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Unit Standard 30475

Demonstrate knowledge of motor industry engineering tasks

Student Name:	
School:	
Date:	

Marked By: _____ **Mark** _____%

Feedback: **Excellent work** ☐ **Please attempt all questions** ☐

Good work ☐ **Please resubmit** ☐

USEFUL WEBLINKS

Types of Metals
http://youtu.be/47KFjX2cUw0

Ferrous Metals
http://youtu.be/AWK7T9bz0RA

Plastics
http://youtu.be/W6MpudefyGc

Heat treatment
http://youtu.be/ulfCxDsVTWo

Nuts and bolts
http://youtu.be/kidWBeyOMA0
http://youtu.be/R3w2XWOwYS8

Rivets
http://youtu.be/BlygVIv-HEo

Marking Out Tools
http://youtu.be/yftJsFsJnos

Sharpening Twist Drill
http://youtu.be/tthc3pXo62w
http://youtu.be/y0SQkzScQk0

Using a Drill Press
http://youtu.be/Gby7a1hUAPg

Using Taps and Dies
http://youtu.be/KVnN4jiB7Gk
http://youtu.be/X5dT6gDxegA

REVIEW QUESTIONS ONE

Q1 Explain the meaning of each of the following terms.

Ductility

Hardness

Tensile strength

Fatigue

Q2 Name the three main groups of metals

Q3 Complete the following sentence.

_____ steel contains up to 0.3% _____ and is soft and _____ and cannot be _____ by heating and _____. Because it can be _____ shaped and _____ it is used for _____ _____ and other thin _____ applications.

Q4 List an automotive use for each of the following steels:

Spring steel

Mild steel

High tensile steel

Q5 Name three non-ferrous metals.

Q6 Why are non-ferrous metals used in the automotive industry?

Q7 Plastics can be from one of two groups. These are?

Q8 List any four useful properties of carbon fibre.

Q9 On an motor vehicle where would you expect to find the following types of plastic used.

Polyurethane (PUR)

Acrylonitrile Butadiene Styrene (ABS)

Acrylic (PMMA)

Q10 Explain the purpose of each of the following heat treatments:

Annealing

Normalising

Tempering

REVIEW QUESTIONS TWO

Q11 Identify the parts A-F as shown in the diagram below.

A

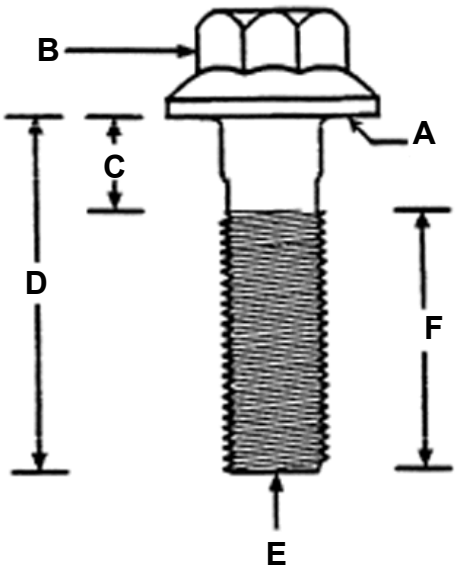
B

C

D

E

F



Q12 Explain what each of the following abbreviations indicate.

UNC

UNF

M

Mpa

Q13 List six types of nuts commonly used in the automotive industry.

Q14 Complete the following sentence.

To form a [ ], a riveting [ ] set must be used. This two-piece set consists of a rivet [ ] forming tool and a rivet [ ] tool. The rivet head [ ] tool is used to support one end of the rivet, while the other end of the [ ] is located into the rivet [ ] tool.

Q15 Explain how each of the following are measured.

Bolt size

Bolt diameter

Q16 Explain the main difference between coarse and fine threads.

Q17 What should a thread gauge be used to measure?

Q18 What is a stud?

Q19 List any five mechanical locking devices.

Q20 What is a rivet nut?

Q21 Explain how rivets are classified.

Q22 Detail the procedure involved in pop riveting.

REVIEW QUESTIONS THREE

Q23 List five factors to be considered when selecting twist drills.

Q24 What is the purpose of a drill gauge?

Q25 Complete the following table.

Imperial Measurement (Inches)	Metric Measurement (Millimetres)
1/16	
	2.4
	3.2
5/32	
3/16	
	5.6

Q26 List four safety points to be considered when using a drill press.

Q 27 Using the cutting speed chart on page 35 calculate the drill speed in revolutions per minute for the following:

Note use the higher cutting speed reading from the metres range.

Material to be drilled: Cast iron
Diameter of the twist drill: 10mm

Q28 Why are cutting fluids used?

Q29 Explain the term cutting feed.

Q30 Describe the relationship that exists between the diameter of the drill and the cutting feed.

REVIEW QUESTIONS FOUR

Q31 Name the three taps commonly found in tap sets.

Q32 Name the three types of threads commonly found in automotive workshops.

Q33 Describe the procedure required to tap a thread in a blind hole.

Q34 Complete the following sentence.

The _____ is located in a T _____ stock, and is secured by a _____ screw. The die _____ screws allow the die to be adjusted and control the amount of _____ to be _____. Dies can be _____ by referring to the _____ and type of thread _____, which are _____ on to the die.

Q35 List five safety points to be considered when using taps and dies.

Q36 What is the purpose of a die nut?

Q37 When may it be necessary to use a thread insert?

Q38 (a) When is a thread file used?

(b) How is the cutting teeth's thread pitch size identified?