4292-20 – Level 2 Technical Award in Vehicle Technology

2019

Qualification Report

Contents

Introduction

This document has been prepared by the Chief Examiner and Principal Moderator; it is designed to be used as a feedback tool for centres in order to enhance teaching and preparation for assessment. It is advised that this document is referred to when planning delivery and when preparing candidates for City & Guilds Technical assessments.
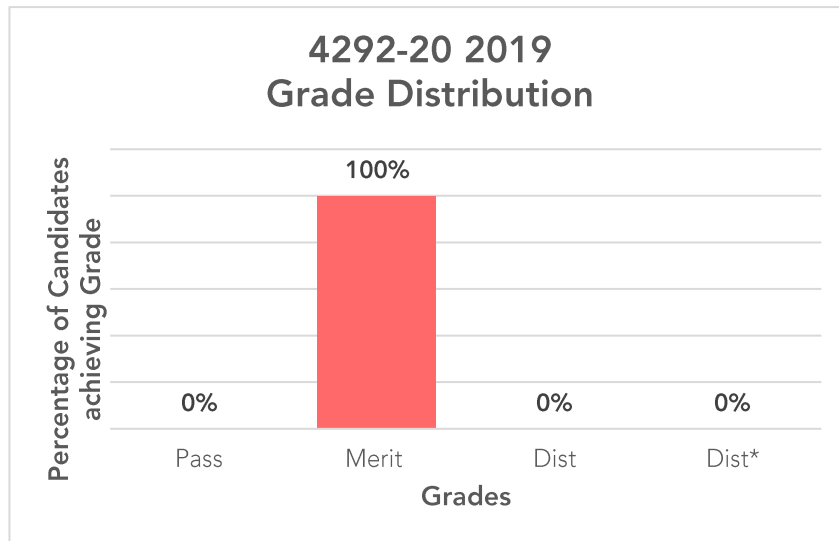
This report provides general commentary on candidate performance in both the synoptic assignment and theory exam. It highlights common themes in relation to the technical aspects explored within the assessment, giving areas of strengths and weakness demonstrated by the cohort of candidates who sat assessments in the 2019 academic year. It will explain aspects which caused difficulty and potentially why the difficulties arose.

The document provides commentary on the following assessments:

- 4292-020/520 – Level 2 Technical Award in Vehicle Technology – Theory exam
  - March 2018 (Spring)
  - June 2018 (Summer)
- 4292-021 – Level 2 Technical Award in Vehicle Technology – Synoptic Assignment

Qualification Grade Distribution

The approximate grade distribution for this qualification is shown below:

4292-20 2019 Grade Distribution

Percentage of Candidates achieving Grade

Grade	Percentage
Pass	0%
Merit	100%
Dist	0%
Dist*	0%

Grades

Please note City & Guilds will only report qualification grades for candidates who have achieved all of the required assessment components, including Employer Involvement, optional units and any other centre assessed components as indicated within the Qualification Handbook. The grade distribution shown above could include performance from previous years.
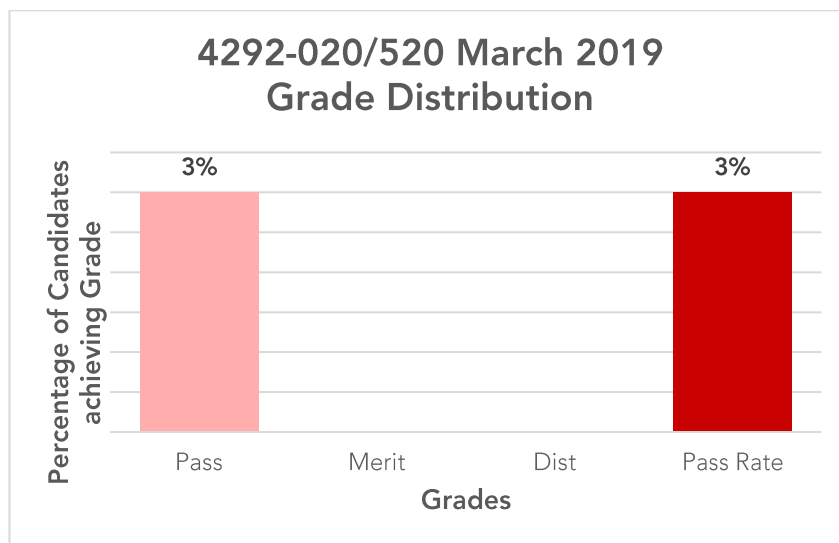
Theory Exam

Grade Boundaries

Assessment: 4292-020/520
Series: March 2019 (Spring)

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	60
Pass mark	24
Merit mark	33
Distinction mark	42

The graph below shows the approximate distributions of grades and pass rate for this assessment:
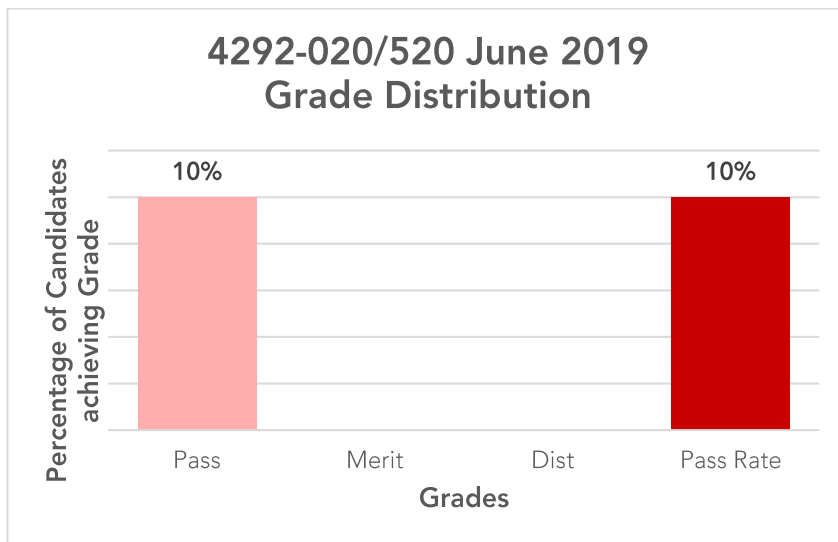
Assessment: 4292-020/520
Series: June 2019 (Summer)

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Total marks available	60
Pass mark	24
Merit mark	33
Distinction mark	42

The graph below shows the approximate distributions of grades and pass rate for this assessment:

Chief Examiner Commentary

4292-022/522 – Level 2 Technical Certificate in Automotive - Theory exam

Series 1 – March 2019

The general standard of work presented in this exam series was below expectations. The majority of candidates failed to achieve the recommended pass mark of 40% due to their limited understanding of the knowledge requirements.

Candidates attempted to answer the vast majority of questions, however they were unable to demonstrate the level of knowledge required to answer the questions. Although candidates are picking up a few key words, they are not reading the questions, or understanding the command verbs. There were no consistencies in the answers provided across the cohort.

The candidates' depth of knowledge in relation to the questions was extremely limited.

Most candidates submitted a good volume of writing for the extended response question, however they did not focus on their answer to the stem. Candidates discussed topics that were not asked for in the question, and frequently went off on irrelevant tangents. Some interesting opinions arose from the candidates responses, however, these were often not technically correct. Most candidates were only able to briefly explain parts of the question, and were not able to provide a full rationale.

March 2019 Series - Item Analysis

220 1.1 Mathematical automotive applications	
Q1a	The majority of candidates failed to recognise what the question was asking. The verb 'calculate' in the stem was missed, therefore candidates 'stated how speed is measured' instead of answering the question.
220 1.2 Principles of friction	
Q1b i & ii	There were 2 marks available for each part of this question, however most candidates only scored 1 mark for each of the questions bi) and bii) as they did not fully answer the questions.
220 1.3 Materials used in vehicles	
Q2	Almost all candidates were unable to describe how the different types of glass found in a vehicle is constructed, and why they are constructed in this way. Most candidates referred to weight or provided other random suggestions
220 1.4 Fluids in vehicle systems	
Q3	Almost all candidates were unable to identify the result of brake fluid over heating correctly.
220 2.1 Voltage, current and resistance	
Q4a i & ii, Q4b	The majority of the candidates demonstrated no knowledge of these electrical questions.
220 2.2 Vehicle electrical components	
Q5a i & ii Q5b	a - Most candidates were able to identify the type of headlamp and provided at least one rationale for its use. b - The majority of the candidates were unable to understand the reason for using the type of starter motor in this question
221 1.1 Power unit and transmission layouts	
Q6a Q6b	a - The majority of the candidates were unable to answer this question correctly. b - Some candidates were able to achieve 1 mark out of the 2 marks available for this question.

221 1.2 Characteristics and uses of drive train layouts	
Q7a	a - Some candidates picked up 1 mark or more (max 2 marks for this question), however most candidates did not present the correct answer.
Q7b	b - The majority of candidates were not able to achieve 1 mark for this question.
Q7c	c - A lack of understanding from the candidates was apparent in this question, with the majority of candidates stating power as the answer.
221 2.1 Operating principles of power unit	
221 2.2 Uses of power units	
Q8	All candidates were unable to explain the phases of a rotary type engine, however most candidates could state the basic terms of the four-stroke cycle thus gaining some marks.
221 3.1 Vehicle chassis system layouts	
Q9a	Almost every candidate was unable to identify the two chassis components shown in the Figure.
221 3.2 Vehicle chassis system components	
Q9b	Almost all candidates were unable to state the purpose of a brake servo.
221 3.2 Vehicle chassis system components	
Q9c	Almost all candidates were unable to state the purpose of a brake master cylinder.
221 4.1 Identify measuring tools	
221 4.2 Use of precision measuring tools	
Q10a i.	ai - All candidates were unable to correctly identify this measuring equipment.
Q10a ii.	aii - A few candidates were able to answer this question successfully with the majority of candidates achieving 0 marks.
221 4.2 Use of precision measuring tools	
Q10b	b - The majority of the candidates did not read the question carefully therefore did not achieve any marks.
Extended Response Question covering the following units:	
220 1.1 Mathematical automotive applications	
220 1.3 Materials used in vehicles	
221 1.1 Power unit and transmission layouts	
221 2.1 Operating principles of power units	
221 2.2 Reasons for using power units	
Q11	This question provides candidates with the opportunity to express their knowledge in an open manner using a hypothetical scenario. (Please refer to the mark scheme for awardable material). The candidates that attempted this question provided a brief description of their choices, however were unable to compare and contrast different systems. The candidates only provided a minimal rationale for their choices.

Series 2 – June 2019

Overall the candidates' performance for this exam series was very poor. The majority of candidates scored low marks due to their limited understanding of the knowledge requirements.

In the majority of questions, candidates were unable respond to the correct command verb eg, to explain, describe or state the correct answers. Most candidates put a level of effort into answering the questions with a minority not answering any of the questions at all.

The candidates' depth of knowledge in relation to the questions was extremely limited.

For the extended response question, most candidates submitted a large volume of work, however, they did not focus on the question, and instead they discussed a limited range of topics. Some interesting opinions arose from candidates answers, however, these were often technically incorrect. Most candidates were only able to briefly explain, and not compare different types of braking systems, nor were they able to provide a full rational.

There is no discernible difference in the quality of answers provided from this series to the March 2019 series.

On the whole, candidates made a good effort to answer the majority of questions, which was evident from the volume of work submitted. However the knowledge demonstrated was extremely limited in almost all cases.

Candidates were unable to identify and use the verb in the questions; e.g. whether it be state or describe so lost marks as a result of this. It was apparent there were large gaps in areas of knowledge as some questions were not answered.

Question	Reference	Marks	Examiner comments
220 1.1 Mathematical automotive applications			
1a			Majority of candidates either did not answer this question at all. Candidates that did, got speed and torque the wrong way around.
220 1.2 Principles of friction			
1b			Most candidates were unable to explain the consequences of slipping clutch lining.
220 1.3 Materials used in vehicles			
2			Almost all candidates were unable to gain full marks however usually 1 to 2 marks was gained by some.
220 1.4 Fluids in vehicle systems			
3			Almost all candidates were unable to identify the properties of brake fluid correctly.
220 2.1 Voltage, current and resistance			
4a 4b			Majority of candidates had some knowledge of resistance within an electrical circuit Majority of candidates were unable to explain methods of testing with a multimeter.
220 2.2 Vehicle electrical components			
5a 5b			Majority of candidates were unable to identify type of lamps or the application for their use. Most candidates scored a minimum of 1 mark, thus being able to identify certain electrical components.
221 1.1 Power unit and transmission layouts			
6a 6b			Majority of candidates were unable to correctly explain reasons for using hybrid engines in a specific vehicle type. Candidates focused incorrectly on weight in their answers. Some candidates were able to achieve minimal marks on drive lane layout..
221 1.2 Characteristics and uses of drive train layouts			
7a 7b			Few candidates were able to demonstrate an understanding of using a final drive belt on specific vehicle types. Some knowledge of heavy goods vehicle was apparent but limited marks were gained by most candidates.
221 2.1 Operating principles of power unit 221 2.2 Uses of power units			
8			Almost all candidates could not explain the purposes of the engine components of a 4 stroke engine.
221 3.1 Vehicle chassis system layouts			
9a			All candidates were unable to identify the hand brake lever with none the compensator mechanism.
221 3.2 Vehicle chassis system components			
9bi 9bii			i) Almost all candidates could not state the purpose of a steering gearbox (rack and pinion), the majority of answers related to transmission gearboxes. ii) Almost all candidates could state at least one purpose of a suspension coil spring
221 4.1 Identify measuring tools 221 4.2 Use of precision measuring tools			

10ai 10aii	All candidates were unable to correctly identify the internal micrometer measuring equipment, however almost all correctly identified the rule. The majority of candidates were able to state the use of an internal micrometer.

221 4.2 Use of precision measuring tools

10b	The majority of candidates were unable to explain the correct procedure to accurately check tyre tread depth

220 1.1 Mathematical automotive applications 220 1.3 Materials used in vehicles 221 1.2 Characteristics and uses of drive train layouts 221 3.1 Vehicle chassis system layouts 221 3.2 Vehicle chassis system components

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11	This is the Extended Response question where candidates have the opportunity to express their knowledge in an open manner comparing two different braking system types. See the mark scheme for awardable material. Not all candidates attempted to answer this question, however, those candidates that did attempt the question, demonstrated a very limited range of knowledge gaining minimal marks. Many were unable to correctly marry each braking system to the correct vehicle type, and in many cases and gave little or no rational for their choices.

Synoptic Assignment

Grade Boundaries

Below identifies the final grade boundaries for this assessment, as agreed by the awarding panel:

Assessment: 4292-021
Series: 2019

Total marks available	60
Pass mark	24
Merit mark	33
Distinction mark	42

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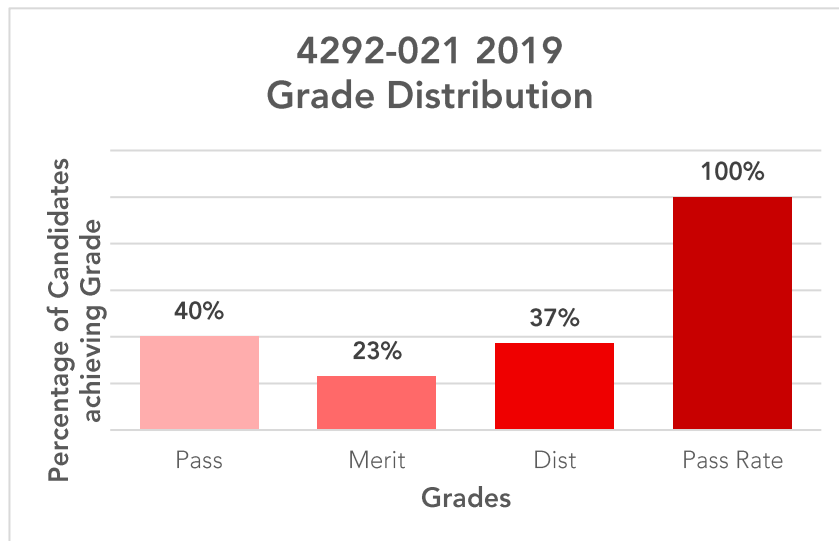
Principal Moderator Commentary

This is the first cohort to sit the synoptic assignment for this qualification.

Overall candidates performed well. The majority of tasks were well written and presented, in particular, the risk assessment was of a good standard and the candidates performed very well in the fabrication task.
Throughout all tasks candidates were able to recall information well, and most required minimal prompting from tutors, thus demonstrating a good level of knowledge and understanding. Candidates were able to follow process, and interpret information well,

Images were well used and annotated to support the evidence submitted and demonstrate a clear understanding of the task being undertaken.

The CRF's were well detailed and candidates performed well and evidence was clear and concise. Tutors provided good feedback to support candidate's practical work.
It was clear by the comments on the CRF, that markers considered awarding marks across the full range of Assessment Objectives in all tasks, and used a holistic marking approach when awarding final marks.

Centres are to ensure that Candidate Declaration of Authenticity forms are signed by the candidate; and that only one form per assignment is required, not a separate one for each task.

AO1 – Recall of knowledge relating to the qualification

Feedback from tutors/observers is clear and concise, it is easy to follow, and explained well how each individual gained marks.

AO2 – Understanding of concepts, theories and processes relating to the LOs

Candidates gained marks holistically throughout tasks. Tutors/observers seemed to understand the marking criteria well, proving a good rationale for each result.

AO3 – Application of practical/technical skills

The grading was holistic from across all the task of the assignment, the tutor/observers provided detailed explanations on the practical activity, and how each candidate gained marks.

AO4 –Bringing it all together – coherence of the whole subject

Candidates performed well in bringing together a range of technical skills, knowledge and understanding from across the qualification. Tutor / observers provided a clear rationale as to how marks were achieved.

AO5 – Attending to detail/perfecting

Good and clear awarding of marks, the comments show how the tutor / observer has achieved the result and there are concise comments on how the candidates achieved the marks awarded in bringing it all together.