







AUTOMOTIVE MECHATRONICS



ASSESSMENT PACKAGE

National Vocational Certificate Level 4

Version 1 - November, 2019





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AUTOMOTIVE MECHATRONICS



ASSESSMENT PACKAGE
National Vocational Certificate Level 4

Version 1 - November, 2019

Title of Qualification: Automotive Mechatronics	CS Code: 071400963	Level: 4	Version:
Competency Standard Title: Perpetuate Controlled Electrical & Electronics System-II	Assessment D	Date (DD/MM/YY	·):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment): 1. Assessment Task 1: Select appropriate tools and equipment to perform
Guidance	service of wiper motors, wiper arms, washer lines and nozzles. 2. Assessment Task 2: Select appropriate tools and equipment to repair
for Candidate	Electronic Power steering System (EPS) with the help of OBD – II scanner. 3. Assessment Task 3: Select appropriate tools and equipment to diagnose
	the faults of sensors by using OBD – II scanner. And complete:
	4. Knowledge assessment test (Written or Oral) 5. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will
	complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Remove and fit wiper motors and wiper arms
	Performance Criteria 4: Remove and fit washer lines and washer nozzles
	Performance Criteria 5: Remove and fit combination switch
	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
aMinimum	Performance Criteria 2: Select tools and equipment for the given task
Evidence Required	Performance Criteria 3: Preform diagnosing of faults in electronic power steering system (EPS)
	Performance Criteria 4: Remove and fit electronic power steering rack
	Performance Criteria 5: Remove and fit Engine controlling unit (ECU)
	Assessment Task 3
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Remove and fit sensors
	Performance Criteria 4: Perform function of sensors.
	Portfolios required at the time of assessment (if any) for
	Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candida Details	ate	Name:								
		COMPETENT ☐ NOT YET COMPETENT ☐								
Assess Outcom		Name of the As	sessor	:			. Asses	sor's c	ode:	
		Signature of the Assessor:						•••••		
		Assessm	ont Su	mmai	ry (to be	filled k	w the s	20000	or)	
	Activ		ent Su	IIIIIai	Method		y tile c	25555	Res	sult
		,								
Nature	of Activity		Written	Oral	Observation	Portfolio	Role Play	Competent		Not Yet Competent
Practica	al Skill Den	nonstration			√		✓			
Knowle	dge Asses	sment	✓	✓						
Other R	Requiremer	nt				✓				
Each A	ssessment	Task (with perfo	rmance	crite	ria)					
Assessment Task 1 Description of assessment task 1: Select appropriate tools and equipment to perform service of wiper motors, wiper arms, washer lines and nozzles.										
During followin		al assessment, c	andidat	e der	nonstrate	ed the	Yes	No	Remarks	
1		ormance Criteria 1: Applied relevant health and ty requirements during completion of task				and				
2		mance Criteria 2: Selected tools and ment for the given task								
3		ormance Criteria 3: Removed and fit wiper ors and wiper arms								
4		ance Criteria 4: Removed and fit washer d washer nozzles								
5	Performar switch	nance Criteria 5: Removed and fit combination								
Compe	tent 🗆				Not Yet	Compe	tent 🛘			

Assessment Task 2		Description of assessment task 2: Select appropriate tools and equipment to repair Electronic Power steering System (EPS) with the help of OBD – II scanner.			
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Preformed diagnosing of faults in electronic power steering system (EPS)				
4	Performance Criteria 4: Removed and fit electronic power steering rack				
5	Performance Criteria 5: Removed and fit Engine controlling unit (ECU)				
Competent ☐ Not Yet Comp			tent 🛚		

		Description of assessment task 3: Select appropriate tools and equipment to diagnose the faults of sensors by using OBD – II scanner.			
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Removed and fit sensors				
4	Performance Criteria 4: Performed function of sensors.				
Compe	etent 🗆	Not Yet Compe	tent \square		

Title of Qualification:	CS Code:	Level: 4	Version:	
Automotive Mechatronics				
Competency Standard Title:	Assessment Date (DD/MM/YY):			
Perpetuate Controlled Electrical & Electronics System-II				

Guidance	To complete your assessment for this Competency Standard, you need to
for	answer the questions on the following pages successfully.
Candidate	

Candidate Details	Name: Candidate Signature:	3
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Perpetuate Controlled Electrical & Electronics System-II	Assessmen	t Date (DD/MI	M/YY):

Question		Candidate's answer
1.	What is the function of wiper in a vehicle?	
2.	What is windscreen washer system?	
3.	Define rain sensor?	
4.	Explain combination switch?	
5.	Explain electric power steering (EPS)?	
6.	What is the function of oxygen sensor?	
7.	What is the position of crank position sensors?	
8.	Explain the function of cam sensor?	

Question	Candidate's answer
9. What is function of throttle position sensors?	

Title of Qualification: Automotive Mechatronics	CS Code: 071400961	Level: 4	Version:
Competency Standard Title: Conserve Power Transmission-II	Assessment Date (DD/MM/YY):		

Candidate Details	Name:							
	Registration/Roll Number:							
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):							
Guidance for Candidate	 Assessment Task 1: Select appropriate tools and equipment to perform and diagnosis of continuous variable transmission (CVT) with the help of OBD – Il scanner. Assessment Task 2: Select appropriate tools and equipment to perform maintenance of continuous variable transmission (CVT). Assessment Task 3: Perform continuous variable transmission (CVT) test by lift up/ road test drive as per instruction. And complete: Knowledge assessment test (Written or Oral) Portfolios at the time of assessment 							
	During a practical assessment, under observation by an assessor, you will							
	complete:							
	Assessment Task 1							
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task							
	Performance Criteria 2: Select tools and equipment for the given task							
	Performance Criteria 3: Identify faults of continuous variable transmission (CVT) with the help of OBD – II scanner							
	Performance Criteria 4: Check function of sensors							
	Performance Criteria 5: Perform replacement of faulty sensors							
	Assessment Task 2							
Minimum Evidence	Performance Criteria 1: Apply relevant health and safety requirements during completion of task							
Required	Performance Criteria 2: Select tools and equipment for the given task							
	Performance Criteria 3: Preform inspection of all continuous variable transmission (CVT) sensors with the help of OBD – II scanner							
	Performance Criteria 4: Check and replacement of continuous variable transmission (CVT) oil							
	Performance Criteria 5: Perform belt replacement of continuous variable transmission (CVT)							
	Performance Criteria 6: Perform and replacement of continuous variable transmission (CVT) oil seal							
	Performance Criteria 7: Check and inspection of primary, secondary & manual valve body performance							
	Performance Criteria 8: Perform replacement of shaft bearings							

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task Performance Criteria 3: Preform lift up/ road test of continuous variable transmission (CVT)

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candida Details	ate	Name: Candidate Signature:						_			
Assessment Outcome COMPETENT Name of the Assessor:					NOT YET COMPETENT Assessor's code:						
		Signature of the Assessor:									
		Assessm	ent Su	mmaı				y the a	assess		
	Activ	rity		ı	M	lethod		ı		Res	sult
Nature of Activity			Written	Oral		Observation	Portfolio	Role Play		Competent	Not Yet Competent
Practica	al Skill Den	nonstration				✓		✓			
Knowle	dge Asses	sment	✓	✓							
Other R	Requiremer	nt					✓				
Each A	ssessment	t Task (with perfo	rmance	e crite	ria	ι)					
Assess	ment Task	1			S di	elect a iagnos	ppropr		ls and ous	equipment ble transmi	to perform and ission (CVT)
During followin		al assessment, c	andida	te der	no	nstrate	ed the	Yes	No	Remarks	
1		nce Criteria 1։ Aր quirements during					and				
2	Performance Criteria 2: Selected tools ar equipment for the given task				an	ıd					
3	Performance Criteria 3: Identified faults of continuous variable transmission (CVT) with the help of OBD – I scanner										
4	Performa	nce Criteria 4: Cl	necked	funct	ion	of ser	nsors				
5	Performal faulty sen	nce Criteria 5: Pe sors	erforme	d rep	lac	ement	of				
Compe	tent 🗆				No	ot Yet	Compe	tent 🗆			

Asses	sment Task 2	Description of assessment task 2 Select appropriate tools and equipment to perform maintenance of continuous variable transmission (CVT).					
During followi	the practical assessment, candidate denge:	monstrated the	Yes	No	Remarks		
1	Performance Criteria 1: Applied releva safety requirements during completion						
2	Performance Criteria 2: Selected tools equipment for the given task	and					
3	Performance Criteria 3: Preformed ins continuous variable transmission (CVT the help of OBD – II scanner						
4	Performance Criteria 4: Checked and continuous variable transmission (CVT	•					
5	Performance Criteria 5: Performed bel of continuous variable transmission (C						
6	Performance Criteria 6: Performed and replacement of continuous variable transmission (CVT) oil seal						
7	Performance Criteria 7: Checked and i primary, secondary & manual valve bo performance						
8	Performance Criteria 8: Performed rep shaft bearings	lacement of					
Comp	etent 🗆	Not Yet Competent □					

Assess	sment Task 3	Description of assessment task 3 Perform continuous variable transmission (CVT) test by lift up/ road test drive as per instruction.					
During the practical assessment, candidate demonstrated the following:				No	Remarks		
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task						
2	Performance Criteria 2: Selected tools and equipment for the given task						
3	Performance Criteria 3: Preformed lift up/ road test of continuous variable transmission (CVT)						
Competent □ Not Ye			tent 🗆				

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Conserve Power Transmission-II	Assessment [Date (DD/MM/YY):

Guidance for Candidate

To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.

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

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessmen	t Date (DD/M	M/YY):
Competency Standard Title: Conserve Power Transmission-II	Assessmen	t Date (DD/M	M/YY):
	Assessmen	t Date (DD/M	M/YY):

Questi	on	Candidate's answer
1.	A continuous variable transmission (CVT) also known as	Shiftless transmission Shift gear transmission
2.	The belt use in continuous variable transmission (CVT) is made up of	1. Rubber belt 2. Steel belt 3. Leather belt 4. None of these
3.	What component in continuous variable transmission (CVT) is used to switch the rotation direction?	Dry pulley Driven pulley Planetary gear assembly Secondary driven gear
4.	Start clutch is located in a place which allow the pulleys and the steel belt to be isolated from the wheels when the start clutch is not engaged?	True/False
5.	The ATF pump in continuous variable transmission (CVT) is driven by	Input shaft Output shaft None of these
6.	The forward clutch engaged and disengaged the	 Ring gear Sun gear Pinion gear None of these
7.	Continuous variable transmission (CVT) contains how many parallel shafts?	1. 1 2. 2 3. 3 4. 4
8.	Which direction does the steel belt turn when driving in forward and reverse?	In reverse the steel belt turns in the opposite direction as in forward.

Question	Candidate's answer						
9. Explain continuous variable transmission (CVT)?	Continuous variable transmission is an automatic transmission that can change seamlessly through a continuous range of effective gear ratios.						
Write down the components name of continuous variable transmission (CVT)?	The components of continuous variable transmission (CVT) are as follows: Steel belt, planetary gear assembly, forward clutch, reverse brake, start clutch, fly wheel, parking mechanism, ATF pump, hydraulic valve unit and Power control unit (PCU).						

Title of Qualification: Automotive Mechatronics	CS Code: 071400960	Level: 4	Version:
Competency Standard Title: Maintain Emission Control System	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 11. Assessment Task 1: Select appropriate tools and equipment to perform operation and diagnose faults of exhaust gases. 12. Assessment Task 2: Select appropriate tools and equipment to perform operation and diagnose faults of Exhaust gas recirculation (EGR) system. 13. Assessment Task 3: Select appropriate tools and equipment to operate and demonstrate re generation process of diesel EFI system by using OBD – II scanner. And complete:
	14. Knowledge assessment test (Written or Oral) 15. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify faults of catalytic converter for chocked and damages
	Performance Criteria 4: Identify and diagnose faults of charcoal canister & purge valve
	Performance Criteria 5: Identify and diagnose faults of positive crankcase & ventilation (PCV) valve
Minimum	Performance Criteria 6: Perform inspection of fuel tank and lid gasket sealing
Evidence Required	Performance Criteria 7: Perform inspection of exhaust gas recirculation (EGR) valve with the help of vacuum gauge
	Performance Criteria 8: Perform inspection and fault diagnose of oxygen sensors with the help of OBD – II scanner
	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Preform inspection of exhaust gas recirculation (EGR) valve with the help of OBD – II scanner
	Performance Criteria 4: Perform service of exhaust gas recirculation (EGR) valve

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Preform inspection of regeneration process in diesel EFI system with the help of OBD – II scanner

Performance Criteria 4: Preform service of regeneration process in diesel EFI system

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details		Name:									
Assess		COMPETENT Name of the Assessor: Signature of the Assessor:				Asses	ssor's c				
	Activ	Assessm	ent Su	mma		(to be Method		by the a	assess		sult
Nature of Activity			Written	Oral		Observation	Portfolio	Role Play	Competent		Not Yet Competent
Practic	al Skill Der	nonstration				✓		✓			
	edge Asses		✓	✓							
	Requireme						✓				
		t Task (with perfo	rmance	e crite	T		4:	·		tools d	
Assess	sment Task	1			5		ppropr	iate too	ls and	task 1 equipment s of exhaus	
During followin		al assessment, c	andida	te de	mo	onstrate	ed the	Yes	No	Remarks	
1		nce Criteria 1: Ap quirements during					and				
2		nce Criteria 2: Se		tools	aı	nd					
3		nce Criteria 3: Ide for chocked and			s c	of cataly	ytic				
4		nce Criteria 4: Ide									
5	Performance Criteria 5: Identified and diagnose										
6	Performance Criteria 6: Performed inspection of fuel tank and lid gasket sealing										
Performance Criteria 7: Performed inspection of exhaust gas recirculation (EGR) valve with the help of vacuum gauge											
8		nce Criteria 8: Pe nose of oxygen s scanner									
Competent ☐ Not Yet Competent ☐											

Assessment Task 2		Description of assessment task 2				
		Select appropriate tools and equipment to perform operation and diagnose faults of Exhaust gas recirculation (EGR) system.				
During the practical assessment, candidate demor following:		monstrated the	Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task					
2	Performance Criteria 2: Selected tools and equipment for the given task					
3	Performance Criteria 3: Preformed inspection of exhaust gas recirculation (EGR) valve with the help of OBD – II scanner					
4	Performance Criteria 4: Performed service of exhaust gas recirculation (EGR) valve					
Compe	etent	Not Yet Compe	tent 🗆			

Assess	sment Task 3		iate tod gener	ols and ation pr	task 3 equipment to operate and occess of diesel EFI system
During the practical assessment, candidate demonst following:		monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Preformed inspection of regeneration process in diesel EFI system with the help of OBD – II scanner				
4	Performance Criteria 4: Preformed service of regeneration process in diesel EFI system				
Competent □ Not Y		Not Yet Compe	tent \square		

Title of Qualification:	CS Code:	Level: 4	Version:		
Automotive Mechatronics					
Competency Standard Title:	Assessment Date (DD/MM/YY):				
Maintain Emission Control System					

Guidance for Candidate

To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.

Candidate Details	Name: Candidate Signature:	3
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Maintain Emission Control System	Assessment Date (DD/MM/YY):		

Question		Candidate's answer
1.	What is emission control system?	
2.	What are the main components of emission control system?	
3.	What is the function of catalytic converter?	
4.	What is the function of Exhaust gases recirculation (EGR) valve?	
5.	What is AD Blue?	
6.	What is diesel particulate filter (DPF)?	

Title of Qualification: Automotive Mechatronics	CS Code: 071400959	Level: 4	Version:	
Competency Standard Title: Maintain Fuel Control System-II	Assessment Date (DD/MM/YY):			

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 16. Assessment Task 1: Select appropriate tools and equipment to perform maintenance of gasoline direct injection (GDI). 17. Assessment Task 2: Select appropriate tools and equipment to perform maintenance of common rail direct injection (CRDI). 18. Assessment Task 3: Select appropriate tools and equipment to perform maintenance of eco-idle system.
	And complete: 19. Knowledge assessment test (Written or Oral) 20. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Check the engine parameters with the help of OBD – II scanner
Minimum Evidence	Performance Criteria 4: Perform test low and high pressure pump control circuit
Required	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Check low pump pressure test by using pressure gauge
	Performance Criteria 4: Check high pump pressure test by using pressure gauge
	Performance Criteria 5: Check pressure control valve

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Check all parameters (Battery, Temperature, starter motor, coolant, etc.)

Performance Criteria 4: Check function of eco-idle system

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details	ate	Name:								
Assess Outcom		COMPETENT NOT YET COMPETENT Name of the Assessor: Assessor's code: Signature of the Assessor: Assessor: NOT YET COMPETENT NOT YET COMP								
	Assessment Summary (to be filled by the assessor)									
Activity Method Result							sult			
Nature of Activity			Written	Oral	Observation	Portfolio	Role Play	Sompetent		Not Yet Sompetent
Practica	al Skill Der	nonstration			√		✓			
Knowle	dge Asses	sment	✓	✓						
Other F	Requireme	nt				✓				
Each A	ssessmen	t Task (with perfo	ormanc	e crite	ria)					
Assessment Task 1 Description of Select appropriate maintenance of				iate toc	ls and	equipment				
During the practical assessment, candidate demonstrated the following:				Yes	No	Remarks				
1	Performance Criteria 1: Applied relevant safety requirements during completion of				and					
2	Performance Criteria 2: Selected tools a equipment for the given task			and						
Performance Criteria 3: Checked the engine parameters with the help of OBD – II scanner										
4		nce Criteria 4: Popump control cire		ed test	low and	l high				
Compe	tent 🗆				Not Yet	Compe	etent \square			

Assess	sment Task 2	Description of assessment task 2				
		Select appropriate tools and equipment to perform maintenance of common rail direct injection (CRDI).				
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task					
2	Performance Criteria 2: Selected tools and equipment for the given task					
3	Performance Criteria 3: Checked low pump pressure test by using pressure gauge					
4	Performance Criteria 4: Checked high pump pressure test by using pressure gauge					
5	Performance Criteria 5: Checked pressure control valve					
Compe	Competent □		tent \square			

Assess	sment Task 3	Select appropr	ription of assessment task 3 et appropriate tools and equipment to perform enance of eco-idle system.			
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task					
2	Performance Criteria 2: Selected tools and equipment for the given task					
3	Performance Criteria 3: Checked all parameters (Battery, Temperature, starter motor, coolant, etc.)					
4	Performance Criteria 4: Checked function of eco-idle system					
Competent □ Not		Not Yet Compe	tent 🗆			

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Maintain Fuel Control System-II	Assessment D	Date (DD/MM/YY):

Guidance for Candidate

To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.

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

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessmen	t Date (DD/MI	M/YY):
Competency Standard Title: Maintain Fuel Control System – II	Assessmen	t Date (DD/MI	M/YY):
•	Assessmen	t Date (DD/MI	M/YY):

Question		Candidate's answer
7.	What is gasoline direct injection (GDI)?	The Gasoline is highly pressurized, and injected directly into the combustion chamber of each cylinder via common rail fuel line as oppose to conventional multipoint fuel injection that injects fuel into the intake cylinder port.
8.	What is CRDI stands for?	CRDI stands for common rail direct injection.
9.	How common rail direct injection (CRDI) works?	CRDI directly inject fuel into the cylinders of a diesel engine through a single common line known as the common rail.
10.	What is the difference between CRDI and TDI engine?	TDI is the turbo diesel engine while the CRDI is common rail direct injection engine.
11.	What is echo-idle system?	An echo-idle system is starts stop system in automobiles.
12.	What is the working of pressure control valve?	Pressure control valve is a relieve valve or safety valve used to control or limit the pressure in the system.

Title of Qualification: Automotive Mechatronics	CS Code: 071400964	Level: 4	Version:
Competency Standard Title: Maintain Network System	Assessment D	Oate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance	21. Assessment Task 1: Select appropriate tools and equipment to check the operation of navigation system.22. Assessment Task 2: Select appropriate tools and equipment to perform
for Candidate	maintenance of control area network (CAN) system. 23. Assessment Task 3: Select appropriate tools and equipment to
	demonstrate the electric parking system.
	And complete:
	24. Knowledge assessment test (Written or Oral) 25. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify the location of navigation device & antenna
Minimum	Performance Criteria 4: Perform removal and fitting of LCD from dashboard.
Evidence	Performance Criteria 5: Check function of navigation card
Required	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify the location of control area network (CAN) connector.
	Performance Criteria 4: Remove and refit of control area network (CAN) connector.

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Identify the location and function of ABS modulator

Performance Criteria 4: Identify the location and function of electric parking brake motors

Performance Criteria 5: Perform function of OBD – II scanner to release the electric parking brake motors

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candidate Details		Name:								
Assessment Outcome		COMPETENT Name of the Assessor: Signature of the Assessor:					Asses	ssor's co		
		Assessme	ont Su		ny (to bo	filled b				
	Activi		ent Sui	IIIIIai	Method		y uie a	122622	Res	sult
Nature of Act		.,	Written	Oral	Observation	Portfolio	Role Play		Competent	Not Yet Competent
Practical Skil	II Dem	nonstration			√		<u> </u>			
Knowledge A	Asses	sment	✓	✓						_
Other Requir	remen	ıt				✓				
Each Assess	sment	Task (with perfo	ormance	e crite	ria)					
Assessment	Task	1			Description Select a operation	appropri	iate too	ols and	equipment	to check the
During the profollowing:	ractica	al assessment, c	andida	te den	nonstrate	ed the	Yes	No	Remarks	
		nce Criteria 1: Ap juirements during				and				
	Performance Criteria 2: Selected tools equipment for the given task				and					
Performance Criteria 3: Identified the le navigation device & antenna				the lo	cation of	 f				
/	Performance Criteria 4: Performed ren fitting of LCD from dashboard.				oval and	i				
5	Performance Criteria 5: Checked function of navigation card									
Competent [Not Yet	Compe	tent 🗆			

Assessment Task 2		Description of assessment task 2 Select appropriate tools and equipment to perform maintenance of control area network (CAN) system.			equipment to perform
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Identified the location of control area network (CAN) connector.				
4	Performance Criteria 4: Removed and refit of control area network (CAN) connector.				
Compe	etent 🗆	Not Yet Compe	tent 🛘		

Assess	sment Task 3	Description of assessment task 3 Select appropriate tools and equipment to demonstrate the electric parking system.			
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Identified the location and function of ABS modulator				
4	Performance Criteria 4: Identified the location and function of electric parking brake motors				
Performance Criteria 5: Performed function of OBD – Il scanner to release the electric parking brake motors					
Compe	etent	Not Yet Compe	tent 🗆		

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title: Maintain Network System	Assessment D	Date (DD/MM/YY):

Guidance for Candidate

To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.

Candidate Details	Name: Candidate Signature:	3
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessmen	t Date (DD/MI	M/YY):
Competency Standard Title: Maintain Network System	Assessmen	t Date (DD/MI	M/YY):
	Assessmen	t Date (DD/MI	M/YY):

Question	Candidate's answer
11. Define navigation system?	Navigation system is a system that aids in navigation.
12. Types of navigation system?	5. Automotive navigation system 6. Marine navigation system 7. Satellite navigation system 8. Surgical navigation system 9. Inertial guidance system 10. Robotic mapping
13. What is the best navigation system?	Global positioning system (GPS) is the best navigation system.
14. Explain control area network (CAN)?	Control area network (CAN) is a robust vehicle bus standard design to allow microcontroller and devices to communicate with each other in application without a host computer.
15. Explain the application of control area network (CAN)?	 Passenger vehicles Trucks Buses Gasoline vehicle Electrical vehicles Elevators Escalators Medical instruments & equipments
16. What is hill assist system?	Hill assist system control the car when you have stopped on an incline and want to start moving again.
17. What is ABS modulator?	ABS modulator is a device which electronically control ABS brakes from brake locking up status.

Title of Qualification: Automotive Mechatronics	CS Code: 071400962	Level: 4	Version:		
Competency Standard Title: Service Comfort & Safety System-II	Assessment Date (DD/MM/YY):				

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 26. Assessment Task 1: Select appropriate tools and equipment to perform operation and diagnose cruise control system by using OBD – II Scanner. 27. Assessment Task 2: Select appropriate tools and equipment to demonstrate and diagnose supplementary Restraint System (SRS) by using OBD – II Scanner.
	And complete:
	28. Knowledge assessment test (Written or Oral) 29. 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: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Understand and working principal of cruise control system.
	Performance Criteria 4: Identify the faults in cruise control system with the help of OBD – II scanner
Minimum Evidence	
Required	Assessment Task 2 Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Install supplementary Restraint System (SRS)
	Performance Criteria 4: Install seat belts assembly
	Performance Criteria 5: Install Air bag module assembly
	Portfolios required at the time of assessment (if any) for
	Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details	ate	Name:									
		COMPETENT				NOT YET COMPETENT □					
Assess Outcom		Name of the Assessor:									
Assessment Summary (to be filled by the assessor)											
	Activ	ity			Method			1	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)											
Assess	ment Task	1			C	Descrip	tion of	fasses	sment	t task 1	
Select appropria					riate tools and equipment to perform diagnose cruise control system by using ner						
During the practical assessment, candidate demonstrated the following:					Yes	No	Remarks				
1	Performance criteria 1: Applied relevant health and safety requirements during completion of task										
2	Performance criteria 2: Selected tools and equipment for the given task										
3		formance criteria 3: Installed supplementary straint System (SRS)									
4		ance Criteria 4: Identified the faults in cruise ystem with the help of OBD – II scanner									
Competent □ N			Not Yet Competent □								

Asses	sment Task 2		riate to	ols and nentary	task 2 equipment to demonstrate Restraint System (SRS)
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 4: Installed seat	belts assembly			
4	Performance Criteria 4: Installed seat belts assembly				
5	Performance Criteria 5: Installed Air bag module assembly				
Comp	etent	Not Yet Compe	tent 🗆		

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessment D	Date (DD/MM/YY) :
Service Comfort & Safety System-II			

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

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Service Comfort & Safety System-II	Assessmen	t Date (DD/MI	W/YY):

Question	Candidate's answer
18. All cruise control system being turned off when the driver	
 If supplementary restraint system (SRS) light is eliminated on your dashboard this safety feature in your vehicle has been active 	
20. What is the purpose of the air bag installed in the motor vehicle/	
21. Write down the component of supplementary restraint system (SRS) system?	
22. What is cruise control system?	
23. Explain the mechanism of cruise control system?	
24. What is the mean of supplementary restraint system (SRS) system?	

Title of Qualification: Automotive Mechatronics	CS Code: 071400963	Level: 4	Version:
Competency Standard Title: Perpetuate Controlled Electrical & Electronics System-II	Assessment D	Pate (DD/MM/YY	r):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 30. Assessment Task 1: Select appropriate tools and equipment to perform service of wiper motors, wiper arms, washer lines and nozzles. 31. Assessment Task 2: Select appropriate tools and equipment to repair Electronic Power steering System (EPS) with the help of OBD – II scanner. 32. Assessment Task 3: Select appropriate tools and equipment to diagnose the faults of sensors by using OBD – II scanner.
	And complete:
	33. Knowledge assessment test (Written or Oral) 34. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Remove and fit wiper motors and wiper arms
Minimum	Performance Criteria 4: Remove and fit washer lines and washer nozzles
Evidence	Performance Criteria 5: Remove and fit combination switch
Required	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Preform diagnosing of faults in electronic power steering system (EPS)
	Performance Criteria 4: Remove and fit electronic power steering rack
	Performance Criteria 5: Remove and fit Engine controlling unit (ECU)

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Remove and fit sensors

Performance Criteria 4: Perform function of sensors.

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details	ate	Name: Candidate Signature:						-			
Assess Outcom		COMPETENT Name of the Assessor: Signature of the Assessor:						. Asses	sor's c		
		Assessm	ent Su	mma	rv	(to be	filled b	ov the a	assess	or)	
	Activ		<u> </u>			/lethod		<i>y</i>		Res	sult
Nature	of Activity		Written	Oral		Observation	Portfolio	Role Play		Competent	Not Yet Competent
Practica	al Skill Den	nonstration				√	_	✓			
Knowle	dge Asses	sment	✓	✓							
Other F	Requiremer	nt					✓				
Each A	ssessment	Task (with perfo	rmance	e crite	eria	a)					
Assessment Task 1 Description of assessment task 1: Select appropriat tools and equipment to perform service of wiper motors wiper arms, washer lines and nozzles.											
During followin		al assessment, c	andida	te de	mo	nstrate	ed the	Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				and						
2	Performance Criteria 2: Selected tools an equipment for the given task				nd						
3	Performance Criteria 3: Removed and motors and wiper arms			fit	wiper						
4	Performance Criteria 4: Removed and lines and washer nozzles			fit	washe	r					
5	Performance Criteria 5: Removed and fit switch				fit	combir	nation				
Compe	tent 🗆				N	ot Yet (Compe	tent 🗖			

Asses	ssment Task 2	tools and equip	oment t	o repai	task 2: Select appropriate r Electronic Power steering of OBD – II scanner.
During the practical assessment, candidate den following:		monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Preformed diagnosing of faults in electronic power steering system (EPS)				
4	Performance Criteria 4: Removed and fit electronic power steering rack				
5	5 Performance Criteria 5: Removed and fit Engine controlling unit (ECU)				
Comp	etent 🗆	Not Yet Compe	tent 🗆		

		Description of assessment task 3: Select appropriate tools and equipment to diagnose the faults of sensors by using OBD – II scanner.			
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Removed and fit sensors				
4	Performance Criteria 4: Performed function of sensors.				
Competent □ Not Yet		Not Yet Compe	tent 🛘		

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessment D	ate (DD/MM/YY):
Perpetuate Controlled Electrical & Electronics System-II			

Guidance	To complete your assessment for this Competency Standard, you need to
for	answer the questions on the following pages successfully.
Candidate	

Candidate Details	Name: Candidate Signature:	3
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Perpetuate Controlled Electrical & Electronics System-II	Assessmen	t Date (DD/MI	M/YY):

Question	Candidate's answer
10. What is the function of wiper in a vehicle?	
11. What is windscreen washer system?	
12. Define rain sensor?	
13. Explain combination switch?	
14. Explain electric power steering (EPS)?	
15. What is the function of oxygen sensor?	
16. What is the position of crank position sensors?	
17. Explain the function of cam sensor?	

Question	Candidate's answer
18. What is function of throttle position sensors?	

Title of Qualification: Automotive Mechatronics	CS Code: 071400961	Level: 4	Version:
Competency Standard Title: Conserve Power Transmission-II	Assessment D	Date (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 35. Assessment Task 1: Select appropriate tools and equipment to perform and diagnosis of continuous variable transmission (CVT) with the help of OBD – II scanner. 36. Assessment Task 2: Select appropriate tools and equipment to perform maintenance of continuous variable transmission (CVT). 37. Assessment Task 3: Perform continuous variable transmission (CVT) test by lift up/ road test drive as per instruction. And complete:
	38. Knowledge assessment test (Written or Oral) 39. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify faults of continuous variable transmission (CVT) with the help of OBD – II scanner
	Performance Criteria 4: Check function of sensors
	Performance Criteria 5: Perform replacement of faulty sensors
	Assessment Task 2
Minimum Evidence	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
Required	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Preform inspection of all continuous variable transmission (CVT) sensors with the help of OBD – II scanner
	Performance Criteria 4: Check and replacement of continuous variable transmission (CVT) oil
	Performance Criteria 5: Perform belt replacement of continuous variable transmission (CVT)
	Performance Criteria 6: Perform and replacement of continuous variable transmission (CVT) oil seal
	Performance Criteria 7: Check and inspection of primary, secondary & manual valve body performance
	Performance Criteria 8: Perform replacement of shaft bearings

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task Performance Criteria 3: Preform lift up/ road test of continuous variable transmission (CVT)

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details	ate	Name: Candidate Sign					_			
Assess Outcon		COMPETENT Name of the Assessor: Signature of the Assessor:					. Asses	ssor's c		
						···· · · ·	41		,	
	Activ	Assessm	ent Su	mmar	y (to be Method		by the a	assess		l4
Nature	Activolate Activity	'ity	Written	Oral	Observation	Portfolio	Role Play	Competent Not Yet Competent		
Practic	al Skill Der	nonstration			✓		√			
Knowle	edge Asses	sment	✓	✓						
Other F	Requireme	nt				✓				
Each A	ssessmen	t Task (with perfo	rmance	e crite	ria)					
Assess	ment Task	: 1				appropr sis of co	iate toc intinuo	ols and ous varia	equipment ble transmi	to perform and ssion (CVT)
During followin		al assessment, o	andida	te den	nonstrate	ed the	Yes	No	Remarks	
1		nce Criteria 1։ Aր quirements during				and				
2		nce Criteria 2: Sent for the given ta		tools	and					
3		nce Criteria 3: Id ransmission (CV								
4	Performa	nce Criteria 4: Cl	necked	functi	on of se	nsors				
5	Performa faulty sen	nce Criteria 5: Pe sors	erforme	d repl	acemen	t of				
Compe	etent 🗆			T	Not Yet	Compe	tent 🗖			

Assess	sment Task 2	Description of assessment task 2 Select appropriate tools and equipment to perform maintenance of continuous variable transmission (CVT).			
During followir	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied releva safety requirements during completion				
2	Performance Criteria 2: Selected tools equipment for the given task	and			
3	Performance Criteria 3: Preformed ins continuous variable transmission (CVT the help of OBD – II scanner				
4	Performance Criteria 4: Checked and continuous variable transmission (CVT				
5	Performance Criteria 5: Performed bel of continuous variable transmission (C				
6	Performance Criteria 6: Performed and of continuous variable transmission (C				
7	Performance Criteria 7: Checked and i primary, secondary & manual valve bo performance				
8	Performance Criteria 8: Performed rep shaft bearings	lacement of			
Compe	etent 🗆	Not Yet Compe	tent 🗖		

Assess	sment Task 3	Description of assessment task 3 Perform continuous variable transmission (CVT) test b lift up/ road test drive as per instruction.			
During followir	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied releva safety requirements during completion				
2	Performance Criteria 2: Selected tools equipment for the given task	and			
3	Performance Criteria 3: Preformed lift continuous variable transmission (CVT				
Compe	etent 🗆	Not Yet Compe	tent 🗆		

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Conserve Power Transmission-II	Assessment [Date (DD/MM/YY):

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

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
	Assessment Date (DD/MM/YY):		
Competency Standard Title:	Assessmen	t Date (DD/M	M/YY):
Competency Standard Title: Conserve Power Transmission-II	Assessmen	t Date (DD/M	M/YY):
	Assessmen	t Date (DD/M	M/YY):

Question	Candidate's answer
25. A continuous variable transmission (CVT) also known as	3. Shiftless transmission4. Shift gear transmission
26. The belt use in continuous variable transmission (CVT) is made up of	11. Rubber belt 12. Steel belt 13. Leather belt 14. None of these
27. What component in continuous variable transmission (CVT) is used to switch the rotation direction?	5. Dry pulley6. Driven pulley7. Planetary gear assembly8. Secondary driven gear
28. Start clutch is located in a place which allow the pulleys and the steel belt to be isolated from the wheels when the start clutch is not engaged?	True/False
29. The ATF pump in continuous variable transmission (CVT) is driven by	4. Input shaft5. Output shaft6. None of these
30. The forward clutch engaged and disengaged the	5. Ring gear6. Sun gear7. Pinion gear8. None of these
31. Continuous variable transmission (CVT) contains how many parallel shafts?	5. 1 6. 2 7. 3 8. 4
32. Which direction does the steel belt turn when driving in forward and reverse?	In reverse the steel belt turns in the opposite direction as in forward.

Question	Candidate's answer
33. Explain continuous variable transmission (CVT)?	Continuous variable transmission is an automatic transmission that can change seamlessly through a continuous range of effective gear ratios.
34. Write down the components name of continuous variable transmission (CVT)?	The components of continuous variable transmission (CVT) are as follows: Steel belt, planetary gear assembly, forward clutch, reverse brake, start clutch, fly wheel, parking mechanism, ATF pump, hydraulic valve unit and Power control unit (PCU).

Title of Qualification: Automotive Mechatronics	CS Code: 071400960	Level: 4	Version:	
Competency Standard Title: Maintain Emission Control System	Assessment Date (DD/MM/YY):			

Candidate Details	Name:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment): 40. Assessment Task 1: Select appropriate tools and equipment to perform
Guidance for Candidate	operation and diagnose faults of exhaust gases. 41. Assessment Task 2: Select appropriate tools and equipment to perform operation and diagnose faults of Exhaust gas recirculation (EGR) system. 42. Assessment Task 3: Select appropriate tools and equipment to operate and demonstrate re generation process of diesel EFI system by using OBD – II scanner.
	And complete:
	43. Knowledge assessment test (Written or Oral) 44. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify faults of catalytic converter for chocked and damages
	Performance Criteria 4: Identify and diagnose faults of charcoal canister & purge valve
	Performance Criteria 5: Identify and diagnose faults of positive crankcase & ventilation (PCV) valve
Minimum	Performance Criteria 6: Perform inspection of fuel tank and lid gasket sealing
Evidence Required	Performance Criteria 7: Perform inspection of exhaust gas recirculation (EGR) valve with the help of vacuum gauge
	Performance Criteria 8: Perform inspection and fault diagnose of oxygen sensors with the help of OBD – II scanner
	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Preform inspection of exhaust gas recirculation (EGR) valve with the help of OBD – II scanner
	Performance Criteria 4: Perform service of exhaust gas recirculation (EGR) valve

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Preform inspection of regeneration process in diesel EFI system with the help of OBD – II scanner

Performance Criteria 4: Preform service of regeneration process in diesel EFI system

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details		Name:									
Assess		COMPETENT Name of the Assessor: Signature of the Assessor:						Asses	ssor's c		
	Activ	Assessm	ent Su	mma		(to be Method		by the a	assess		sult
Nature	of Activity		Written	Oral		Observation	Portfolio	Role Play		Competent	Not Yet Competent
Practic	al Skill Der	nonstration				✓		✓			
	edge Asses		✓	✓							
	Requireme						✓				
		t Task (with perfo	rmance	e crite	T		4:	·		tools d	
Assess	sment Task	1			5		ppropr	iate too	ls and	task 1 equipment s of exhaus	
During followin		al assessment, c	andida	te de	mo	onstrate	ed the	Yes	No	Remarks	
1		nce Criteria 1: Ap quirements during					and				
2		nce Criteria 2: Se		tools	aı	nd					
3		nce Criteria 3: Ide for chocked and			s c	of cataly	ytic				
4	Performance Criteria 4: Identified and diagnose										
5	Performance Criteria 5: Identified and diagnose										
6	Performance Criteria 6: Performed inspection of fuel tank and lid gasket sealing					f fuel					
Performance Criteria 7: Performed inspection of exhaust gas recirculation (EGR) valve with the help of vacuum gauge											
8		nce Criteria 8: Pe nose of oxygen s scanner									
Compe	Competent □ Not Yet Competent □										

Assessment Task 2		Description of	Description of assessment task 2				
		Select appropriate tools and equipment to perform operation and diagnose faults of Exhaust gas recirculation (EGR) system.					
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks		
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task						
2	Performance Criteria 2: Selected tools and equipment for the given task						
Performance Criteria 3: Preformed inspection of exhaust gas recirculation (EGR) valve with the help of OBD – II scanner							
4	Performance Criteria 4: Performed service of exhaust gas recirculation (EGR) valve						
Compe	etent	Not Yet Compe	tent 🗆				

Assess	sment Task 3	Description of assessment task 3 Select appropriate tools and equipment to operate and demonstrate re generation process of diesel EFI system by using OBD – II scanner.			
During the practical assessment, candidate demonstrated following:		monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Preformed inspection of regeneration process in diesel EFI system with the help of OBD – II scanner				
4	Performance Criteria 4: Preformed service of regeneration process in diesel EFI system				
Competent ☐ Not Yet Comp		Not Yet Compe	tent \square		

Title of Qualification:	CS Code:	Level: 4	Version:		
Automotive Mechatronics					
Competency Standard Title:	Assessment Date (DD/MM/YY):				
Maintain Emission Control System					

Candidate Details	Name: Candidate Signature:	3
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Maintain Emission Control System	Assessment Date (DD/MM/YY):		

Question	Candidate's answer
13. What is emission control system?	
14. What are the main components of emission control system?	
15. What is the function of catalytic converter?	
16. What is the function of Exhaust gases recirculation (EGR) valve?	
17. What is AD Blue?	
18. What is diesel particulate filter (DPF)?	

Title of Qualification: Automotive Mechatronics	CS Code: 071400959	Level: 4	Version:	
Competency Standard Title: Maintain Fuel Control System-II	Assessment Date (DD/MM/YY):			

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for	 45. Assessment Task 1: Select appropriate tools and equipment to perform maintenance of gasoline direct injection (GDI). 46. Assessment Task 2: Select appropriate tools and equipment to perform maintenance of common rail direct injection (CRDI). 47. Assessment Task 3: Select appropriate tools and equipment to perform
Candidate	maintenance of eco-idle system.
	And complete:
	48. Knowledge assessment test (Written or Oral) 49. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Check the engine parameters with the help of OBD – II scanner
Minimum Evidence	Performance Criteria 4: Perform test low and high pressure pump control circuit
Required	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Check low pump pressure test by using pressure gauge
	Performance Criteria 4: Check high pump pressure test by using pressure gauge
	Performance Criteria 5: Check pressure control valve

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Check all parameters (Battery, Temperature, starter motor, coolant, etc.)

Performance Criteria 4: Check function of eco-idle system

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details	ate	Name:								
Assess Outcom		COMPETENT Name of the Assessor: Signature of the Assessor:					Asses	sor's c		
		Assessm	ent Su	mmar	rv (to be	filled b	ov the a	assess	or)	
	Activ			a	Method		<i>y</i>			sult
Nature of Activity		Written	Oral	Observation	Portfolio	Role Play	Competent		Not Yet Sompetent	
Practica	al Skill Der	nonstration			√		✓			
Knowle	dge Asses	sment	✓	✓						
Other F	Requireme	nt				✓				
Each A	ssessmen	t Task (with perfo	ormanc	e crite	ria)					
Assess	ment Task	: 1				appropr	iate toc	ls and		to perform (GDI).
During the practical assessment, candidate demonstrated the following:					Yes	No	Remarks			
Performance Criteria 1: Applied relevant hea safety requirements during completion of tas					and					
Performance Criteria 2: Selected tools and equipment for the given task										
Performance Criteria 3: Checked the engine parameters with the help of OBD – II scanner										
4		nce Criteria 4: Popump control cire		ed test	low and	l high				
Compe	tent 🗆				Not Yet	Compe	etent \square			

Assessment Task 2		Description of assessment task 2				
	Select appropriate tools and equipment to perform maintenance of common rail direct injection (CRD					
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks	
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task					
2	Performance Criteria 2: Selected tools and equipment for the given task					
3	Performance Criteria 3: Checked low pump pressure test by using pressure gauge					
4	Performance Criteria 4: Checked high pump pressure test by using pressure gauge					
5	Performance Criteria 5: Checked pressure control valve					
Compe	etent 🗆	Not Yet Compe	tent 🗆			

Assess	sment Task 3	Select appropr	scription of assessment task 3 ect appropriate tools and equipment to perform intenance of eco-idle system.		
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Checked all parameters (Battery, Temperature, starter motor, coolant, etc.)				
Performance Criteria 4: Checked function of eco-idle system					
Compe	etent	Not Yet Compe	tent 🗆		

Title of Qualification: Automotive Mechatronics	CS Code:	Level: 4	Version:
Competency Standard Title: Maintain Fuel Control System-II	Assessment D	Date (DD/MM/YY):

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

Title of Qualification:	CS Code:	Level: 4	Version:			
Automotive Mechatronics						
		Assessment Date (DD/MM/YY):				
Competency Standard Title:	Assessmen	t Date (DD/M	M/YY):			
Competency Standard Title: Maintain Fuel Control System – II	Assessmen	t Date (DD/M	M/YY):			
	Assessmen	t Date (DD/M	M/YY):			

Question	Candidate's answer
19. What is gasoline direct injection (GDI)?	The Gasoline is highly pressurized, and injected directly into the combustion chamber of each cylinder via common rail fuel line as oppose to conventional multipoint fuel injection that injects fuel into the intake cylinder port.
20. What is CRDI stands for?	CRDI stands for common rail direct injection.
21. How common rail direct injection (CRDI) works?	CRDI directly inject fuel into the cylinders of a diesel engine through a single common line known as the common rail.
22. What is the difference between CRDI and TDI engine?	TDI is the turbo diesel engine while the CRDI is common rail direct injection engine.
23. What is echo-idle system?	An echo-idle system is starts stop system in automobiles.
24. What is the working of pressure control valve?	Pressure control valve is a relieve valve or safety valve used to control or limit the pressure in the system.

Title of Qualification: Automotive Mechatronics	CS Code: 071400964	Level: 4	Version:
Competency Standard Title: Maintain Network System	Assessment D	Pate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 50. Assessment Task 1: Select appropriate tools and equipment to check the operation of navigation system. 51. Assessment Task 2: Select appropriate tools and equipment to perform maintenance of control area network (CAN) system. 52. Assessment Task 3: Select appropriate tools and equipment to demonstrate the electric parking system.
	And complete:
	53. Knowledge assessment test (Written or Oral) 54. Portfolios at the time of assessment
	During a practical assessment, under observation by an assessor, you will complete:
	Assessment Task 1
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify the location of navigation device & antenna
Minimum	Performance Criteria 4: Perform removal and fitting of LCD from dashboard.
Evidence	Performance Criteria 5: Check function of navigation card
Required	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Identify the location of control area network (CAN) connector.
	Performance Criteria 4: Remove and refit of control area network (CAN) connector.

Assessment Task 3

Performance Criteria 1: Apply relevant health and safety requirements during completion of task

Performance Criteria 2: Select tools and equipment for the given task

Performance Criteria 3: Identify the location and function of ABS modulator

Performance Criteria 4: Identify the location and function of electric parking brake motors

Performance Criteria 5: Perform function of OBD – II scanner to release the electric parking brake motors

Portfolios required at the time of assessment (if any) for

Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candidate Details					Registration/Roll Number:						
Assessment Outcome		Signature of the	ssessor: e				NOT YET COMPETENT Assessor's code:				
		Assessme	ont Su		ny (to bo	filled b					
	Activi		ent Sui	IIIIIai	Method		y uie a	122622	Res	sult	
Nature of Activity		.,	Written	Oral	Observation	Portfolio	Role Play	Competent		Not Yet Competent	
Practical Skil	II Dem	nonstration			√		<u> </u>				
Knowledge A	Asses	sment	✓	✓						_	
Other Requir	remen	ıt				✓					
Each Assess	sment	Task (with perfo	ormance	e crite	ria)						
Assessment	Task	1			Description Select a operation	appropri	iate too	ols and	equipment	to check the	
During the profollowing:	ractica	al assessment, c	andida	te den	nonstrate	ed the	Yes	No	Remarks		
		nce Criteria 1: Ap juirements during				and					
	Performance Criteria 2: Selected tools equipment for the given task				and						
-3	Performance Criteria 3: Identified the la navigation device & antenna				cation of	 f					
/	Performance Criteria 4: Performed ren fitting of LCD from dashboard.				oval and	i					
5	formar igation	nce Criteria 5: Ch n card	necked	functi	on of						
Competent [Not Yet	Compe	tent 🗆				

Assess	sment Task 2	Select appropr	Description of assessment task 2 Select appropriate tools and equipment to perform maintenance of control area network (CAN) system.				
During the practical assessment, candidate demonstrated the following:			Yes	No	Remarks		
1	Performance Criteria 1: Applied relevant health and safety requirements during completion of task						
2	Performance Criteria 2: Selected tools and equipment for the given task						
3	Performance Criteria 3: Identified the location of control area network (CAN) connector.						
Performance Criteria 4: Removed and refit of control area network (CAN) connector.							
Compe	etent 🗆	Not Yet Compe	tent 🛘				

Assess	sment Task 3	Description of assessment task 3 Select appropriate tools and equipment to demons the electric parking system.			
During followir	the practical assessment, candidate deng:	monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied releva safety requirements during completion				
2	Performance Criteria 2: Selected tools and equipment for the given task				
3	Performance Criteria 3: Identified the I function of ABS modulator	ocation and			
4	Performance Criteria 4: Identified the I function of electric parking brake moto				
5	Performance Criteria 5: Performed function of OBD – II scanner to release the electric parking brake motors				
Compe	etent	Not Yet Compe	tent 🗆		

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title: Maintain Network System	Assessment D	Date (DD/MM/YY):

Candidate Details	Name: Candidate Signature:	3
Written Assessment Outcome	COMPETENT Name of the Assessor: Signature of the Assessor:	NOT YET COMPETENT Assessor's code:

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
	Assessment Date (DD/MM/YY):		
Competency Standard Title:	Assessmen	t Date (DD/MI	M/YY):
Competency Standard Title: Maintain Network System	Assessmen	t Date (DD/MI	M/YY):
	Assessmen	t Date (DD/MI	M/YY):

Question	Candidate's answer
35. Define navigation system?	Navigation system is a system that aids in navigation.
36. Types of navigation system?	15. Automotive navigation system 16. Marine navigation system 17. Satellite navigation system 18. Surgical navigation system 19. Inertial guidance system 20. Robotic mapping
37. What is the best navigation system?	Global positioning system (GPS) is the best navigation system.
38. Explain control area network (CAN)?	Control area network (CAN) is a robust vehicle bus standard design to allow microcontroller and devices to communicate with each other in application without a host computer.
39. Explain the application of control area network (CAN)?	9. Passenger vehicles 10. Trucks 11. Buses 12. Gasoline vehicle 13. Electrical vehicles 14. Elevators 15. Escalators 16. Medical instruments & equipments
40. What is hill assist system?	Hill assist system control the car when you have stopped on an incline and want to start moving again.
41. What is ABS modulator?	ABS modulator is a device which electronically control ABS brakes from brake locking up status.

Title of Qualification: Automotive Mechatronics	CS Code: 071400962	Level: 4	Version:
Competency Standard Title: Service Comfort & Safety System-II	Assessment D	Oate (DD/MM/YY):

Candidate Details	Name:
	Registration/Roll Number:
	To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):
Guidance for Candidate	 55. Assessment Task 1: Select appropriate tools and equipment to perform operation and diagnose cruise control system by using OBD – II Scanner. 56. Assessment Task 2: Select appropriate tools and equipment to demonstrate and diagnose supplementary Restraint System (SRS) by using OBD – II Scanner.
	And complete:
	57. Knowledge assessment test (Written or Oral)58. 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: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Understand and working principal of cruise control system.
	Performance Criteria 4: Identify the faults in cruise control system with the help of OBD – II scanner
Minimum Evidence	
Required	Assessment Task 2
	Performance Criteria 1: Apply relevant health and safety requirements during completion of task
	Performance Criteria 2: Select tools and equipment for the given task
	Performance Criteria 3: Install supplementary Restraint System (SRS)
	Performance Criteria 4: Install seat belts assembly
	Performance Criteria 5: Install Air bag module assembly
	Portfolios required at the time of assessment (if any) for
	Performance criteria 1 for the evaluation of portfolio: Submit note book or practical activity journal, completed during this specific module, for relevant activity with drawing/illustration

Candid Details	ate	Name:									
COMPETENT				□ NOT YET COMPETENT □							г□
Assessment Outcome Name of the Assessor:											
		Assessm	ent Su	mma				y the a	ssess		
	Activ	ity			N	Viethod		1		Res	sult
Nature	of Activity		Written	Oral		Observation	Portfolio	Role Play	Competent Not Yet Competent		
Practica	al Skill Den	nonstration				✓		√			
Knowle	dge Asses	sment	✓	✓							
Other F	Requiremer	nt					✓				
Each A	ssessment	Task (with perfo	rmance	crite	eria	а)			•		
Assess	ment Task	1			C	Descrip	tion of	fasses	smen	t task 1	
					0		n and	diagnos		d equipment se control sy	to perform stem by using
During following		al assessment, c	andida	te der	mc	onstrate	ed the	Yes	No	Remarks	
1		nce criteria 1: Ap quirements during					and				
2	Performation for the given	nce criteria 2: Se ven task	lected t	ools	an	d equip	oment				
Performance criteria 3: Installed supple Restraint System (SRS)			em	entary							
Performance Criteria 4: Identified the control system with the help of OBD –											
Compe	tent 🗆				N	lot Yet (Compe	tent 🗆	-	•	

Assessment Task 2 Description of assessment task 2 Select appropriate tools and equipment to demonst and diagnose supplementary Restraint System (SRS by using OBD – II Scanner				equipment to demonstrate	
During followi	g the practical assessment, candidate de ng:	monstrated the	Yes	No	Remarks
1	Performance Criteria 1: Applied releva safety requirements during completion				
2	Performance Criteria 2: Selected tools equipment for the given task	and			
3	Performance Criteria 4: Installed seat	belts assembly			
4	Performance Criteria 4: Installed seat	belts assembly			
5	Performance Criteria 5: Installed Air baassembly	ag module			
Comp	etent	Not Yet Compe	tent 🗆		

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessment D	Date (DD/MM/YY) :
Service Comfort & Safety System-II			

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

Title of Qualification:	CS Code:	Level: 4	Version:
Automotive Mechatronics			
Competency Standard Title:	Assessme	nt Date (DD/	MM/YY):
Competency Standard Title: Service Comfort & Safety System-II	Assessme	nt Date (DD/	MM/YY):
	Assessme	nt Date (DD/	MM/YY):

Question	Candidate's answer
42. All cruise control system being turned off when the driver	
43. If supplementary restraint system (SRS) light is eliminated on your dashboard this safety feature in your vehicle has been active	
44. What is the purpose of the air bag installed in the motor vehicle/	
45. Write down the component of supplementary restraint system (SRS) system?	
46. What is cruise control system?	
47. Explain the mechanism of cruise control system?	
48. What is the mean of supplementary restraint system (SRS) system?	

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