				
	And complete:				
	 Knowledge assessment test (Written or Oral) Portfolios at the time of assessment (if any) 				
	During a practical assessment, under observation by an assessor, you will complete:				
	Assessment Task 1				
	Performance Criteria 1:				
	Performance Criteria 2: Performance Criteria 3:				
	Performance Criteria 3:				
	Performance Criteria 5:				
	Performance Criteria 6:				
Minimum Evidence	Assessment Task 2				
Required	Performance Criteria 1:				
·	Performance Criteria 2:				
	Performance Criteria 3: Performance Criteria 4:				
	Performance Criteria 5:				
	Assessment Task 3				
	Performance Criteria 1:				
	Performance Criteria 2:				
	Performance Criteria 3: Performance Criteria 4:				
	Performance Criteria 5:				

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/ jobs etc:
Performance criteria 1 for the evaluation of portfolio
Performance criteria 2 for the evaluation of portfolio
Performance criteria 3 for the evaluation of portfolio

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	Š
Assessment Outcome	Name of the Assessor: Signature of the Assessor:	

Assessment Summary (to be filled by the assessor)								
Activity		Method				Result		
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play			
Practical Skill Demonstration			✓		✓			
Knowledge Assessment	✓	✓						
Other Requirement				✓				

Each Assessment Task (with performance criteria)				
Assessment Task 1 : Implement safe work practices at work place	Description of assessment task 1			

_	During the practical assessment, candidate demonstrated the following:			No	Remarks
1	Performance criteria1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5				
6	Performance criteria6:				
Compe	etent	Not Yet Compe	tent \square		
Assessment Task 2: Participate in hazard assessment activities a work place		Description of	assessi	ment ta	sk 2
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks	
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	etent 🗆	Not Yet Compe	tent 🗆		
Assessment Task 3: Follow emergency procedures at workplace		Description of	assessi	ment ta	sk 3
During followin	the practical assessment, candidate de	monstrated the	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria 2:				
3	Performance criteria 3:				
4	Performance criteria 4:				
5	5 Performance criteria 5:				
Compe	etent 🗆	Not Yet Compe	tent 🗖		

	sment Task 4: Participate in OHS Itative processes	Description of a	assessr	ment ta	sk 3
During followin	the practical assessment, candidate deng:	Yes	No	Remarks	
1	Performance criteria 1:				
2	Performance criteria 2:				
3	Performance criteria 3:				
4	Performance criteria 4:				
5	Performance criteria 5:				
Compe	etent	Not Yet Compe	etent 🗆		
Portfoli	io(if any)	Description of p	portfolic)	
Current	t□ Sufficient□ Authentio	c□ Valid			Reliable 🗆
Portfoli	io meet the following performance stand	ards:	Yes	No	Remarks
1	Performance criteria 1				
2	Performance criteria 2				
3	Performance criteria 3				
4					
Competent ☐ Not Yet Compe]	

Assessors Judgment Guide TITLE OF QUALIFICATION

training prog	ssessment relates to the time: Winding Technician	CS Code:	Lev	vel: 3	Version:	
Module Title Apply Work H		n and Safety Practices (WHS)	Assessm	ent Date	(DD/MM/YY	():
Guidance for Candidate To complete your assessment for this Curriculum Module, you need to answer the questions on the following pages successfully.						
Assessors Go candidate afte		(to be completed by the Assessor assessment)	and signed	I both by t	he assesso	r and the
Candidate Details		Name:				
Written Assessment Outcome COMPETENT□ Not yet competent□ Name of the Assessor: Signature of the Assessor:						
This formative assessment relates to the training programme: Electrical Machine Winding Technician			g	CS Code	: Level:3	Version:
Module Title: Apply Work Health and Safety Practices (WHS)				Assessn	nent Date (I	DD/MM/YY):

Question	Candidate's answer
1.	
2.	
۷.	
3.	
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This formative assessment relates to the training programme:	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title: Identify and Implement Workplace Policy and procedures	Assessment D	Date (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):
	Assessment Task 1. Identify workplace policy & procedures
Guidance	Assessment Task 2. Implement workplace policy & procedures
for Candidate	Assessment Task 3. Communicate workplace policy& procedures Assessment Task 4. Review the implementation of workplace policy & procedures
	And complete:
	 Knowledge assessment test (Written or Oral) Portfolios at the time of assessment (if any)
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1:
	Performance Criteria 2: Performance Criteria 3:
	Performance Criteria 4:
	Performance Criteria 5:
	Performance Criteria 6:
Minimum Evidence	Assessment Task 2
Required	Performance Criteria 1:
	Performance Criteria 2: Performance Criteria 3:
	Performance Criteria 3:
	Performance Criteria 5:
	Assessment Task 3
	Performance Criteria 1:
	Performance Criteria 2: Performance Criteria 3:
	Performance Criteria 3:
	Performance Criteria 5:

Portfolios required at the time of assessment (if any) like trainees assignment, Project job etc:
Performance criteria 1 for the evaluation of portfolio
Performance criteria 2 for the evaluation of portfolio
Performance criteria 3 for the evaluation of portfolio

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	Š
Assessment Outcome	Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Assessment Summary (to be filled by the assessor)							
Activity	Method			Result			
Nature of Activity	Written	Written Dral Observation Portfolio			Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓		✓		
Knowledge Assessment	✓	✓					
Other Requirement				✓			

Each Assessment Task (with performance criteria)					
Assessment Task 1 : Identify workplace policy & procedures	Description of assessment task 1				

During followin	the practical assessment, candidate de	monstrated the	Yes	No	Remarks
1	Performance criteria1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5				
6	Performance criteria6:				
Compe	etent 🗆	Not Yet Compe	tent 🗆		
	ment Task 2: Implement workplace & procedures	Description of a	assessı	ment ta	sk 2
	During the practical assessment, candidate demonstrated the following:			No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	tent	Not Yet Compe	tent 🗆		
Assessment Task 3: Communicate workplace policy& procedures		Description of a	assessi	ment ta	sk 2
During the practical assessment, candidate demonstrated following:			Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	5 Performance criteria5:				
Compe	tent 🗆	Not Yet Compe	tent 🗆		

	sment Task 4: Review the nentation of workplace policy & dures	Description of a	assessr	ment ta	sk 2
During followin	the practical assessment, candidate der ng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	etent 🗆	Not Yet Compe	tent 🗆		
Portfolio(if any)		Description of p	portfolic)	
Current	t□ Sufficient□ Authentio	c□ Validl			Reliable
Portfoli	io meet the following performance stand	ards:	Yes	No	Remarks
1	Performance criteria 1				
2	Performance criteria 2				
3	Performance criteria 3				
4					
Compe	etent 🗆	Not Yet Compe	etent \square	j	

Assessors Judgment Guide TITLE OF QUALIFICATION

training prog	gram	ssessment relates to the me: Winding Technician	CS Code	:	Leve	: 3	Version:
Module Title Identify and I procedures	Assessn	nent D	ate (D	D/MM/YY):		
Guidance for Candidate	complete your assessment for t questions on the following pag				le, you ne	eed to answer	
Assessors Gu candidate afte		(to be completed by the Assessor assessment)	and signe	d both	by the	e assessor	and the
Candidate Details		Name:					
Written Assessment Outcome		Asse	essor's				
This formative assessment relates to the training programme: Electrical Machine Winding Technician				CS C	ode:	Level:3	Version:
Module Title: Identify and Implement Workplace Policy and procedures				Asse	ssme	nt Date (D	DD/MM/YY):

Question	Candidate's answer
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9.	
10.	
11.	
12.	
13.	
14.	
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This formative assessment relates to the training programme:	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title: Communicate At Workplace	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:	
	Registration/Roll Number:	
		d of assessment, you have to complete the vithin the given time frame (for practical):
Guidance	Assessment Task 1. Assessment Task 2.	Communicate within the organization Communicate outside the organization
for Candidate	Assessment Task 3.	Communicate effectively in workgroup
Carialaato	Assessment Task 4.	Communicate in writing
	And complete: 5. Knowledge assessmen 6. Portfolios at the time of	
	During a practical assessment complete: Assessment Task 1 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5: Performance Criteria 6:	nt, under observation by an assessor, you will
Minimum Evidence Required	Assessment Task 2 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5: Assessment Task 3 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5:	

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/Jobs etc:
Performance criteria 1 for the evaluation of portfolio
Performance criteria 2 for the evaluation of portfolio
Performance criteria 3 for the evaluation of portfolio

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	Š
Assessment Outcome	Name of the Assessor: Signature of the Assessor:	

Assessment Summary (to be filled by the assessor)								
Activity		Method				Result		
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent	
Practical Skill Demonstration			✓		✓			
Knowledge Assessment	✓	✓						
Other Requirement				✓				

Each Assessment Task (with performance criteria)				
Assessment Task 1 : Communicate within Description of assessment task 1				
the organization				

During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5				
6	Performance criteria6:				
Comp	etent 🗆	Not Yet Compe	tent 🗆		
		T			_
Asses	sment Task 2: Communicate outside	Description of	assess	ment ta	ask 2
the or	ganization				
During the practical assessment, candidate demonstrate following:			Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				1
5	Performance criteria5:				
Competent □ Not		Not Yet Compe	tent 🗆		
Asses	sment Task 3: Communicate	Description of	assess	ment ta	ask 3
	ively in workgroup				
During the practical assessment, candidate de following:		monstrated the	Yes	No	Remarks
1 Performance criteria 1:					
2	D ('' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '				1
3					1
4	Performance criteria4:				1
5	Performance criteria5:				
Comp	etent 🗆	Not Yet Compe	tent \square	1	1

Assess	sment Task 4: Communicate in	Description of a	assessi	ment ta	sk 2
	the practical assessment, candidate de	monstrated the	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Competent ☐ Not Yet Com			etent 🗆		
Portfoli	io(if any)	Description of p	portfolio)	
Curren	nt□ Sufficient□ Authenti	c□ Valid			Reliable
Portfoli	io meet the following performance stand	lards:	Yes	No	Remarks
1	1 Performance criteria 1				
2	Performance criteria 2				
3	Performance criteria 3				
4					
Compe	etent 🗆	Not Yet Compe	etent \Box]	

Assessors Judgment Guide TITLE OF QUALIFICATION

This formative assessment relates to the training programme:			CS Code	e: Leve	l: 3	Version:		
Electrical Machine Winding Technician								
Module Title) :		Assessr	ment Date (D	DD/MM/YY):		
Communicat	e At \	Workplace						
Guidance for Candidate		complete your assessment fo questions on the following p			ıle, you ne	eed to answer		
Assessors G candidate afte		(to be completed by the Assess assessment)	sor and signe	ed both by the	e assessor	and the		
Candidate Name:				Registration/Roll Number:				
Details Candidate Signature:								
		COMPETENT		NOT YET	COMPET	ENT□		
Written Assessment Name of the Assessor:				Assessor's code:				
Outcome	Outcome Signature of the Assessor:							
					1			
This formative assessment relates to the training programme:			ing	CS Code:	Level:3	Version:		
Electrical Ma	chine	e Winding Technician						
Module Title) :			Assessment Date (DD/MM/YY):				
Communicate At Workplace								

Question	Candidate's answer
15.	
16.	
17.	
18.	
19.	
19.	
20.	
21.	

This formative assessment relates to the training programme:	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title:	Assessment D	oate (DD/MM/YY):
Perform Computer Application Skills			

Candidate Details	Name:						
	Registration/Roll Numb	er:					
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):						
	Assessment Task 1.	Prepare In-page documents as per required information					
Guidance	Assessment Task 2.	Prepare Spreadsheets as per required information					
for	Assessment Task 3.	Use MS Office as per required information					
Candidate	Assessment Task 4.	Perform computer graphics in basic applications					
	Assessment Task 5.	Create Email account for communications					
	And complete: 7. Knowledge assessment test (Written or Oral) 8. Portfolios at the time of assessment (if any)						
	complete: Assessment Task 1 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5: Performance Criteria 6:						
Minimum Evidence Required	Assessment Task 2 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5: Assessment Task 3 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 4: Performance Criteria 5:						

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/Jobs etc:
Performance criteria 1 for the evaluation of portfolio
Performance criteria 2 for the evaluation of portfolio
Performance criteria 3 for the evaluation of portfolio

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	-
Assessment Outcome	Name of the Assessor: Signature of the Assessor:	

Assessment Summary (to be filled by the assessor)								
Activity			Method	t		Result		
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent	
Practical Skill Demonstration			✓		✓			
Knowledge Assessment	✓	✓						
Other Requirement				✓				

Each Assessment Task (with performance criteria)						
Assessment Task 1 : Prepare In-page	Description of assessment task 1					
documents as per required information						

	During the practical assessment, candidate demonstrated the following:			No	Remarks
1	Performance criteria1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5				
6	Performance criteria6:				
Compe	tent 🗆	Not Yet Compe	tent 🗆		
۸۶۶۹۶۶	ment Task 2: Prepare Spreadsheets	Description of a	assessr	nent ta	sk 2
	required information				
us per	required information				
During followin	rring the practical assessment, candidate demonstrated the lowing:		Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	tent	Not Yet Compe	tent 🗆		
Assessment Task 3: Use MS Office as per required information		Description of a	assessr	ment ta	sk 3
During the practical assessment, candidate dem following:		monstrated the	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	tent	Not Yet Compe	tent \square		
•	<u> </u>				

Assessment Task 4: Perform computer Description of assessment task 4:					
graphi	cs in basic applications				
During	the practical assessment, candidate de	monstrated the			
followin		monstrated the	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	etent	Not Yet Compe	tent 🗆		
٨٥٥٥٥	sment Task 5: Create Email account	Description of	assessi	ment ta	sk 2
	mmunications				
101 001	illianications				
During the practical assessment, candidate der following:		monstrated the	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	etent	Not Yet Competent □			
Portfoli	o(if any)	Description of portfolio			
Curren	t□ Sufficient□ Authenti	l c□ Valid□ Reliab		Reliable 🗆	
Portfoli	o meet the following performance stand	ards:	Yes	No	Remarks
1	Performance criteria 1				
2	Performance criteria 2				
3	Performance criteria 3				
4					
Competent ☐ Not Yet 0		Not Yet Compe	etent 🗖		

Assessors Judgment Guide TITLE OF QUALIFICATION

This formative assessment relates to the training programme: Electrical Machine Winding Technician			CS Code	: Lev	el: 3	Version:	
Module Title: Perform Computer Application Skills			Assessn	nent Date (DD/MM/YY);	
Guidance for this Curriculum Module, you need to answer the questions on the following pages successfully.							
Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment) Candidate Name: Registration/Roll Number:							
Details Candidate Signature: COMPETENT□			NOT YET COMPETENT□				
Written Assessment Outcome Name of the Assessor: Signature of the Assessor:							
This formative assessment relates to the trainin programme: Electrical Machine Winding Technician			g	CS Code:	Level:3	Version:	
Module Title: Perform Computer Application Skills				Assessm	ent Date (I	DD/MM/YY):	

Question	Candidate's answer
22.	
23.	
04	
24.	
25.	
26.	
27.	
28.	

This formative assessment relates to the training programme:	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title: Manage Personal Finances	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):
0	Assessment Task 1. Develop a personal budget
Guidance for	Assessment Task 2. Develop long term personal budget
Candidate	Assessment Task 3. Identify ways to maximize future finances
	And complete: 9. Knowledge assessment test (Written or Oral) 10. Portfolios at the time of assessment (if any)
Minimum Evidence Required	During a practical assessment, under observation by an assessor, you will complete: Assessment Task 1 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5: Performance Criteria 6:
	Assessment Task 2 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5:
	Assessment Task 3 Performance Criteria 1: Performance Criteria 2: Performance Criteria 3: Performance Criteria 4: Performance Criteria 5:

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/Jobs etc: Performance criteria 1 for the evaluation of portfolio Performance criteria 2 for the evaluation of portfolio Performance criteria 3 for the evaluation of portfolio

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	
Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT

Assessment Summary (to be filled by the assessor)									
Activity			Method	k		Res	Result		
Nature of Activity	Written	Written Oral Observation Portfolio				Competent	Not Yet Competent		
Practical Skill Demonstration			✓		✓				
Knowledge Assessment	✓	✓							
Other Requirement				✓					

Each Assessment Task (with performance criteria)				
Assessment Task 1 : Develop a personal Description of assessment task 1				
budget				

During followin	rring the practical assessment, candidate demonstrated the lowing:			No	Remarks
1	Performance criteria1:				
2	Performance criteria2:				1
3	Performance criteria3:				1
4	Performance criteria4:				
5	Performance criteria5				
6	Performance criteria6:				
Compe	etent 🗆	Not Yet Compe	etent 🗆	•	
	ment Task 2: Develop long term	Description of	assessi	ment ta	isk 2
person	nal budget		1	ı	1
During following	ng the practical assessment, candidate demonstrated the wing:			No	Remarks
1	Performance criteria 1:				
2	Performance criteria2:				
3	Performance criteria3:				
4	Performance criteria4:				
5	Performance criteria5:				
Compe	etent 🗆	Not Yet Compe	tent 🗆		
Each A	ssessment Task (with performance crite	eria)			
Assess	ment Task 3 : Identify ways to	Description of assessment task 3:			
maxim	ize future finances				
During followin	the practical assessment, candidate de ng:	monstrated the	Yes	No	Remarks
1	Performance criteria1:				
2	Performance criteria2:				1
3	Performance criteria3:				1
4	Performance criteria4:				
5	Performance criteria5				
6 Performance criteria6:					
Compe	etent 🗆	Not Yet Compe	etent \square		
-					

Portfolio(if any)			scription of	portfoli	io			
Current□	Sufficient□ Auther	l ntic□	 tic□ Valid□ Reliable □				le 🗆	
Portfolio med	et the following performance star	ndards	:	Yes	No	Rema	arks	
1 Perf	ormance criteria 1							
2 Perf	ormance criteria 2							
3 Perf	ormance criteria 3							
4								
Competent I]	Not	t Yet Comp	etent D]	•		
	Assessors TITLE OF ((Formative	QUA	LIFICAT					
This formati	ive assessment relates to the	ASSE	CS Code:		Level:	3.	Version:	
training pro	gramme:		OC Code.		LOVOI.	0.	V CIGIOII.	
Electrical Ma	chine Winding Technician							
Module Title	A.		Assassm	ont Da	eto (DE	7/MM/VV	\ '\-	
	sonal Finances		Assessment Date (DD/MM/YY):					
Guidance for Candidate	To complete your assessme the questions on the following				Module	e, you ne	eed to ans	swer
This formativ	re assessment relates to the train	ning pr	ogramme:	CS Code: Level			Versi	on:
Electrical Ma	chine Winding Technician							
Module Title				Assessment Data (DD/MM/VVV)			١.	
modulo milo.	sonal Finances		Assessment Date (DD/MM/YY):).	
	uide (to be completed by the Aser the assessment)	sessor	and signed	d both t	by the	assessoı	r and the	
Name:			Registration/Roll Number:					
Candidate Details	Candidate Signature:							
COMPETENT□				NOT	YET C	COMPET	ENT	
Written Assessment	Name of the Assessor:			Asse	ssor's	code:		
Outcome	Signature of the Assessor:							

Question	Candidate's answer
29.	
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35.	

This formative assessment relates to the training programme:	CS Code: 0713001129	Level: 3	Version:	
Electrical Machine Winding Technician				
Module Title: Disassemble Machine at Workplace	Assessment Date (DD/MM/YY):			

Candidate Details	Name:					
Dotallo	Registration/Roll Number:					
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):					
Guidance for Candidate	 Assessment Task 1:Prepare for work to disassemble machine at workplace Assessment Task 2:Shift Machine to work bench Assessment Task 3:Perform marking for Positions of Parts Assessment Task 4: Perform numbering on Machine parts as per Inventory Record 					
	5. Assessment Task 5: Remove the faulty parts					
	6. Assessment Task 6: Ensure safe and Sequential Placing					
	And complete:					
	 Knowledge assessment test (Written or Oral) Portfolios at the time of assessment (if any) 					
	During a practical assessment, under observation by an assessor, you will					
İ	complete:					
	Assessment Task 1					
	Performance Criteria 1: Identify the required PPE's					
	Performance Criteria 2: Collect the required PPE's					
	Performance Criteria 3: Identify the required tools and equipment					
	Performance Criteria 4: Collect the required tools and equipment					
	Performance Criteria 5: Ensure functional condition of PPE's/Tools and equipment					
	Performance Criteria 6: Ensure safe working conditions • Clear Passage					
Minimum	• Cleanliness					
Evidence Required	Adequate light					
Kequileu	Ventilation					
	Assessment Task 2					
	Performance Criteria 1: Wear the required PPE's					
	Performance Criteria 2: Pick the required tools and equipment					
	Performance Criteria 3: Ensure safe shifting of machine to work bench					
	Performance Criteria 4: Record shifting of machine to work bench					
	Assessment Task 3					
	Performance Criteria 1: Wear the required PPE's					
	Performance Criteria 2: Pick the required tools and equipment					
	Performance Criteria 3: Identify the parts to be marked for position marking					

Performance Criteria 4:Perform marking for position of parts as per inventory record

Assessment Task 4

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Identify the parts of machine for allotment of specific number

Performance Criteria 4: Perform numbering on machine parts as per inventory record

Assessment Task 5

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2:Pick the required tools and equipment

Performance Criteria 3: Identify faulty parts of machine

Performance Criteria 4: Remove the faulty parts of machine

Performance Criteria 5:Mark specific numbering on faulty parts of machine

Assessment Task 6

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2:Pick the required tools and equipment

Performance Criteria 3: Mark specific numbering on healthy parts of machine

Performance Criteria 4: Place healthy parts of machine at safe place in sequential order

Performance Criteria 5: Record the placement/location of healthy parts

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/ Jobs etc:

Performance criteria 1 for the evaluation of portfolio

Performance criteria 2 for the evaluation of portfolio

Performance criteria 3 for the evaluation of portfolio

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Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	Registration/Roll Number:	
Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT □ Assessor's code:	

Assessment Summary (to be filled by the assessor)							
Activity	Method		Result				
Nature of Activity	Writt en	Oral	Obs erva tion	Port folio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			1		1		
Knowledge Assessment	1	1					
Other Requirement				1			

Each Assessment Task (with performance criteria)					
Assessment Task 1 : Prepare for work to disassemble machine at workplace Description of			assessment task 1		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks	
1	Performance criteria 1: Identify the required PPE's				
2	Performance criteria 2: Collect the required PPE's				
3	Performance criteria 3: Identify the required tools and equipment				
4	Performance criteria 4: Collect the required tools and equipment				
5	Performance criteria 5: Ensure functional condition of PPE's/Tools and equipment				
Performance criteria 6:Ensure safe working conditions					
Compe	Competent □ N		tent 🗆		

Assessment Task 2: Shift Machine to work bench Description			f assessment task 2			
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks		
1	Performance criteria 1: Wear the required PPE's					
2	Performance criteria 2: Pick the required tools and equipment					
3	Performance criteria 3: Ensure safe shifting of machine to work bench					
4	Performance criteria 4: Record shifting of machine to work bench					
Competent □ Not Yet Co		Not Yet Compe	tent 🗆			

Assessment Task 3: Perform marking for Positions of Parts Description of a			assessr	ment ta	sk 3
During followir	g the practical assessment, candidate der ng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Wear the requi	ired PPE's			
2	Performance criteria 2: Pick the required tools and equipment				
3	Performance criteria 3: Identify the parts to be marked for position marking				
4	Performance criteria 4: Perform marking for position of parts as per inventory record				
Compe	etent □	Not Yet Compet	etent 🗆		
Assessment Task 4: Perform numbering on Machine parts as per Inventory Record		Description of a	Description of assessment task 4		sk 4
During followin	the practical assessment, candidate der	monstrated the	Yes	No	Remarks

Performance criteria 1: Wear the required PPE's

Performance criteria 2: Pick the required tools and

Performance criteria 3: Identify the parts of machine

Performance criteria 4: Perform numbering on

for allotment of specific number

machine parts as per inventory record

'							
Asses	ssment Task 5: Remove the faulty parts	Description of	Description of assessment task 5				
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks		
1	Performance criteria 1: Wear the required PPE's						
2	Performance criteria 2: Pick the required tools and equipment						
3	Performance criteria 3:Identify faulty parts of machine						
4	Performance criteria 4: Remove the faulty parts of Machine						
5	Performance criteria 5: : Mark specific numbering on faulty parts of machine						
Competent □ Not Y		Not Yet Compe	tent 🗆				

Not Yet Competent □

2

3

Competent \square

equipment

Assessment Task 6: Ensure safe and Sequential Placing of healthy parts of Machine Description of a			assessi	ment ta	sk 6
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1:Wear the required PPE's				
2	Performance criteria 2: Pick the required tools and equipment				
3	Performance criteria 3: Mark specific numbering on healthy parts of machine				
4	Performance criteria 4: Place healthy parts of machine at safe place in sequential order				
5	Performance criteria 5: Record the placement/location of healthy parts				
Competent □ N		Not Yet Competent □			

Portfolio (if any)			Description of portfolio			
Curren	t □ Sufficient □	Authentic	:□ Valid			Reliable □
Portfolio meet the following performance standards:			Yes	No	Remarks	
1	Performance criteria 1					
2	Performance criteria 2					
3	Performance criteria 3					
4						
Competent □ Not Yet Com			Not Yet Compe	etent 🗆		

Assessors Judgment Guide

TITLE OF QUALIFICATION

		(Formative As	sessineiit)							
This formative assessment relates to the training programme: Electrical Machine Winding Technician			CS Code:	Level: 3	Versio	n:				
Module Title: Disassemble Machine at Workplace			Assessment	Assessment Date (DD/MM/YY):						
Guidance for this Curriculum Module, you need to answer the questions on the following pages successfully.										
ssessors Gu andidate afte	•	o be completed by the Assess ssessment)	sor and signed bo	th by the asse	essor and the	;				
Candidate Details Name:										
Written Assessment Outcome COMPETENT NOT YET COMPETENT Name of the Assessor: Signature of the Assessor:										
programme:	:	sessment relates to the train	ning	CS Code:	Level: 3	Version:				
Module Title: Disassemble Machine at Workplace				Assessme	 nt Date (DD	/MM/YY):				

Question	Candidate's answer
36. Why marking on machine parts is done?	Marking on machine parts helps in positioning the parts for correct alignment / re-assembling
37. Why numbering on machine parts are done?	In workshop many motors / transformer can be repaired at a time of same capacity. Numbering on machine parts as per inventory record helps us to store the parts properly. It is easy to locate / collect relevant parts when needed for re-assembling.
38. How you locate faulty part of machine?	Faulty parts can be located by physical inspection and on the bases of test results.
39. Why parts are placed in sequential order?	Placing the parts in sequential order helps us re-assemble quickly / properly
40. What do you mean by safe shifting of machine at work bench?	Machines are shifted for repair to work bench keeping in view their weight and size using possible / available source of transportation; it is called safe shifting.
41. Why you maintain record at workshop?	Maintaining record of repair at workshop helps in; 1- Follow up 2- Future correspondence 3- Calculating workshop income / tax etc. 4- Identification same nature of faults in machines and calculation of repair cost

This formative assessment relates to the training programme: Electrical Machine Winding Technician	CS Code: 0713001130	Level: 3	Version:
Module Title: Estimate Repair Replacement Cost	Assessment [Date (DD/MM/YY):

Candidate Details	Name:
Dotailo	Registration/Roll Number:
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 Assessment Task 1:Prepare for work to estimate repair/replacement cost Assessment Task 2:Estimate Cost of the required Materials Assessment Task 3:Estimate Transportation Charges Assessment Task 4: Estimate Labour Cost of the materials Assessment Task 5: Calculate accumulative cost of the materials Assessment Task 6: Liaise with client /customer on repair cost Assessment Task 7: Arrange the required Materials / Parts
	And complete: 1. Knowledge assessment test (Written or Oral)
	2. Portfolios at the time of assessment (if any)
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Identify the required stationary, equipment, software and materials
	Performance Criteria 2: Collect the required stationary, equipment, software and materials
	Assessment Task 2
	Performance Criteria 1: Prepare a list of the materials/parts required for repair/replacement
Minimum Evidence	Performance Criteria 2: Estimate quantity of materials/faulty parts of machine
Required	Performance Criteria 3: Estimate cost of the required material/parts
	Assessment Task 3
	Performance Criteria 1: Estimate transportation cost of pick and drop of machine
	Performance Criteria 2: Estimate transportation cost on collection/purchase of material/parts of machine
	Assessment Task 4
	Performance Criteria 1: Estimate man hours for pick and drop of machine Performance Criteria 2: Estimate man hours for arrangement of material/parts
	Performance Criteria 3:Estimate man hours required for repair work

Performance Criteria 1: Calculate the estimated costs:

- Material Cost
- Transportation Cost
- Labour Cost
- Overhead Charges
- · Set the profit margin

Performance Criteria 2: Calculate the accumulative cost

Assessment Task 6

Performance Criteria 1: Inform the client/customer about total cost

Performance Criteria 2: Negotiate with the client/customer about total cost

Performance Criteria 3: Finalize the total cost

Performance Criteria 4: Make an agreement with the client/customer

Assessment Task 7

Performance Criteria 1: Collect a list of the estimated material/parts for repair

Performance Criteria 2: Check availability of the required parts/material in the store

Performance Criteria 3: Place purchase order for the deficient parts/materials

Performance Criteria 4: Collect the required parts/materials from the store

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/Jobs etc:

Performance criteria 1 for the evaluation of portfolio

Performance criteria 2 for the evaluation of portfolio

Performance criteria 3 for the evaluation of portfolio

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

(Formative Assessment)

Candidate Details	Name: Candidate Signature:	Registration/Roll Number:
Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT □ Assessor's code:

Assessment Summary (to be filled by the assessor)							
Activity			Method	t	Result		
Nature of Activity	Writt en	Oral	Obs erva tion	Port folio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			1		1		
Knowledge Assessment	1	1					
Other Requirement				1			

Each Assessment Task (with performance criteria)						
Assessment Task 1: Prepare for work to estimate repair/replacement cost		Description of assessment task 1				
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance criteria 1: Identify the required stationary, equipment, software and materials					
2	Performance criteria 2: Collect the required stationary, equipment, software and materials					
Competent □		Not Yet Compe	tent 🗆			

Assessment Task 2: Estimate Cost of the required Materials Description of a			assessr	ment ta	sk 2
During followin	the practical assessment, candidate de	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Prepare list of materials/parts required for repair/repl				
2	Performance criteria 2: Estimate quar materials/faulty parts of machine	ntity of			
3	Performance criteria 3: Estimate cost material/parts	of the required			
Compe	etent □	Not Yet Compe	tent 🗆		
	Assessment Task 3: Estimate Transportation Description of a Charges		assessi	ment ta	sk 3
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1:Estimate transportation cost of pick and drop of machine				
2	Performance criteria 2: Estimate transportation cost on collection/purchase of material/parts of machine				
Compe	etent	Not Yet Compe	tent 🗆		
Assess the ma	ment Task 4:Estimate Labour Cost of terials	Description of assessment task 4			sk 4
During the practical assessment, candidate demo		monstrated the	Yes	No	Remarks
1	Performance criteria 1: Estimate man hours for pick and drop of machine				
2	Performance criteria 2: Estimate man hours for arrangement of material/parts				
3	Performance criteria 3: Estimate man for repair work	hours required			
Competent □ Not Yet Compete		tent 🗆			

	ment Task 5: Calculate accumulative the materials	Description of a	assessi	ment ta	sk 5
During the practical assessment, candidate demonstrate following:			Yes	No	Remarks
1	Performance criteria 1: Collect the estimated costs: • Material Cost • Transportation Cost • Labour Cost • Overhead Charges • Set the profit margin				
2	Performance criteria 2: Calculate the accumulative cost				
Competent □		Not Yet Competent □			

Assessment Task 6:Liaise with client /customer on repair cost		Description of assessment task 6				
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance criteria 1: Inform the client/customer about total cost					
2	Performance criteria 2: Negotiate with the client/customer about total cost					
3	Performance criteria 3: Finalize the tot	al cost				
4	Performance criteria 4: Make an agreement with the client/customer					
Compe	Competent □		Not Yet Competent □			

	ment Task 7: Arrange the required als / Parts	Description of assessment task 7				
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance criteria 1: Collect list of the material/parts for repair					
2	Performance criteria 2: Check availability of the required parts/material in the store					
3	Performance criteria 3: Place purchas deficient parts/materials	e order for the				
4	Performance criteria 4: Collect parts/materials from the store					
Competent □		Not Yet Competent □				

Portfolio (if any)			Description of portfolio				
Current □ Sufficient □		Authenti	c □ Valid □				Reliable □
Portfolio meet the following performance stand			ards:		Yes	No	Remarks
1	Performance criteria 1						
2	Performance criteria 2]
3	Performance criteria 3						1
4							
Competent □			Not Yet Competent □				

Knowledge Assessment TITLE OF QUALIFICATION

(Formative Assessment)

This formative assessment relates to the

CS Code:

Level: 3

Version:

Electrical Ma	-	e Winding Technician							
Module Title Estimate Rep		Replacement Cost	Assessment Date (DD/MM/YY):						
Guidance for Candidate To complete your assessment for this Curriculum Module, you need to answer the questions on the following pages successfully.									
Assessors Gu candidate afte		(to be completed by the Assessor assessment)	and signed both	by the asse	ssor and the				
Candidate Details Name:									
Written Assessment Outcome COMPETENT□ NOT YET COMPETENT□ Name of the Assessor:Assessor's code: Signature of the Assessor:									
programme:		ssessment relates to the training Winding Technician	3	CS Code:	Level: 3	Version:			
Module Title Estimate Rep		Replacement Cost		Assessme	nt Date (DD/	MM/YY):			

Question	Candid	Candidate's answer									
42. How you prepare estimate of repair		I will prepare list of required material, estimate quantity of required material, and then estimate cost of required material									
material?	Sr.#	Item detail	Qty.	Rate	Amoun	t Sales Tax	Income Tax	Total cost			
43. How you prepare estimate transportation charges?	worksh	epare estimop op and back to workshop	t, transpo								
	Sr.#	# Detail of Transportation charges				Amount	Tax	Total Amount			
	1 Shifting of machine from site to workshop & back										
	2	2 Shifting material / parts after Purchasing from market									
44. How you prepare estimate of labour cost		I will prepare estimate of labour hours required for transportation of machine purchase of materials ∈ performing repair, then calculate labour cost.									
	Sr.	Nature of labour Hours		Hours	Rate	Total Amount					
	1	Man hours from site to									
	2	Man hours			et						
	3	Man hours work	for perfo	orming re	epair						
45. How you calculate accumulative repair cost?	materia	I will calculate accumulative repair cost by adding, estimated cost of required material, estimated transportation charges, estimated labour cost, profit margin, tax andoverhead utility charges of workshop.									
46. Why it is important to liaise with the client / customer on repair cost?		oortant to lia e litigation	ise with t	he client	t / custom	er on repai	r cost to av	oid any			

This format training pro	ive assessment relates to the ogramme:	CS Code: 0713001131	Level: 3	Version:
Electrical Ma	achine Winding Technician			
Module Titl Diagnose Fa	e : ault of Machine (Motor)	Assessment	Date (DD/MM/	YY):
Candidate Details	Name: Registration/Roll Number:			
Guidance for Candidate	To meet the required standard of following assessment tasks with demonstration & assessment): • Assessment Task 1: Professional Profes	epare for work to di rify onsite inspection eck Alignment of R eck Bearing/ Bush date Test Results on tify the Faulty Pari	agnose fault of properties of Machine ts of Machine trail	f machine (Motor)
Minimum Evidence Required	During a practical assessment, complete: Assessment Task 1 Performance Criteria 1: Identification Performance Criteria 3: Identification Performance Criteria 3: Identification Performance Criteria 4: Compension Performance Criteria 6: Enditification Performance Criteria 6: Enditification Performance Criteria 6: Enditification Performance Criteria 1: Word Performance Criteria 1: Word Performance Criteria 3: Vortino Performance Criteria 3: Vortino Performance Criteria 4: Formance Criteria 4: Formance Criteria 5: Formance Criteria 5: Formance Criteria 6: Compension Performance Criteria 5: Formance Criteria 6: Compension Performance Criteria 6:	entify the required collect the required entify the required collect the required the required the required ensure functional compares af eworking dear the required Plack the required to cerify / Check number of the result decord test result	PPE's PPE's tools and equitools and equitools and equitools conditions PE's ols and equipnobering on made	pment pment S's/Tools and

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Check alignment of rotor shaft with the help of dial

gauge

Performance Criteria 4: Check the rotor shaft size as per bearing size

Performance Criteria 5: Check run out of the rotor shaft

Performance Criteria 6: Record result

Assessment Task 4

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Inspect the bearing/bush for

- noise
- Axial/Radial Play/Looseness
- Stickiness
- Lubrication
- Breakage

Performance Criteria 4: Check bearing / bush of machine

Performance Criteria 5: Record result

Assessment Task 5

Performance Criteria 1: Collect pre inspection test results of machine

Performance Criteria 2: Collect test results of machine conducted in

workshop

Performance Criteria 3: Update test results of machine

Assessment Task 6

Performance Criteria 1: Check test results of machine

Performance Criteria 2: Identify faulty parts of machine

Performance Criteria 3: Perform Numbering on faulty parts of machine

according to inventory record

Performance Criteria 4: Tag faulty parts of machine

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/Jobs etc:

Performance criteria 1 for the evaluation of portfolio

Performance criteria 2 for the evaluation of portfolio

Performance criteria 3 for the evaluation of portfolio

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Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

(Formative Assessment)

Candidate Details	aldate						Registration/Roll Number:			
Assessment Outcome	COMPETENT Name of the As Signature of the Assessor:	Assessor's code:					Т			
	Assessm	ent Su	mmary	(to be	filled b	y the a	assessor)			
Activ	rity			Method	t		Result			
Nature of Activity		Writt en	Oral	Obs erva tion	Port folio	Role Play	Competent	Not Yet Competent		
Practical Skill Der	nonstration									
Knowledge Asses										
Other Requiremen	nt									

Each Assessment Task (with performance criteria)								
	Assessment Task 1:Prepare for work to diagnose fault of machine (Motor) Description of					sk 1		
During	During the practical assessment, candidate demonstrated the following:					Remarks		
1	Performance criteria 1: Identify the required PPE's							
2	Performance criteria 2: Collect the req							
3	Performance criteria 3: Identify the required tools and equipment							
4	Performance criteria 4: Collect the required tools and equipment							
5	Performance criteria 5: Ensure functio and equipment	nal condition of	PPE's/Tools					
6	Performance criteria 6: Ensure safe working conditions • Clear Passage • Cleanliness • Adequate light • Ventilation							
Compe	etent	Not Yet Competent						

Assess machin	sment Task 2: Verify onsite inspection/tene	assessment task 2				
During	the practical assessment, candidate de	Yes	No	Remarks		
1	Performance criteria 1: Wear the required PPE's					S
2	Performance criteria 2: Pick the required tools and equipment					
3	Performance criteria 3: Verify / Check numbering on machine parts as per inventory record					
4	Performance criteria 4: Perform testing					
5	Performance criteria 5: Record test result					
6	Performance criteria 6: Compare both the pre and current test results					
Competent		Not Yet Competent				

Assess	Assessment Task 3: Check Alignment of Rotor Shaft Description of					assessment task 3		
During	During the practical assessment, candidate demonstrated the following:					Remarks		
1	Performance criteria 1: Wear the requ	ired PPE's						
2	Performance criteria 2: Pick the requir							
3	Performance criteria 3: Check alignme of dial gauge	t with the help						
4	Performance criteria 4: Check the rotor shaft size as per bearing size							
5	Performance criteria 5:Check run out of the rotor shaft							
6	Performance criteria 6: Record result							
Compe	etent	Not Yet Competent						

Asses	ssment Task 4: Check Bearing/ Bush of N	Description of	of assessment task 4			
During	During the practical assessment, candidate demonstrated the following:					Remarks
1	Performance criteria 1: Wear the required PPE's					
2	Performance criteria 2: Pick the requir	quipment				
3	Performance criteria 3:Inspect the bearing/bush for • noise • Axial/Radial Play/Looseness • Stickiness • Lubrication • Breakage					
4	Performance criteria 4: Check bearing / bush of machine					
5	Performance criteria 5: : Recordresult					
Competent Not Yet Competent						

Assess	Assessment Task 5: Update Test Results of Machine Description o					assessment task 5			
During	During the practical assessment, candidate demonstrated the following:					Remarks			
1	Performance criteria 1: Collect pre inspection test results of machine								
2	Performance criteria 2: Collect test results of machine conducted in workshop								
3	Performance criteria 3: Update test results of machine								
Competent		Not Yet Competent							

Assessment Task 6: Identify the Faulty Parts of Machine Description of assessment task 6						
During	the practical assessment, candidate de	following:	Yes	No	Remarks	
1	Performance criteria 1: Check test res					
2	Performance criteria 2: Identify faulty parts of machine					
3	Performance criteria 3: Perform Numbering on faulty parts of machine according to inventory record					
4	Performance criteria 4: Tag faulty parts of machine					
Competent Not Yet Competent						

Portfolio (if any)			Description of portfolio				
Current	t Sufficient Author	entic	Valid			Reliable	
Portfolio meet the following performance standards				Yes	No	Remarks	
1	Performance criteria 1						
2	Performance criteria 2					1	
3	Performance criteria 3					1	
4						1	
Competent			et Compe	etent			

Knowledge Assessment TITLE OF QUALIFICATION

(Formative Assessment)

This formati training pro	ve assessment relates to the gramme:	CS Code:	Level: 3	Version:	
Electrical Ma	chine Winding Technician				
Module Title	:	Assessment D	Date (DD/MM/YY	') :	
Diagnose Fa	ult of Machine (Motor)				
Guidance for Candidate	To complete your assessment for this Curriculum Module, you need to answer the questions on the following pages successfully.				

Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	· ·
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT□ Assessor's code:

This formative assessment relates to the training programme:	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title:	Assessment Date (DD/MM/YY):		
Diagnose Fault of Machine (Motor)			

Question	Candidate's answer				
47. How you verify onsite inspection test results?	We perform test at workshop and compare their results with onsite inspection test results.				
48. How you check alignment of rotor shaft?	Rotor shaft alignment is checked with dial gauge				
49. Why you check the rotor shaft for bearing size?	Bearing must be fitted properly on rotor shaft, loose or too much tight fittin of bearing on rotor shaft produce excessive heat which burnt winding of motor; that why we check rotor shaft for bearing size.				
50. How you check bearing?	Checking of bearing is performed by observing it's; Noise Axial / Radial play / looseness Stickiness Lubrication Breakage				
51. How you check bushing?	Checking of bushing is performed by observing it's; Noise Axial / Radial play / looseness Stickiness Lubrication Breakage				
52. How you identify faulty parts of machine?	Faulty parts of machines are identified by physical checking and on the bases of test results.				

This formative assessment relates to the training programme:	CS Code: 0713001132	Level: 3	Version:
Electrical Machine Winding Technician			
Module Title: Perform Motor Rewinding	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
Guidance for Candidate	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment): 1. Assessment Task 1:Prepare for work to perform motor rewinding 2. Assessment Task 2:Shift Faulty part of Motor to work Bench 3. Assessment Task 3:Remove the Winding Coils 4. Assessment Task 4: Collect the required Materials for Rewinding 5. Assessment Task 5: Prepare Core for Rewinding 6. Assessment Task 6: Interpret Winding Diagram 7. Assessment Task 7: Make a Former for Coil Winding 8. Assessment Task 8: Prepare Coil Winding Machine for Rewinding 9. Assessment Task 9: Set the Coils in the Core slots 10. Assessment Task 10: Interlink Coils as per number of Poles 11. Assessment Task 11: Perform Winding Tests 12. Assessment Task 12:Perform Binding of Coils 13. Assessment Task 13:Conduct Baking of Winding 14. Assessment Task 14:Verify Winding Tests
	And complete:
	11. Knowledge assessment test (Written or Oral)12. Portfolios at the time of assessment (if any)
	During a practical assessment, under observation by an assessor, you will complete:
Minimum Evidence Required	Assessment Task 1 Performance Criteria 1: Identify the required PPE's Performance Criteria 2: Collect the required PPE's Performance Criteria 3: Identify the required tools and equipment Performance Criteria 4: Collect the required tools and equipment Performance Criteria 5: Ensure functional condition of PPE's/Tools and equipment Performance Criteria 6:Ensure safe working conditions
	 Clear Passage Cleanliness Adequate light Ventilation

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Locate faulty parts of motor

Performance Criteria 4: Perform shifting of faulty parts of motor to work

bench

Assessment Task 3

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Perform marking at motor body for correct re-fitting at both ends

Performance Criteria 4: Dis-assemble motor

Performance Criteria 5:Store rotor and stator after appropriate tagging

Performance Criteria 6:Cut fastening threads

Performance Criteria 7: Record the connection details of stator coils

Performance Criteria 8:Locate faulty winding coils

Performance Criteria 9: Cut faulty winding coils from both ends of stator core

Performance Criteria 10: Remove faulty coils from stator core

Performance Criteria 11: Count / measure and record:

- Number of turns of each coil
- Pole pitch
- Coil span
- > Weight of each coil

Size of winding wire of each coil

Assessment Task 4

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Estimate total weight of wire required for rewinding

Performance Criteria 4: Verify size of winding wire

Performance Criteria 5: Estimate length of required latheroid paper

Performance Criteria 6: Prepare list of material required for rewinding

Performance Criteria 7: Collect the required material for rewinding

Performance Criteria 8: Update record

Assessment Task 5

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Clean laminations of the core

Performance Criteria 4:Set laminations of the core

Performance Criteria 5: Perform marking on latheroid paper according to size of core slots

Performance Criteria 6:Perform cutting of latheroid paper according to marking

Performance Criteria 7:Insert latheroid paper into core slots

Assessment Task 6

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect winding data

Performance Criteria 4: Interpret winding diagram

Performance Criteria1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect winding data

Performance Criteria 4: Collect the former of appropriate size

Performance Criteria 5: Make / adjust former according to coil span

Performance Criteria 6: Verify adjustment of former according to coil span

Performance Criteria 7: Fix and adjust former according to coil span

Assessment Task 8

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment Performance Criteria 3: Collect the already adjusted former

Performance Criteria 4: Collect relevant size winding wire Performance Criteria 5: Prepare required number of coil sets

Performance Criteria 6: Calculate the total weight of winding coils

Performance Criteria 7: Update record

Assessment Task 9

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect core and the sets of coils to be inserted in core

Performance Criteria 4: Insert coils one by one in the core slots according to winding diagram

Performance Criteria 5: Set the coils in core slots

Performance Criteria 6: Verify the sequence of coil insertion

Performance Criteria 7: Insert latheroid paper or bamboo wedgeto prevent coils from slipping out from the core slots

Assessment Task 10

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect Core having coils inserted in it

Performance Criteria 4:Insert appropriate size sleeves on one side of coils ends

Performance Criteria 5:Remove varnish insulation from ends of coils

Performance Criteria 6: Interlink coils end as per number of poles and winding diagram Performance Criteria 7: Connect supply leads according winding diagram with coils

Performance Criteria 8:Check that the coils have sound:

- Continuity
- Insulation between overlappingcoils
- Insulation between coils and core

Performance Criteria 9: Verify the connections

Performance Criteria 10: Solder the joints

Performance Criteria 11: Slide sleeves over the joints to insulate the joint Performance Criteria 12:Press the winding coils to ward outer edge of core

Assessment Task 11

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect newly wound core

Performance Criteria 4: Perform winding test to verify

- Continuity
- Insulation between overlapping coils
- > Insulation between coil and core
- Megger Test

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Put latheroid paper between two coils to strengthen insulation on both sides of core ends

Performance Criteria 4: Perform binding of coil with binding thread or cotton tape on both sides of core ends

Performance Criteria 5: Press the coil ends toward outer side of core

Performance Criteria 6: Verify that the coils have sound:

- Continuity
- Insulation between each other
- > Insulation between coil and core

Assessment Task 13

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Varnish the winding

Performance Criteria 4: Verify that the coils have sound:

- Continuity
- > Insulation between each other
- Insulation between coil and core

Performance Criteria 5: Perform baking of winding

Assessment Task 14

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Perform winding tests to verify that the coils have:

- Continuity
- Insulation between each other
- > Insulation between coil and core

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/Jobs etc:

Performance criteria 1 for the evaluation of portfolio

Performance criteria 2 for the evaluation of portfolio

Performance criteria 3 for the evaluation of portfolio

.....

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

(Formative Assessment)

Candidate Details		Name:							
Assessment Outcome	Name of the As	Not yet competent ☐ Name of the Assessor: Signature of the Assessor:							
	Assessment Summary (to be filled by the assessor)								
	Activity		ı	Metho	d			Res	sult
Nature of Activity		Written	Oral	Observation	Portfolio	Role Play	Competent		Not Yet Competent
Practical Skil			✓		✓				
Knowledge Assessment ✓			✓						
Other Requir	rement				✓				
	sment Task (with perfo		e crite						
Assessment perform mote	Task 1 :Prepare for wor rewinding	ork to		Descrip	otion of	assess	ment ta	ask 1	
During the p following:	ractical assessment, o	andida	te der	monstrat	ted the	Yes	No	Remarks	
•	ormance Criteria 1: Id								
_	formance Criteria 2: C								
Performance Criteria3: Identify the required tools and equipment				ols and					
Performance Criteria 4: Collect the required tools and equipment									
Performance Criteria 5: Ensure functional condition of PPE's/Tools and equipment									
Performance Criteria 6:Ensure safe working conditions									
6	Clear PassageCleanlinessAdequate light	Cleanliness							
	Ventilation								
Competent I				Not Yet	Compe	tent 🗆		•	

	sment Task 2: Shift Faulty part of o work Bench	Description of assessment task 2				
During the practical assessment, candidate demonstrated the following:		monstrated the	Yes	No	Remarks	
1	Performance Criteria 1: Wear the requ	ired PPE's				
2	Performance Criteria 2: Pick the requestion equipment					
3	Performance Criteria 3: Locate faulty p	parts of motor				
4	Performance Criteria 4: Perform shiftir parts of motor to work bench	ng of faulty				
Compe	etent	Not Yet Compe	tent 🗆			
Assess Coils	sment Task 3: Remove the Winding	Description of	assessi	ment ta	sk 3	
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance Criteria 1: Wear the requ	ired PPE's				
2	Performance Criteria 2: Pick the requestion equipment	uired tools and				
3	Performance Criteria 3: Perform ma body for correct re-fitting at both ends	rking at motor				
4	Performance Criteria 4: Dis-assemble	motor				
5	Performance Criteria 5:Store rotor a appropriate tagging					
6	Performance Criteria 6:Cut fastening t	hreads				
7	Performance Criteria 7: Record the color stator coils	nnection details				
8	Performance Criteria 8:Locate faulty winding coils					
9	Performance Criteria 9: Cut faulty winding coils from both ends of stator core					
10	Performance Criteria 10: Remove faulty coils from stator core					
11	Performance Criteria 11: Count / measure and record: > Number of turns of each coil					

Not Yet Competent \square

Competent □

Assessment Task 4: Collect the required Descript Materials for Rewinding			assessi	ment ta	sk 4
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1: Wear the requi	red PPE's			
2	Performance criteria 2: Pick the required tools and equipment				
3	Performance criteria 3: Estimate total weight of wire required for rewinding				
4	Performance criteria 4: Verify size of winding wire				
5	Performance criteria 5: Estimate length of required latheroid paper				
	Performance criteria 6: Prepare list of material required for rewinding				
	Performance criteria 7: Collect the required material for rewinding				
	Performance criteria 8: Update record				
Competent ☐ Not Yet Con			etent 🗆		

Assess Rewind	sment Task 5: Prepare Core for ding	Description of	assessi	ment ta	sk 5
During following	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Wear the requ	ired PPE's			
2	Performance criteria 2: Pick the requestion equipment	uired tools and			
3	Performance criteria 3: Clean laminati	ons of the core			
4	Performance criteria 4:Set laminations	of the core			
5	Performance criteria 5: Perform mark paper according to size of core slots	ing on latheroid			
6	Performance criteria 6:Perform cuttili paper according to marking	ng of latheroid			
7	Performance criteria 7:Insert latheroid core slots	paper into			
Compe	etent	Not Yet Compe	tent 🗆		

Assess Diagrai	ment Task 6: Interpret Winding m	Description of a	assessi	ment ta	sk 6
During followin	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Wear the requ	ired PPE's			
2	Performance criteria 2: Pick the requequipment				
3	Performance criteria 3: Collect winding	g data			
4	Performance criteria 4: Interpret windi	ng diagram			
Compe	etent	Not Yet Compe	tent 🗆		
Assess Windin	ment Task7: Make a Former for Coil	Description of a	assessi	ment ta	sk 7
During followin	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Wear the requ	ired PPE's			
2	Performance criteria 2: Pick the requequipment	uired tools and			
3	Performance criteria 3: Collect winding	g data			
4	Performance criteria 4: Collect t appropriate size	he former of			
5	Performance criteria 5: Make / according to coil span	adjust former			
6	Performance criteria 6: Verify adjust according to coil span	ment of former			
7	Performance criteria 7: Fix and adjust according to coil span	former			
Compe	etent 🗆	Not Yet Compe	tent 🗆		
	ement Task8: Prepare Coil Winding ne for Rewinding	Description of a	assessi	ment ta	sk 8
During followin	the practical assessment, candidate de	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Wear the requ	ired PPE's			
2	Performance criteria 2: Pick the requestion equipment	uired tools and			
3	Performance criteria 3: Collect the all former	ready adjusted			
4	Performance criteria 4: Collect releva wire	nt size winding			
5	Performance criteria 5: Prepare requicoil sets	ired number of			
6	Performance criteria 6: Calculate the winding coils	total weight of			
7	Performance criteria 7: Update record				
Compe	etent	Not Yet Compe	tent 🗖		

Assess slots	ment Task9: Set the Coils in the Core	Description of	assess	ment ta	sk 9
During followin	the practical assessment, candidate de ng:	monstrated the	Yes	No	Remarks
1	Performance criteria1: Wear the require	red PPE's			
2	Performance criteria2: Pick the requequipment	ired tools and			
3	Performance criteria3: Collect core a coils to be inserted in core	and the sets of			
4	Performance criteria4: Insert coils one core slots according to winding diagram	•			
5	Performance criteria5: Set the coils in	core slots			
6	Performance criteria6: Verify the se insertion	quence of coil			
7	Performance criteria7: Insert latheroid bamboo wedge to prevent coils from s from the core slots				
Compe	etent	Not Yet Compe	tent 🗆		
				-	

	sment Task10: Interlink Coils as per er of Poles	Description of a	assessi	ment ta	ısk 10
During followin	the practical assessment, candidate der ng:	monstrated the	Yes	No	Remarks
1	Performance criteria1: Wear the require	ed PPE's			
2	Performance criteria2: Pick the requequipment				
3	Performance criteria3: Collect Core inserted in it				
4	Performance criteria4:Insert appropriation on one side of coils ends				
5	Performance criteria5:Remove varnish ends of coils				
6	Performance criteria6: Interlink coils number of poles and winding diagram	s end as per			
7	Performance criteria7: Connect according winding diagram with coils	supply leads			
8	Performance criteria8:Check that the c sound: Continuity Insulation between overlapping Insulation between coils and co	g coils			
9	Performance criteria 9:Verify the conne				
10	Performance criteria 10: Solder the joir	nts			
11	Performance criteria 11: Slide sleeves to insulate the joint	over the joints			
12	Performance criteria 12:Press the wind ward outer edge of core	ling coils to			
Compe	etent 🗆	Not Yet Compe	etent 🗆	l	

Assess	ment Task 11: Perform Winding Tests	Description of a	assessr	ment ta	sk 11
During followin	the practical assessment, candidate der	monstrated the	Yes	No	Remarks
1	Performance criteria1: Wear the require	ed PPE's			
2	Performance criteria2: Pick the requestion equipment	ired tools and			
3	Performance criteria3: Collect newly w	ound core			
4	Performance criteria4: Perform winding Continuity Insulation between overlapping Insulation between coil and coil Megger Test	g coils			
Compe	etent	Not Yet Compe	tent \square		

Assess Coils	sment Task 12: Perform Binding of	Description of	assessi	ment ta	sk 12
During followin	the practical assessment, candidate derng:	monstrated the	Yes	No	Remarks
1	Performance criteria1: Wear the require	ed PPE's			
2	Performance criteria2: Pick the requestion equipment	ired tools and			
3	Performance criteria3: Put latheroid p two coilsto strengthen insulation on bot ends				
4	Performance criteria4: Perform bindir binding thread or cotton tape on both ends				
5	Performance criteria5: Press the coi outer side of core	l ends toward			
6	Performance criteria6: Verify that the c sound: Continuity Insulation between each other Insulation between coil and co				
Compe	etent 🗆	Not Yet Compe	l tent □		

Assess Windin	sment Task 13: Conduct Baking of g	Description of	assessi	ment ta	nsk 13
During followin	the practical assessment, candidate den ng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Wear the requi	red PPE's			
2	Performance criteria 2: Pick the requequipment	uired tools and			1
3	Performance criteria 3:Varnish the win	ding]
4	Performance criteria 4: Verify that the sound:	coils have			
4	 Continuity Insulation between each other Insulation between coil and co 	re			
5	Performance criteria 5: Perform baking	of winding			
Compe	etent	Not Yet Compe	tent \square		
Assess Coils	sment Task 14: Perform Binding of	Description of	assessi	ment ta	nsk 14
During followin	the practical assessment, candidate der ng:	monstrated the	Yes	No	Remarks
1	Performance criteria1: Wear the requir	ed PPE's			
2	Performance criteria2: Pick the requestion equipment	ired tools and]
	Performance criteria3: Perform winding that the coils have:	g tests to verify			
3	 Continuity Insulation between each other Insulation between coil and co 				
		_			
Compe	etent	Not Yet Compe	etent 🔲		
Portfoli	io(if any)	Description of	portfolio)	
Curren	t□ Sufficient□ Authentio	c□ Valid			Reliable \square
Portfoli	io meet the following performance stand	ards:	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria 2]
3	Performance criteria 3]
4]
Compe	etent 🗆	Not Yet Compe	etent \square		

Knowledge Assessment TITLE OF QUALIFICATION

(Formative Assessment)

This formati training pro	ve assessment relates to the gramme:	CS Code:	Level:3	Version:
Electrical Ma	chine Winding Technician			
_				
Module Title	: :	Assessment D	ate (DD/MM/YY	') :
Perform Moto	or Rewinding			
Guidance for Candidate	To complete your assessment for the questions on the following page			eed to answer

Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	•
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT□ Assessor's code:

This formative assessment relates to the training programme:	CS Code:	Level:3	Version:
Electrical Machine Winding Technician			
Module Title:	Assessme	nt Date (DD	/MM/YY):
Perform Motor Rewinding			

Question	Candidate's answer
53. What is motor winding?	It is a conductive wire, which is oriented in a loop pattern that carries electrical current. Motor winding is the part of the motor that is responsible for generating the magnetic field to make the rotor spin.
54. What are the types of DC Motor winding?	There are two types of DC motor windings (a) Lap winding (b) Wave winding. These two types of windings differ in two ways: (i) Number of circuits between positive and negative brushes (ii) The manner in which the coil ends are connected There are three different types of Lap Winding: Simplex Lap Winding – The distance between the segments of commutator to which the coil ends are connected (commutator pitch) is 1. Duplex lap Winding – The commutator pitch is 2. Triplex Lap Winding – The commutator pitch for triplex winding is 3.
55. What are the types of AC inductio n Motor winding?	The different AC induction motor winding types are: Concentric Single Layer Winding Concentric Double Layer Winding Fractional Concentric Winding
56. Why are motor cores laminate d?	The induced EMF in core due to induction causes current to flow, known as eddy current. Eddy currents are the result of the armature core rotating in a magnetic field. (Hysteresis loss is another component of magnetic loss.) These losses produce heat and reduce motor efficiency. Assembling stator core with thin laminated silicon content steel reduces magnetic / iron losses. (a) Adding silicon with steel reduces Hysteresis loss and (b) Assembling with laminated steel reduces Eddy Current loss. Rotor core is not subjected to Iron losses since frequency of rotor current is very low.
57. What is coil winding machine ?	Electrical coil winding machines include motor coil, transformer coil, inductor coil, and choke coil winding machines. Motor coil winding machines are used to wind both single-phase and three-phase motor coil. They are designed for use with concentric or equal-size motor winding arbors.
58. Where winding coils are laced in core?	Winding coils are laced in core slots.

Poles are the number of sets of three-way electromagnetic windings that a has. In the simplest three-phase motor, there are 3 separate electromagnetic poles formed by the single set of three-way windings. Thus, there is a set of Nor electromagnetic poles formed. The pole pitch is defined as peripheral distance between centers of two according poles in demanding. This distance is measured in term of armature slots of armature conductor come between two adjacent pole centers. This is nature equal to the total number of armature slots divided by number of poles in the machine. The actual running speed is the synchronous speed minus the slip speed. determine the number of poles, you can read the data plate directly or calculated from the RPM stated on the data plate or you can count the coils and divide (poles per phase) or by 6 (pairs of poles per phase) The winding of an armature in which the two sides of the armature coil specific from the RPM stated on the pole pitch. Is called full pitch winding. The winding of an armature in which the two sides of the armature coil specific from the stator is built up a silicon steel punched laminations, and assembled a hollow cylinder inside the motor frame. A distributed three-phase winding	djacent or urally the To lculate it de by 3
pole pitch? pole pitch? poles in dc machine. This distance is measured in term of armature slots of armature conductor come between two adjacent pole centers. This is nature equal to the total number of armature slots divided by number of poles in the machine. 61. How do you find the pole on a motor? 62. What is full pitch winding? 63. How two poles The stator is built up a silicon steel punched laminations, and assembled a hollow cylinder inside the motor frame. A distributed three-phase winding	or urally the . To lculate it de by 3
determine the number of poles, you can read the data plate directly or cale from the RPM stated on the data plate or you can count the coils and divide (poles per phase) or by 6 (pairs of poles per phase) 62. What is full pitch winding? The winding of an armature in which the two sides of the armature coil spatial distance equal to the pole pitch. Is called full pitch winding. 63. How two poles The stator is built up a silicon steel punched laminations, and assembled a hollow cylinder inside the motor frame. A distributed three-phase winding	lculate it de by 3
full pitch winding? distance equal to the pole pitch. Is called full pitch winding. 63. How two poles The stator is built up a silicon steel punched laminations, and assembled a hollow cylinder inside the motor frame. A distributed three-phase winding	an a
poles hollow cylinder inside the motor frame. A distributed three-phase winding	
arranged in slots on the inner circumference. Each of the three stator wind has two halves, on opposite sides of the stator. The windings are disposed degrees apart from each other. If electric current is passed through two composite sides of the stator, we have an electromagnet. This sets up a material field like that of a horseshoe magnet. This field passes through the rotor. The windings are disposed degrees apart from each other. If electric current is passed through two composite sides of the stator. The windings are disposed degrees apart from each other. If electric current is passed through two composite sides of the stator. This sets up a material field like that of a horseshoe magnet. This field passes through the rotor.	is dings ed 120 oils on agnetic Thus
64. Is actual motor speed Speed of an operating electrical motor with load is lower than the synchronous speed (no load offers) the motor	oad) of
from synchro Speed with Rated Load Synchronous Speed (no Lo	oad)
nous speed? 60 Hz 50 Hz 60 Hz 50 Hz	Hz
2 3450 2850 3600 3000	00
4 1725 1425 1800 1500	00
6 1140 950 1200 1000	00
8 850 700 900 750	0

Question	Candidate's answer
65. How clamp on meter is used to measure motor current?	Clamp-on meters are user friendly. We have to adjust its knob on Current position according to current range, open the spring-loaded jaws, insert either the hot or neutral conductor, and then release the jaws; the ammeter will provide the reading of current flowing. The wire need not be centered in the opening and it's OK if it passes through at an angle. However, an entire cable containing hot and neutral conductors cannot be measured this way. That's because the current flowing through the two wires travels in opposite directions so the two magnetic fields cancel out. Consequently, it's not possible to measure the current in a power cord, as is often desired. The use of a splitter fixes the problem. This is a short extension cord of adequate rating with about six inches of jacket removed so that one of the conductors can be separated and measured.
66. What types of test are perform ed after winding a motor?	The following tests are performed after re-winding of motor; 1- Continuity test 2- Insulation test between different coils and between coils and motor body
67. What are the main causes of winding defects?	Winding defects occurs due to contamination, ageing of insulation, thermal overload, power surges, damaged wire/materials, and other causes. They start as energy crossing an insulation fault like moisture, which sets apart at least one turn. This creates extra stress and increase in temperature across the fault, which increases until the winding fails.
68. What are the main faults of winding?	Some of the winding faults are insulation failure between: Turns in a coil Coils in a phase Coils in different phases A coil or phase and ground
69. How you check the faulty motor?	I will check the appearance of the motor. Verify for body deterioration or damage to the cooling fan blade or shaft. Manually rotate the shaft to check the bearing condition. Check for free & smooth rotation. Note the motor data from the motor NAME PLATE. Check Earth Continuity, Using ohmmeter to verify the resistance between earth and motor frame is less than 0.5 Ω. Check Power supply voltage, 415 v between L1 to L2, L3 to L1 and L2 to L3
70. What are the benefits of motor testing?	Benefits of Motor Testing are; Increase up-time Save money Conserve energy Improve safety
71. How you varnish and bake are- winded motor?	I will perform varnishing and baking in following manner; 1. Heat up baking oven to 100 °C. Put motor in it. 2. When motor heats up, spills varnish / lacquer on motors coils 3. Turn motor around and do the same 4. Put motor in hot oven, and cook it for about 4 hours 5. Take motor out and clean edge (so cover will fit perfectly)

Question	Candidate's answer
72. How you strength	To strengthen insulation I will put a piece of latheroid paper between two over lapped coils, thenbind them with thread or cotton tape.
en	
insulatio	
n	
between	
two over	
lapped	
coils?	

This formative assessment relates to the training programme: Electrical Machine Winding Technician	CS Code: 0713001133	Level: 3	Version:
Module Title: Perform Transformer Rewinding	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 15. Assessment Task 1:Prepare for work to perform transformer rewinding 16. Assessment Task 2:Collect Faulty Coil of Transformer 17. Assessment Task 3:Compile data of Faulty Transformer Coil / Coils 18. Assessment Task 4: Collect the required Materials for Re-winding 19. Assessment Task 5: Prepare Former for Coil Winding 20. Assessment Task 6: Prepare Coil on Winding Machine 21. Assessment Task 7: Re- Assemble the Coil on Core 22. Assessment Task 8: Make Connections as per rating plate of Transformer 23. Assessment Task 9: Calculate Turn Ratio of Transformer 24. Assessment Task 10: Conduct Baking of live part/Coil Assembly of Transformer And complete:
	13. Knowledge assessment test (Written or Oral)14. Portfolios at the time of assessment (if any)
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Identify the required PPE's
	Performance Criteria 2: Collect the required PPE's
	Performance Criteria 3: Identify the required tools and equipment
Minimum Evidence	Performance Criteria 4: Collect the required tools and equipment
Required	Performance Criteria 5: Ensure functional condition of PPE's/Tools and equipment
	Performance Criteria 6: Ensure safe working conditions
	Clear Passage Cleanliness Adequate light Ventilation

Assessment Task 2

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Remove cover of transformer

Performance Criteria 4: Identify faulty coil

Performance Criteria 5: Disconnect connections of faulty coil

Performance Criteria 6: Disassemble the channel of core

Performance Criteria 7: Remove the required part of core

Performance Criteria 8: Remove the faulty coil / coils from the limb of core

Performance Criteria 9: Ensure proper placing of removed coils

Performance Criteria 10: Update record

Assessment Task 3

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect the faulty coil

Performance Criteria 4: Measure / calculate:

- > Dimensions (Height, inner & outer diameter) of coil / coils
- Size of winding wire
- No of turns of coil

Performance Criteria 5: Collect data from name plate of transformer

Performance Criteria 6: Compile dataof faulty coil / coils of transformer

Performance Criteria 7: Update record

Assessment Task 4

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Prepare estimateof the required material for rewinding

Performance Criteria 4: Collect material required for rewinding

Performance Criteria 5: Update record

Assessment Task 5

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collectwinding data

Performance Criteria 4: Collect/Prepare former as per required

dimensions(Volume)

Performance Criteria 5: Verify the size of former according to the coil

Assessment Task 6

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect former

Performance Criteria 4: Fix former on winding machine

Performance Criteria 5: Collect required winding material

Performance Criteria 6: Wrap two, three layers of latheroid paper on the former

Performance Criteria 7: Fastenone end of winding wirewith former

Performance Criteria 8: Put small pieces of cotton tape on former for coil binding

Performance Criteria 9: Wind quarter length of coil

Performance Criteria 10: Pull the cotton tape to bind the wound turns

Performance Criteria 11: Complete winding of first layer of coil

Performance Criteria 12: Wrap latheroid paper over first layer of coil

Performance Criteria 13: Complete winding of all coil layers according to number of turns

Performance Criteria 14: Bind the coil with cotton tape

Performance Criteria 15: Apply varnish on last / end layer of coil

Performance Criteria 16: Communicate client/customer regarding readiness of machine

Performance Criteria 17: Communicate client/customer regarding readiness of machine

Performance Criteria 18: Communicate client/customer regarding readiness of machine

Assessment Task 7

Performance Criteria 1:: Wear the required PPE's

Performance Criteria 2:Pick the required tools and equipment Performance Criteria 3:: Insert the wound coil over the limb of core Performance Criteria 4:: Assemble the openedlayer of the core

Performance Criteria 5:: Fit the channel on core Performance Criteria 6::Fix the channel on core

Performance Criteria 7:: Update record

Assessment Task 8

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3:Make connection as per data / rating plate of transformer

Performance Criteria 4: Perform joints soldering of coils connections

Performance Criteria 5: Update record

Assessment Task 9

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect specifications from data / rating plate of transformer

Performance Criteria 4: Calculate turn ratio of transformer

Performance Criteria 5: Update record

Assessment Task 10

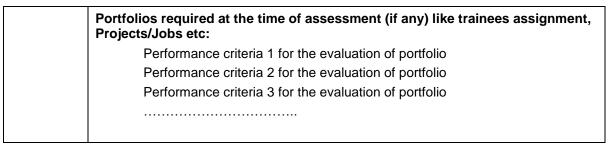
Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria3: Place the transformer's coil assembly / live part in baking oven

Performance Criteria 4: Set specific temperature of the baking oven Performance Criteria 5: Perform baking of coil assembly / live part

Performance Criteria 6: Update record



Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name:								
Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:				. Asses	ssor's c			
Assessment Summary (to be filled by the assessor)									
Activ	vity		1	Method	k	1		Res	sult
Nature of Activity		Written	Oral	Observation	Portfolio	Role Play	Competent Not Yet		Not Yet Competent
Practical Skill Der	monstration			✓		✓			
Knowledge Asses	ssment	✓	✓						
Other Requireme	nt				✓				
Each Assessmen	t Task (with perfo	ormanc	e crite	ria)					
Assessment Task perform transform	•	ork to		Descrip	otion of	assess	ment ta	ısk 1	
During the practic following:	cal assessment, o	candida	te dem	nonstrat	ed the	Yes	No	Remarks	
1 Performa	nce Criteria 1: Id	lentify t	he req	uired PF	PE's				
2 Performa	nce Criteria 2: C	ollect th	ne requ	uired PF	E's				
Performance Criteria 3: Identify the required tools and equipment									
Performance Criteria 4: Collect the required tools and equipment									
Performance Criteria 5: Ensure functional condition of PPE's/Tools and equipment									
Performa condition 6	nce Criteria 6		sure s	safe w	rorking				
	/entilation			Nat V-1	Carrer :	T			
Competent Not Yet Compete				etent 🗀					

Assessment Task 2: Collect Faulty Coil of Transformer Description of			assessı	ment ta	sk 2
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance Criteria 1:Wear the requi	red PPE's			
2	Performance Criteria 2: Pick the requequipment				
3	Performance Criteria3:Remove cover of	of transformer			
4	Performance Criteria 4: Identify faulty of	coil			
5	Performance Criteria 5:Disconnect of faulty coil				
6	Performance Criteria 6:Disassemble core				
7	Performance Criteria 7:Remove the recore				
8	Performance Criteria 8: Remove the faulty coil / coils from the limb of core				
9	Performance Criteria 9:Ensure proper placing of removed coils				
10	Performance Criteria 10: Update recor	d			
Compe	etent	Not Yet Compe	tent 🗆		
Assessment Task 3: Compile data of Faulty Transformer Coil / Coils Description of			assessi	ment ta	sk 3
During followin	the practical assessment, candidate dering:	monstrated the	Yes	No	Remarks
1	Performance Criteria 01:Wear the requ	uired PPE's			
2	Performance Criteria 01:Pick the required tools and equipment				
3	Performance Criteria 01:Collect the faulty coil				
4	Performance Criteria 01:Measure / calculate: Dimensions (Height, inner & outer diameter) of coil / coils Size of winding wire No of turns of coil				
_	Performance Criteria 01:Collect data fr	om name plate			

Not Yet Competent □

of transformer

coils of transformer

Performance Criteria 01:Compile dataof faulty coil /

Performance Criteria 01:Update record

5

Competent □

		1			
Assessment Task 4: Collect the required Materials for Re-winding			assess	ment ta	ask 4
	During the practical assessment, candidate demonstrated the following:			No	Remarks
1	Performance criteria 1:Wear the require	red PPE's			
2	Performance criteria 2: Pick the requestion equipment	uired tools and			-
3	Performance criteria 3:Prepare es required material for rewinding				
4	Performance criteria 4:Collect materirewinding	ial required for			
5	Performance criteria 5:Update record				
Compe	etent 🗆	Not Yet Compe	etent 🗆		
Assess Windin	sment Task 5: Prepare Former for Coil	Description of	assess	ment ta	ask 5
During followi	the practical assessment, candidate de ng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1:Wear the require	red PPE's			
2	Performance criteria 2: Pick the required tools and equipment				-
3	Performance criteria 3: Collect winding data				
4	Performance criteria 4:: Collect/Prepare former as per required dimensions(Volume)				
5	Performance criteria 5:: Verify the size of former according to the coil				
Competent ☐ Not Yet Compet		etent 🗆			

Assessment Task 6: Prepare Coil on Winding Description of assessment task 6 Machine					ask 6
	During the practical assessment, candidate demonstrated the following:			No	Remarks
1	Performance criteria 1::Wear the requ	ired PPE's			
2	Performance criteria 2:: Pick the req equipment				
3	Performance criteria 3::Collect former				
4	Performance criteria 4:Fix former on w	inding machine			
5	Performance criteria 5::Collect recomaterial				
6	Performance criteria 6::Wrap two, three layers of latheroid paper on the former				
7	Performance criteria 7:Fasten one end of winding wire with former				
8	Performance criteria 8:: Put small pieces of cotton tape on former for coil binding				
9	Performance criteria 9: Wind quarter length of coil				
10	Performance criteria 10:: Pull the cott the wound turns	·			
11	Performance criteria 11::Complete valuerof coil	-			
12	Performance criteria 12:Wrap lather first layer of coil				
13	Performance criteria 13:Complete will layers according to number of turns	J			
14	Performance criteria 14:Bind the coil with cotton tape				
15	Performance criteria 15:: Apply varnish on last / end layer of coil				
16	Performance criteria 16::Remove the former from winding machine				
17	Performance criteria 17: Remove the formerfrom the coil				
18	Performance criteria 18:Update record	<u></u>			
Comp	etent	Not Yet Compe	tent \square		

Assessment Task7: Re- Assemble the Coil Description of a on Core			assessi	ment ta	ask 7
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1: Wear the requ	uired PPE's			
2	Performance criteria 2: Pick the req equipment	uired tools and			
3	Performance criteria 3: Insert the wou limb of core	nd coil over the			
4	Performance criteria 4: Assemble the the core				
5	Performance criteria 5: Fit the channe	el on core			
6	Performance criteria 6: Fix the channel	el on core			
7	Performance criteria 7: Update record				
Compe	etent 🗆	Not Yet Compe	tent 🗆		
	sment Task8: Make Connections asing plate of Transformer	Description of	assessi	ment ta	sk 8
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1: Wear the required PPE's				
2	Performance criteria 2: Pick the required tools and equipment				
3	Performance criteria 3: Make connect / rating plate of transformer				
4	Performance criteria 4: Perform jointss connections	oldering of coils			
5	Performance criteria 5: Update record				
6					
Compe	etent 🗆	Not Yet Compe	tent 🗆		
Assessment Task9: Calculate Turn Ratio of Transformer Description of a		assessi	ment ta	ask 9	
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1: Wear the required PPE's				
2	Performance criteria 2: Pick the required tools and equipment				
3	Performance criteria 3: Collect specifications from data / ratingplate of transformer				
4	Performance criteria 4: Calculate turn ratio of transformer				
5	Performance criteria 5: Update record				
6					
Compe	etent 🗆	Not Yet Compe	tent 🗆	•	•

Assessment Task10: Conduct Baking of live part/Coil Assembly of Transformer Description of			assessr	ment ta	sk 10
During followin	the practical assessment, candidate der ng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1:Wear the requir	red PPE's			
2	Performance criteria 2: Pick the requequipment]
3	Performance criteria 3:Place the tra- assembly / live part in baking oven]
4	Performance criteria 4: Set specific tem baking oven	·			
5	Performance criteria 5:Perform baking of coil assembly / live part				
6	Performance criteria 6:Update record				
Compe	etent	Not Yet Compe	etent 🗖		
Portfoli	io(if any)	Description of portfolio			
Current	t□ Sufficient□ Authentio	c□ Valid			Reliable 🗆
Portfoli	io meet the following performance stand	ards:	Yes	No	Remarks
1	Performance criteria 1:				
2	Performance criteria 2				
3	Performance criteria 3				
4					
Compe	etent 🗆	Not Yet Compe	etent \square	Ī	

Knowledge Assessment TITLE OF QUALIFICATION

This formative assessment relates to the training programme: Electrical Machine Winding Technician				: Lev	el: 3	Version:	
Module Title Perform Tran	-	Rewinding	Assessm	nent Date (DD/MM/YY):	
Guidance for Candidate To complete your assessment for this Curriculum Module, you need to answer the questions on the following pages successfully.							
Assessors Go candidate afte		(to be completed by the Assesso assessment)	or and signed	d both by tl	ne assessor	and the	
Candidate Details		Name:					
Written Assessment Outcome COMPETENT Name of the Assessor: Signature of the Assessor:							
This formative assessment relates to the training programme: Electrical Machine Winding Technician			ng	CS Code	Level: 3	Version:	
Module Title: Perform Transfer Rewinding			Assessm	ent Date ([DD/MM/YY):		

WRITTEN ASSESSMENT

Question	Candidate's answer
73. Why core of transformer is laminated?	The core of transformer is laminated to minimize eddy current loss.
74. What material is used to prepare transformer core?	Transformer core is made with silicon steel
75. What is meant by HT and LT?	HT means high tension (High voltage) and LT mean low tension (Low voltage)
76. What is the working principle of Transformer?	Working principle of Transformer is mutual induction
77. Can transformer work on DC supply?	No transformer cannot work on DC supply, because mutual induction can only be occur on AC supply
78. Why Transformers are used?	Transformers are used to step up or step down the AC voltage.
79. What are the main parts of transformer?	The main parts of transformers are: 1- Laminated core 2- Primary & Secondary windings
80. Why core & windings of transformer are dipped in mineral oil?	Core and windings of transformer are dipped in mineral oil for cooling and insulation purpose
81. Why HT winding over lapped LT winding on same limb of transformercore?	Majority of faults occur in HT winding, hence this sequence helps us to access the faulty coil quickly.

Question	Candidate's answer				
82. How you provide insulation between turns of coils of transformer?	Insulation between turns of transformer coils is provided with Latheroid paper / impregnated paper /diamond dotted paper / cable paper				
83. How you take the size of transformer coil?	The size of transformer coil is measured taking dimensions ofheight, inner & outer diameter of coil / coils, taking size of winding wire and counting number of turns of coil				
84. What is meant by turn ratio of transformer?	Transformer turn ratio is the ratio between turns of primary winding and turns of secondary winding				
85. What sequence you will adopt for inserting coil on core limb?	The sequence of inserting coil on core limb is: Coil insertion on core limb Re-assembling of upper limb of core Fitting of channel of core Fixing of channel of core				

This formative assessment relates to the training programme: Electrical Machine Winding Technician	CS Code: 0713001134	Level: 3	Version:
Module Title: Carry out Re-Assembly of Machine	Assessment [Date (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet the required standard of assessment, you have to complete the following assessment tasks within the given time frame (for practical demonstration & assessment):
	25. Assessment Task 1:Prepare for work to carryout re- assembly of machine26. Assessment Task 2:Arrange parts of the Machine
Guidance	27. Assessment Task 3:Re-assemble the Machine28. Assessment Task 4: Ensure Quality of Repair Work
for Candidate	29. Assessment Task 4: Ensure Safe storing/placing of Machine
Carididate	30. Assessment Task 6: Tag the Machine ready for delivery
	And complete:
	15. Knowledge assessment test (Written or Oral)
	16. Portfolios at the time of assessment (if any)
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Identify the required PPE's
	Performance Criteria 2: Collect the required PPE's
	Performance Criteria 3: Identify the required tools and equipment
	Performance Criteria 4: Collect the required tools and equipment
	Performance Criteria 5: Ensure functional condition of PPE's/Tools and equipment
Minimum Evidence	Performance Criteria 6: Ensure safe working conditions
Required	Clear Passage
	Cleanliness
	Adequate light
	Ventilation
	Assessment Task 2
	Performance Criteria 1: Identify the required parts of machine
	Performance Criteria 2: Collect the required parts
	Performance Criteria 3: Count total number of parts for deficiency
	Performance Criteria 4: Arrange parts of the machine in sequential order

Assessment Task 3

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Collect parts of machine in sequential order

Performance Criteria 4: Perform Re-assembling of machine as per

numbering of parts

Performance Criteria 5: Adjust/Align parts of machine as per marking

Performance Criteria 6: Verify tightening of nut bolts with torque Wrench

Assessment Task 4

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Perform physical inspection of the Re-Assembled

Machine

Performance Criteria 4: Perform Megger test of machine

Performance Criteria 5: Energize/Power Up the machine

Performance Criteria 6: Perform test run of machine

- Observe vibration
- Observe sound
- Measure Input current
- Observe Heat
- Check output

Assessment Task 5

Performance Criteria 1: Wear the required PPE's

Performance Criteria 2: Pick the required tools and equipment

Performance Criteria 3: Prepare site for safe storage of machine

Performance Criteria 4: Collect machine from workbench

Performance Criteria 5: Shift machine to the safe storing site

Performance Criteria 6: Ensure safe storing/placing of machine

Assessment Task 6

Performance Criteria 1: Prepare delivery tags

Performance Criteria 2: Identify the machine to be tagged

Performance Criteria 3: Tag the machine

Performance Criteria 4: Update record

Performance Criteria 5: Prepare final bill of repair

Performance Criteria 6: Communicate client/customer regarding readiness of machine

Portfolios required at the time of assessment (if any) like trainees assignment, Projects/jobs etc:

Performance criteria 1 for the evaluation of portfolio

Performance criteria 2 for the evaluation of portfolio

Performance criteria 3 for the evaluation of portfolio

.......

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name:							
Assessment Outcome	COMPETENT☐ NOT YET COMPETENT☐ Name of the Assessor: Signature of the Assessor:							
	Assessm	ent Su	mmar	ry (to be	filled b	ov the a	assessor)	
Activ				Method	sult			
Nature of Activity		Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Der	nonstration			√		√		
Knowledge Asses	sment	✓	✓					
Other Requirement				✓				
Each Assessmen	Each Assessment Task (with performance criteria)							
Assessment Task 1 :Prepare for work to			Description of assessment task 1					
carryout re-assembly of machine								

During the practical assessment, candidate demonstrated the following:				No	Remarks
1	Performance criteria 1: Identify the rec	quired PPE's			
2	Performance criteria 2: Collect the req	uired PPE's			
3	Performance criteria 3: Identify the recepture equipment	quired tools and			
4	Performance criteria 4: Collect the requipment	uired tools and			
5	Performance criteria 5: Ensure functio PPE's/Tools and equipment	nal condition of			
6	Performance criteria 6: Ensure safe working conditions Clear Passage Cleanliness Adequate light Ventilation				
Compe	etent 🗆	Not Yet Compe	tent 🗆		
Assess Machin	sment Task 2: Arrange parts of the ne	Description of	assessi	ment ta	sk 2
During followin	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance criteria 1: Identify the required parts of machine				
2	Performance criteria 2: Collect the required parts				
3	Performance criteria 3: Count total number of parts for deficiency				
4	Performance criteria 4: Arrange parts in sequential order	of the machine			
Compe	etent	Not Yet Compe	tent 🗖		

Assessment Task 3: Re-assemble the Machine	Description of assessment task 3

					_
During followin	the practical assessment, candidate deng:	Yes	No	Remarks	
1	Performance criteria 1: Wear the requi	ired PPE's			
2	Performance criteria 2: Pick the require equipment	ed tools and			
3	Performance criteria 3: Collect parts of sequential order	f machine in			
4	Performance criteria 4: Perform Re-as machine as per numbering of parts	sembling of			
5	Performance criteria 5: Adjust/Align pa as per marking	arts of machine			
6	Performance criteria 6: Verify tightenin with torque Wrench	ng of nut bolts			
Compe	etent	Not Yet Compe	tent		
Assessment Task 4: Ensure Quality of Repair Work			assessi	ment ta	sk 4
During the practical assessment, candidate demonstrated the following:					
tollowin	ng:		Yes	No	Remarks
followin 1	Performance criteria 1: Wear the requi		Yes	No	Remarks
		ired PPE's	Yes	No	Remarks
1	Performance criteria 1: Wear the requirement Performance criteria 2: Pick the requirement Performance criteria 3: Pick the Pick t	ired PPE's ed tools and	Yes	No	Remarks
1 2	Performance criteria 1: Wear the require equipment Performance criteria 2: Pick the require equipment Performance criteria 3: Perform physic of the Re-Assembled Machine Performance criteria 4:Perform Memachine	ed tools and cal inspection egger test of	Yes	No	Remarks
2 3	Performance criteria 1: Wear the require equipment Performance criteria 2: Pick the require equipment Performance criteria 3: Perform physic of the Re-Assembled Machine Performance criteria 4:Perform Me	ed tools and cal inspection egger test of	Yes	No	Remarks
1 2 3 4	Performance criteria 1: Wear the require equipment Performance criteria 2: Pick the require equipment Performance criteria 3: Perform physic of the Re-Assembled Machine Performance criteria 4:Perform Memachine Performance criteria 5:Energize/Pomachine Performance criteria 6: Perform test rule of the performance criteria 6: Perform	ed tools and cal inspection egger test of ower Up the		No	Remarks

Assessment Task 5: Ensure safe Description of assessment task 5 storing/placing of Machine					
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1: Wear the requi	ired PPE's			
2	Performance criteria 2: Pick the required tools and equipment				
3	Performance criteria 3: Prepare site for safe storage of machine				
4	Performance criteria 4: Collect machine from workbench				
5	Performance criteria 5: Shift machine to the safe storing site				
6	Performance criteria 6: Ensure safe storing/placing of machine				
Compe	etent 🗆	Not Yet Compe	tent 🗆		

Assess for deli	sment Task 6: Tag the Machine ready very	Description of assessment task 6			
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance criteria 1: Prepare delivery tags				
2	Performance criteria 2: Identify the machine to be tagged				
3	Performance criteria 3: Tag the machine				
4	Performance criteria 4: Update record				
5	Performance criteria 5:Prepare final bill of repair				
6	Performance criteria 6:Communicate client/customer regarding readiness of machine				
Compe	Competent □ Not Yet Comp		tent 🗆		

Portfol	lio(if any)			Descri	ption of	portfolio	0	
Curren	nt□	Sufficient□	Authenti	c 🗆	Valid			Reliable
Portfol	lio meet the	following perform	nance stand	ards:		Yes	No	Remarks
1	Performa	nce criteria 1						
2	Performance criteria 2							
3	3 Performance criteria 3							
4								
Competent ☐ Not Yet			t Comp	etent \Box]			

Knowledge Assessment TITLE OF QUALIFICATION

This formative assessment relates to the training programme: Electrical Machine Winding Technician			CS Code:	Leve	l: 3	Version:
Module Title: Carry out Re-Assembly of Machine			Assessm	ent Date (D	DD/MM/YY)	:
Guidance for Candidate		our assessment f			ile, you ne	ed to answer
	uide (to be comp r the assessmer	pleted by the Asses t)	ssor and signed	d both by the	e assessor	and the
Candidate Details		Name:				
Written Assessment Outcome	sment Name of the Assessor: Assessor's code:					
This formati		relates to the trai	ning	CS Code:	Level: 3	Version:
Electrical Machine Winding Technician				Aggerage	mt Deta /D	D/MM/A/V
Module Title: Carry out Re-Assembly of Machine				Assessme	ent Date (D	D/MM/YY):

WRITTEN ASSESSMENT

Question	Candidate's answer
86. What is sequential process of re-assembling of machine?	The sequential process of re-assembling of machine is: Matching numbering of parts Putting parts in sequential order Adjusting / aligning parts of machine Final checking of tightening of bolts
87. What observations you will observe during test run of machine after performing repair work?	Following observations will be observed during test run of machine after repair work: > Vibration > Sound > Heating > Measurement of input current > Checking of output
88. Why Megger test is performed?	Megger Test is performed to check the following: 1. Open Circuit 2. Short Circuit 3. Insulation Condition 4. Earth Fault/Leakage
89. What are main factors of quality of repair work?	Although the quality of the repair is still largely dependent on the individual compo site repair technician's experience and skill, only the repair workshop, not the individual who makes the repair, must be certified.
90. How to Store Tools & Equipment?	Delegate a portion of your workshop, shed or basement closet as a place to store tools. Clean out the junk and clutter and make a space only for tools. Find the parts, Locate cords, bits, nails and screws and organize them. Clean out dirt and debris from tools. Set up racks. Create an inventory.
91. Why inventory cards are used?	Keeping track of your inventory is important for being able to control costs, keep your system up to date and discover any discrepancies that may exist between what your inventory system says and what you physically count. Inventory control tags can help us to accomplish this.
92. How you can create safe working environment?	Workplace safety should never be taken lightly. Any workshop regardless of size must account for safety regulations, steps and more detailed options for their staff from the get-go. Preventative measures against accidents and/or workplace-related deaths are key for fostering a healthy, safe work environment. Safe working environment can be achieved by: 1. Wearing Proper Uniforms 2. Designating Proper Emergency Exits 3. Promoting Open Discussions 4. Promoting Health Codes 5. Proofing The Building

(Summative Assessment) Instruction Sheet for the Candidate

Title of Qualification: Electrical Machine Winding Technician	CS Code:	Level: 3	Version:		
Competency Standard Title:	Assessment Date (DD/MM/YY):				
Disassemble Machine at Workshop					
Estimate Repair / Replacement Cost					
Diagnose Fault of Machine(Motor)					
Perform Motor Rewinding					
Perform Transformer Rewinding					
Carry out Re- Assembly of Machine					
Purpose of Assessment:	Summative As	sessment			

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame 04 hrs for each task (for practical demonstration & assessment):
Guidance for Candidate	Assessment Task 1: Perform rewinding of the given (25 KVA Transformer) , Carry out its reassembly and prepare bill of cost.
	Assessment Task 2: Diagnose fault of the given (20 HP Motor), Perform its rewinding and prepare bill of cost.

Assessment Task 1: Perform rewinding of the given (25 KVA Transformer), Carry out its reassembly and prepare bill of cost. Performance Criteria 1. Identify the required tools, equipment & PPE's Performance Criteria 2. Check functional condition of the required PPE's/Tools, equipment. Performance Criteria 3. Use the required tools equipment and PPE's as per job demand. Performance Criteria 4. Ensure safe working conditions a. Clear Passage b. Cleanliness c. Adequate light d. Ventilation Performance Criteria 5. Record shifting of machine (transformer) to work bench Performance Criteria 6. Prepare list of the materials/parts required for Rewinding of transformer. Performance Criteria 7. Estimate quantity & cost of the required materials / faulty parts of machine Performance Criteria 8. Estimate labour cost on machine Performance Criteria 9. Calculate the accumulative cost on machine Performance Criteria 10. Inform the client / customer about total cost Remove cover of transformer Performance Criteria 11. Identify faulty coil Performance Criteria 12. Disconnect connections of faulty coil Performance Criteria 13. Performance Criteria 14. Disassemble the channel of core Remove the required part of core Performance Criteria 15. Performance Criteria 16. Remove the faulty coil / coils from the limb of core Performance Criteria 17. Ensure proper placing of removed coils Performance Criteria 18. Collect the faulty coil Performance Criteria 19. Measure / calculate: a. Dimensions (Height, inner & outer diameter) of coil / coils b. Size of winding wire c. No of turns of coil Performance Criteria 20. Collect data from name plate of transformer Performance Criteria 21. Compile data of faulty coil / coils of transformer Performance Criteria 22. Collect material required for rewinding Performance Criteria 23. Collect winding data required Performance Criteria 24. Collect/Prepare former as per dimensions(Volume) Verify the size of former according to the coil Performance Criteria 25. Performance Criteria 26. Collect former Performance Criteria 27. Fix former on winding machine Wrap two, three layers of latheroid paper on the Performance Criteria 28. former Performance Criteria 29. Fasten one end of winding wire with former Performance Criteria 30. Put small pieces of cotton tape on former for coil binding Performance Criteria 31. Wind quarter length of coil Pull the cotton tape to bind the wound turns Performance Criteria 32. Performance Criteria 33. Complete winding of first layer of coil Performance Criteria 34. Wrap latheroid paper over first layer of coil Complete winding of all coil layers according to Performance Criteria 35. number of turns Performance Criteria 36. Bind the coil with cotton tape

	Performance Criteria 37.	Apply varnish on last / end layer of coil
	Performance Criteria 38.	Remove the former from winding machine
	Performance Criteria 39.	Remove the former from the coil
	Performance Criteria 40.	Insert the wound coil over the limb of core
	Performance Criteria 41.	Assemble the opened layer of the core
	Performance Criteria 42.	Fit the channel on core
	Performance Criteria 43.	Fix the channel on core
	Performance Criteria 44. transformer	Make connection as per data / rating plate of
	Performance Criteria 45.	Perform joints soldering of coils connections
	Performance Criteria 46. transformer	Collect specifications from data / rating plate of
	Performance Criteria 47.	Calculate turn ratio of transformer
	Performance Criteria 48. in baking oven	Place the transformer's coil assembly / live part
	Performance Criteria 49.	Set specific temperature of the baking oven
	Performance Criteria 50.	Perform baking of coil assembly / live part
	Performance Criteria 51.	identify the required parts of machine
	Performance Criteria 52.	Collect the required parts
	Performance Criteria 53.	Count total number of parts for deficiency
	Performance Criteria 54.	Arrange parts of the machine in sequential
	order	
	Performance Criteria 55. numbering of parts:	Perform Re-assembling of machine as per
	Performance Criteria 56.	Adjust/Align parts of machine as per
	marking	rajadar ingri parte di madrimo de per
	Performance Criteria 57.	Verify tightening of nut bolts with torque
	Wrench	Desferos abraical inspection of the De
	Performance Criteria 58.	Perform physical inspection of the Re-
	Assembled Machine	Dayfayya Maggay toot of yeaching
	Performance Criteria 59.	Perform Megger test of machine
	Performance Criteria 60.	Energize/Power Up the machine Perform test run of machine
	Performance Criteria 61. a. Observe vibrat	
	b. Observe vibrat	
	c. Measure Input	
	d. Observe Heat	Current
	e. Check output	
	Performance Criteria 62.	Prepare site for safe storage of machine
	Performance Criteria 63.	Collect machine from workbench
	Performance Criteria 64.	Shift machine to the safe storing site
	Performance Criteria 65.	Ensure safe storing/placing of machine
	Performance Criteria 66.	Prepare delivery tags
	Performance Criteria 67.	Identify the machine to be tagged
	Performance Criteria 68.	Tag the machine
	Performance Criteria 69.	Prepare final bill of repair
	Performance Criteria 70.	Communicate client/customer regarding
	readiness of machine	
	Assessment Task 2: Diagnose rewinding and prepare bill of co	e fault of the given (20 HP Motor),Perform its ost
	Performance Criteria 1. Performance Criteria 2. PPE's/Tools, equipmer	Identify the required tools , equipment & PPE's Check functional condition of the required
	Performance Criteria 3.	Use the required tools equipment and
	PPE's as per job den Performance Criteria 4. Clear Passage	nand. Ensure safe working conditions
_[Oleai Fassaye	

Cleanliness Adequate light Ventilation

Performance Criteria 5. Perform testing with Megger

- Ground/Earth Fault
- Short Circuit
- Open Circuit

Performance Criteria 6. Record test result

Performance Criteria 7. Check alignment of rotor shaft with the help of

dial gauge

Performance Criteria 8. Check the rotor shaft size as per bearing size

Performance Criteria 9. Check run out of the rotor shaft Performance Criteria 10. Inspect the bearing/bush for

- noise
- Axial/Radial Play/Looseness
- Stickiness
- Lubrication
- Breakage

Performance Criteria 11. Locate faulty parts of motor

Performance Criteria 12. Prepare list of the materials/parts required for repair/replacement

Performance Criteria 13. Estimate quantity & cost of the required materials / faulty parts of machine

Performance Criteria 14. Estimate labour cost on machine Performance Criteria 15. Calculate the accumulative cost on machine

Performance Criteria 16. Inform the client / customer about total cost **Performance Criteria 17.** Perform shifting of faulty parts of motor to work bench

Performance Criteria 18. Perform marking at motor body for correct refitting at both ends

Performance Criteria 19. Dis-assemble motor

Performance Criteria 20. Store rotor and stator after appropriate tagging

Performance Criteria 21. Cut fastening threads

Performance Criteria 22. Record the connection details of stator coils

Performance Criteria 23. Locate faulty winding coils

Performance Criteria 24. Cut faulty winding coils from both ends of stator core

Performance Criteria 25. Remove faulty coils from stator core Performance Criteria 26. Count / measure and record:

- · Number of turns of each coil
- Pole pitch
- Coil span
- Weight of each coil
- Size of winding wire of each coil

Performance Criteria 27. Estimate total weight of wire required for rewinding

Performance Criteria 28. Verify size of winding wire

Performance Criteria 29. Estimate length of required lathered paper Performance Criteria 30. Performance Criteria 31. Collect the required material for rewinding

Performance Criteria 32. Clean laminations of the core Performance Criteria 33. Set laminations of the core

Performance Criteria 34. Perform marking on lathered paper according to size of core slots

Performance Criteria 35. Perform cutting of lathered paper according to marking

Performance Criteria 36. Insert lathered paper into core slots

Performance Criteria 37. Collect winding data

Performance Criteria 38. Interpret winding diagram

Performance Criteria 39. Collect the former of appropriate size
Performance Criteria 40. Make / adjust former according to coil span
Verify adjustment of former according to coil

span

Performance Criteria 42. Fix and adjust former according to coil span

Performance Criteria 43. Collect the already adjusted former
Performance Criteria 44. Collect relevant size winding wire
Performance Criteria 45. Prepare required number of coil sets
Calculate the total weight of winding coils

Performance Criteria 47. Collect core and the sets of coils to be inserted in core

Performance Criteria 48. Insert coils one by one in the core slots according to winding diagram

Performance Criteria 49. Set the coils in core slots

Performance Criteria 50. Verify the sequence of coil insertion

Performance Criteria 51. Insert lathered paper or bamboo wedge to prevent coils from slipping out from the core slots

Performance Criteria 52. Collect Core having coils inserted in it

Performance Criteria 53. Insert appropriate size sleeves on one side of coils ends

Performance Criteria 54. Remove varnish insulation from ends of coils
Performance Criteria 55. Interlink coils end as per number of poles and winding diagram

Performance Criteria 56. Connect supply leads according winding diagram with coils

Performance Criteria 57. Check that the coils have sound:

Continuity

Insulation between overlapping coils

Insulation between coils and core

Performance Criteria 58. Verify the connections

Performance Criteria 59. Solder the joints

Performance Criteria 60. Slide sleeves over the joints to insulate the joint Performance Criteria 61. Press the winding coils to ward outer edge of core

Performance Criteria 62. Collect newly wound core Performance Criteria 63. Perform winding test to verify

Continuity

Insulation between overlapping coils

• Insulation between coil and core

Megger Test

Performance Criteria 64. Put latheroid paper between two coils to strengthen insulation on both sides of core ends

Performance Criteria 65. Perform binding of coil with binding thread or cotton tape on both sides of core ends

Performance Criteria 66. Press the coil ends toward outer side of core Performance Criteria 67. Verify that the coils have sound:

Continuity

Insulation between each other

• Insulation between coil and core Performance Criteria 68. Varnish the winding

Performance Criteria 69. Verify that the coils have sound:

Continuity

Insulation between each other

• Insulation between coil and core

Performance Criteria 70. Perform baking of winding

Performance Criteria 71. Perform winding tests to verify that the coils have:

T							
	Continuity						
	 Insulation betw 	on between each other					
	 Insulation betw 	tween coil and core					
	Performance Criteria 72.	Collect the required parts					
	Performance Criteria 73.						
		Arrange parts of the machine in sequential					
	Performance Criteria 75.	• .					
	Performance Criteria 76	•					
	as per numbering of	9					
	Performance Criteria 77. marking	Adjust/Align parts of machine as per					
	Performance Criteria 78. Wrench	Verify tightening of nut bolts with torque					
	Performance Criteria 79. Assembled Machine	Perform physical inspection of the Re-					
	Performance Criteria 80.	Perform Megger test of machine					
	Performance Criteria 81.	Energize/Power Up the machine					
	Performance Criteria 82.	Perform test run of machine					
	 Observe vibrati 	on					
	 Observe sound 						
	 Measure Input 	current					
	Observe Heat						
	 Check output 						
	Performance Criteria 83.	Collect machine from workbench					
	Performance Criteria 84.	Shift machine to the safe storing site					
	Performance Criteria 85.	Tag the machine					
	Performance Criteria 86.	Prepare final bill of repair					
	Performance Criteria 87. readiness of machine	Communicate client/customer regarding					

Portfolios required at the time of assessment (if any) like trainees/students assignment .Projects/Jobs etc.
Performance criteria 1 for the evaluation of portfolio
Performance criteria 2 for the evaluation of portfolio
Performance criteria 3 for the evaluation of portfolio

Continued on following page

Assessors Judgment Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	-
Assessment Outcome	COMPETENT Name of the Assessor:	NOT YET COMPETENT

Signature of the Assessor:

Assessment Summary (to be filled by the assessor)							
Activity			Method	t	Result		
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓		✓		
Knowledge Assessment	✓	✓					
Other Requirement				✓			

Each Assessment Task (with performance criteria)					
Assessment Task 1: Perform rewinding of the given (25 KVA Transformer), Carry out its reassembly and prepare bill of cost	Description of assessment task:				

its reas	sembly and prepare bill of cost.			
During followin		Yes	No	Remarks
1.	Identify the required tools, equipment & PPE's			
2.	Check functional condition of the required PPE's/Tools, equipment.			
3.	Use the required tools equipment and PPE's as per job demand.			
4.	 Ensure safe working conditions Clear Passage Cleanliness Adequate light Ventilation 			
5.	Record shifting of machine (transformer) to work bench			
6.	Prepare list of the materials/parts required for Rewinding of transformer.			
7.	Estimate quantity & cost of the required materials / faulty parts of machine			
8.	Estimate labour cost on machine			
9.	Calculate the accumulative cost on machine			
10.	Inform the client / customer about total cost			
11.	Remove cover of transformer			
12.	Identify faulty coil			
13.	Disconnect connections of faulty coil			
14.	Disassemble the channel of core			
15.	Remove the required part of core			
16.	Remove the faulty coil / coils from the limb of core			
17.	Ensure proper placing of removed coils			
18.	Collect the faulty coil			
19.	Measure / calculate: Dimensions (Height, inner & outer diameter) of coil / coils Size of winding wire No of turns of coil			
20.	Collect data from name plate of transformer			
21.	Compile data of faulty coil / coils of transformer			
22.	Collect material required for rewinding			
23.	Collect winding data			
24.	Collect/Prepare former as per required dimensions(Volume)			

		 1	
25.	Verify the size of former according to the coil		
26.	Collect former		
27.	Fix former on winding machine		
28.	Wrap two, three layers of latheroid paper on the former		
29.	Fasten one end of winding wire with former		
30.	Put small pieces of cotton tape on former for coil binding		
31.	Wind quarter length of coil		
32.	Pull the cotton tape to bind the wound turns		
33.	Complete winding of first layer of coil		
34.	Wrap latheroid paper over first layer of coil		
35.	Complete winding of all coil layers according to number of turns		
36.	Bind the coil with cotton tape		
37.	Apply varnish on last / end layer of coil		
38.	Remove the former from winding machine		
39.	Remove the former from the coil		
40.	Insert the wound coil over the limb of core		
41.	Assemble the opened layer of the core		
42.	Fit the channel on core		
43.	Fix the channel on core		
44.	Make connection as per data / rating plate of transformer		
45.	Perform joints soldering of coils connections		
46.	Collect specifications from data / rating plate of transformer		
47.	Calculate turn ratio of transformer		
48.	Place the transformer's coil assembly / live part in baking oven		
49.	Set specific temperature of the baking oven		
50.	Perform baking of coil assembly / live part		
51.	identify the required parts of machine		
52.	Collect the required parts		
53.	Count total number of parts for deficiency		
54.	Arrange parts of the machine in sequential order		
55.	Perform Re-assembling of machine as per numbering of parts:		
56.	Adjust/Align parts of machine as per marking		
57.	Verify tightening of nut bolts with torque Wrench		
58.	Perform physical inspection of the Re-Assembled Machine		

59.	Perform Megger test of machine				
60.	Energize/Power Up the machine				
61.	Perform test run of machine Observe vibration Observe sound Measure Input current Observe Heat Check output				
62.	Prepare site for safe storage of machine				
63.	Collect machine from workbench				
64.	Shift machine to the safe storing site				
65.	Ensure safe storing/placing of machine				
66.	Prepare delivery tags				
67.	Identify the machine to be tagged				
68.	Tag the machine				
69.	Prepare final bill of repair				
70.	70. Communicate client/customer regarding readiness of machine				
Compe	Competent ☐ Not Yet Comp		tent 🛘		

Each Assessment Task (with performance criteria)					
Assessment Task 2: Diagnose fault of the given (20 HP Motor), Perform its rewinding	Description of assessment task:				

and pre	epare bill of cost.			
During the practical assessment, candidate demonstrated the following:			No	Remarks
1.	Identify the required tools , equipment & PPE's			
2.	Check functional condition of the required PPE's/Tools, equipment.			
3.	Use the required tools equipment and PPE's as per job demand.			
4.	Ensure safe working conditions			
5.	Perform testing with Megger Ground/Earth Fault Short Circuit Open Circuit			
6.	Record test result			
7.	Check alignment of rotor shaft with the help of dial gauge			
8.	Check the rotor shaft size as per bearing size			
9.	Check run out of the rotor shaft			
10.	Inspect the bearing/bush for noise Axial/Radial Play/Looseness Stickiness Lubrication Breakage Locate faulty parts of motor			
11.	Prepare list of the materials/parts required for			-
12.	repair/replacement			
13.	Estimate quantity & cost of the required materials / faulty parts of machine			
14.	Estimate labour cost on machine			_
15.	Calculate the accumulative cost on machine			-
16.	Inform the client / customer about total cost			-
17.	Perform shifting of faulty parts of motor to work bench			
18.	Perform marking at motor body for correct re-fitting at both ends			
19.	Dis-assemble motor			-
20.	Store rotor and stator after appropriate tagging			_
21.	Cut fastening threads			_
22.	Record the connection details of stator coils			

23.	Locate faulty winding coils	
24.	Cut faulty winding coils from both ends of stator core	-
25.	Remove faulty coils from stator core	-
26.	Count / measure and record: Number of turns of each coil Pole pitch Coil span Weight of each coil Size of winding wire of each coil	
27.	Estimate total weight of wire required for rewinding	
28.	Verify size of winding wire	
29.	Estimate length of required lathered paper	
30.	Prepare list of material required for rewinding	
31.	Collect the required material for rewinding	
32.	Clean laminations of the core	
33.	Set laminations of the core	
34.	Perform marking on lathered paper according to size of core slots	
35.	Perform cutting of lathered paper according to marking	
36.	Insert lathered paper into core slots	
37.	Collect winding data	
38.	Interpret winding diagram	
39.	Collect the former of appropriate size	
40.	Make / adjust former according to coil span	
41.	Verify adjustment of former according to coil span	
42.	Fix and adjust former according to coil span	
43.	Collect the already adjusted former	
44.	Collect relevant size winding wire	
45.	Prepare required number of coil sets	
46.	Calculate the total weight of winding coils	
47.	Collect core and the sets of coils to be inserted in core	
48.	Insert coils one by one in the core slots according to winding diagram	
49.	Set the coils in core slots	
50.	Verify the sequence of coil insertion	
51.	Insert lathered paper or bamboo wedge to prevent coils from slipping out from the core slots	
52.	Collect Core having coils inserted in it	
53.	Insert appropriate size sleeves on one side of coils ends Remove varnish insulation from ends of coils	
54.		
55.	Interlink coils end as per number of poles and winding diagram	

			1			
56.	Connect supply leads according winding diagram with coils					
57.	Check that the coils have sound: Continuity Insulation between overlapping coils Insulation between coils and core					
58.	Verify the connections					
59.	Solder the joints					
60.	Slide sleeves over the joints to insulate the joint					
61.	Press the winding coils to ward outer edge of core					
62.	Collect newly wound core					
63.	 Perform winding test to verify Continuity Insulation between overlapping coils Insulation between coil and core Megger Test 					
64.	Put latheroid paper between two coils to strengthen insulation on both sides of core ends					
65.	Perform binding of coil with binding thread or cotton tape on both sides of core ends					
66.	Press the coil ends toward outer side of core					
67.	 Verify that the coils have sound: Continuity Insulation between each other Insulation between coil and core 					
68.	Varnish the winding					
69.	Verify that the coils have sound: Continuity Insulation between each other Insulation between coil and core					
70.	Perform baking of winding					
71.	 Perform winding tests to verify that the coils have: Continuity Insulation between each other Insulation between coil and core 					
72.	Collect the required parts					
73.	Count total number of parts for deficiency					
74.	Arrange parts of the machine in sequential					
75.	Collect parts of machine in sequential order					
76.	Perform Re-assembling of machine as per numbering of parts:					
77.	Adjust/Align parts of machine as per marking					
78.	Verify tightening of nut bolts with torque Wrench					
79.	Perform physical inspection of the Re-Assembled Machine					
80.	Perform Megger test of machine					
81.	Energize/Power Up the machine					

82. 83. Co 84. Sh 85. Ta 86. Pr		petent [
·		Description of						
Current□	Sufficient□ Authentic	☐ Valid	Ц	1	Reliable			
Portfolio me	et the following performance standa	ards:	Yes	No	Remarks			
1 Perf	formance criteria 1							
2 Perf	formance criteria 2							
3								
4								
Competent I		Not Yet Compe	etent 🗆	1				
Title of Qua	Assessors Judgment Guide TITLE OF QUALIFICATION (Summative Assessment / knowledge part)							
Electrical Ma	CS Code:		₋evel: 3	Version:				
Competenc Disassemble Estimate Re Diagnose Fa Perform Mot Perform Trai Carry out Re	Assessm	ent Da	te (DD/	MM/YY):				
Guidance for Candidate	To complete your assessment answer the questions on the fo							

Assessors Guide (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: Candidate Signature:	
Written Assessment Outcome	COMPETENTD Name of the Assessor: Signature of the Assessor:	

Title of Qualification: Electrical Machine Winding Technician	CS Code: Level:3 Version:
Competency Standard Title: Disassemble Machine at Workshop	Assessment Date (DD/MM/YY):
Estimate Repair / Replacement Cost Diagnose Fault of Machine(Motor) Perform Motor Rewinding	
Perform Transformer Rewinding Carry out Re- Assembly of Machine	

WRITTEN ASSESSMENT

Question		Candidate's answer
1.	What is meant by electricity?	Electricity is the physical flow of electrons, referred to as an electrical current. Electricity is an energy carrier that efficiently delivers the energy found in primary sources to end users, who in turn convert it into energy services.
2.	What are the types of electricity?	There are two types of Electricity, Static Electricity and Current Electricity. Static Electricity is made by rubbing together two or more objects and making friction while Current electricity is the flow of electric charge across an electrical field.
3.	What are types of electric circuits?	There are three types of circuits; Closed Circuit Open Circuit Short Circuit
4.	What are types of electric circuit's connections?	Series Circuit. A series circuit has only one path for electricity to flow from one point to another. Parallel Circuit. A parallel circuit has multiple paths for electricity to flow from one point to another. Complex Circuit:combined Series-Parallel Circuit.
5.	Define Ohm's law?	Ohm's law states that the potential difference (voltage) across an ideal conductor is proportional to the current through it. The constant of proportionality is called the "resistance", R. Ohm's Law is given by: V = I R where V is the potential difference between two points which include a resistance R.
6.	What is the difference between DC and AC?	Electricity flows in two ways: either in an alternating current (AC) or in a direct current (DC). Electricity or "current" is nothing but the movement of electrons through a conductor, like a wire. The difference between AC and DC lies in the direction in which the electrons flow. In DC, the electrons flow steadily in a single direction, or "forward." In AC, electrons keep switching directions, sometimes going "forward" and then going "backward." Alternating current is the best way to transmit electricity over large distances.
7.	What is the difference between star & delta connection?	In STAR connection, the starting or finishing ends (Similar ends) of three phases(coils) are connected together to form the neutral point. The phase voltage is 1.732 times lower than line voltage in star connection, while the phase and Line current remains same in this connection In DELTA connection, the opposite ends of three coils are connected together. In other words, the end of each coil is connected with the start of another coil, and three wires are taken out from the coil joints. There is no Neutral Point in Delta Connection. Phase and Line voltage are same while phase current is 1.732 times lower than Line current.

Question		Candidate's answer
8.	What is meant by magnet wire?	Magnet wire or enameled wire is a copper or aluminium wire coated with a very thin layer of insulation. It is used in the construction of transformers, inductors, motors, speakers, hard disk head actuators, electromagnets, and other applications that require tight coils of insulated wire.
9.	What types of winding wires are used?	Following winding wires are used; Enameled round copper wire & enameled round aluminium wire: Enameled rectangular /flat copper wire / enameled copper strip. Enameled rectangular /flat aluminium wire / enameled aluminium strip.
10.	What is the difference between copper winding and Aluminium winding?	First, aluminum's conductivity is lower than copper's. To compensate, aluminum magnet wire must have larger cross-sections than the equivalent copper wire to offer the same conductance. This means windings wound with aluminum wire will likely have greater volume as compared with an equivalent copper wire motor.
11.	What is meant by SWG?	British Standard Wire Gauge is a set of wire sizes given by BS 3737:1964, and is generally abbreviated to SWG. It is also known as: Imperial Wire Gauge or British Standard Gauge. Size of thickness of winding wires ranging from 0 to 36 can be measured with SWG.
12.	What is the difference between Class F and Class H insulation?	The main difference is that the class designations refer to the withstand temperature of the insulation material. Thus, H class has a withstand temperature level of 180 $^{\rm 0}$ C for the coils and F class of 145 $^{\rm 0}$ C.

Question	Candidate's answer					
13. What is meant by insulation rating?	The insulation rating is the maximum allowable winding (hot spot) temperature operating at an ambient temperature of 40°C. Insulation systems are classified by the temperature rating. The following table summarizes the different insulation systems available.					
	Insulation Rating	Insulat ion Class	Average Winding Temperatur e Rise	Hot Spot Temperatur e Rise	Maximum Winding Temperatur e	
	Class 105	А	55 ° C	65 ° C	105 ° C	
	Class 150 or 130	В	80 º C	110º C	150 ° C	
	Class 180	F	115 ° C	145 º C	180 ° C	
	Class 200	N	130 ° C	160 º C	200 ° C	
	Class 220	Н	150 ° C	180° C	220 ° C	
14. What is meant by transformer?	A transformer is a passive electrical device that transfers electrical energy between two or more <u>circuits</u> . It is used to step up or step down AC voltage without changing its frequency. It works on mutual induction principle.					
15. What types of energy losses occurred in transformer?	Transformer energy losses are dominated by; Winding losses (Copper losses in primary & secondary windings, it changes twice with change in load) Core losses. (Iron losses included eddy current & hysteresis losses, it is constant loss which occurs constantly from without load to full load)					

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