

**Unit Standards 30475/21671**

**Demonstrate knowledge of motor  
industry engineering tasks**

**Carry out general engineering tasks in  
the motor industry**

**Student Name:**

**School:**

**Date:**

**Marked By:** \_\_\_\_\_ **Mark** \_\_\_\_\_ **%**

**Feedback:**      **Excellent work**

**Good work**

**Please attempt all questions**

**Please resubmit**

## **USEFUL WEBLINKS**

### **Types of Metals**

<http://youtu.be/47KFjX2cUw0>

### **Ferrous Metals**

<http://youtu.be/AWK7T9bz0RA>

### **Plastics**

<http://youtu.be/W6MpudfyGc>

### **Heat treatment**

<http://youtu.be/ulfCxDsVTWo>

### **Nuts and bolts**

<http://youtu.be/kidWBeyOMAO>  
<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

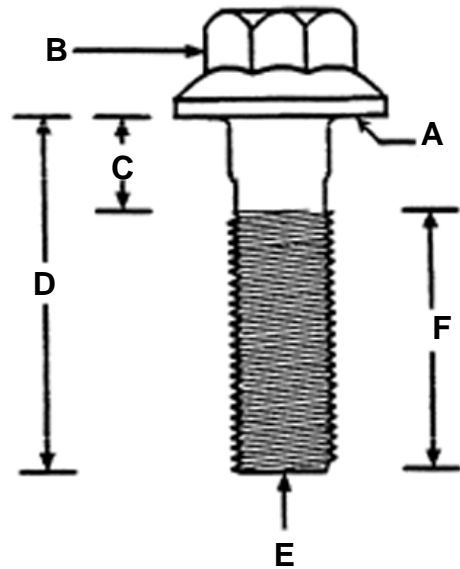
B

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 four points to be considered when storing and handling steel rules.

Q24 Complete the following sentences.

A standard \_\_\_\_\_ edge is approximately 1 metre in \_\_\_\_\_ .

It is constructed from \_\_\_\_\_ machined \_\_\_\_\_ and has

\_\_\_\_\_ straight \_\_\_\_\_ with a measuring scale on one edge.

Q25 Outline the procedure involved in using an engineer's square.

Q26 List five measurements that can be taken using a combination square.

Q27 Name the two main types of scribes used in the automotive industry.

Q28 (a) What is the angle of the point of a centre punch?

(b) Lists two reasons why centre punches are used.

Q29 Give an example of where in marking out each of the following would be used.

(a) Inside calliper

(b) Dividers

(c) Vee block

(d) Combination square

Q30 Explain the term Datum Point.

Q31 Outline the scribing procedure involved when using an external oddleg callipers.

## REVIEW QUESTIONS FOUR

Q 32 List five factors to be considered when selecting twist drills.

Q33 What is the purpose of a drill gauge?

Q34 Why are cutting fluids used?

Q35 Complete the following table.

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

Q36 List four safety points to be considered when using a drill press.

Q37 Explain why it is important to decrease pressure as the drill tip breaks through on the far side of the hole.

Q38 Explain the term cutting feed.

Q39 Describe the relationship that exists between the diameter of the drill and the cutting feed.

## REVIEW QUESTIONS FIVE

Q40 Name the three taps commonly found in tap sets.

Q41 Name the three types of threads commonly found in automotive workshops.

Q42 Describe the procedure required to tap a thread in a blind hole.

Q43 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.

Q44 List five safety points to be considered when using taps and dies.

Q45 What is the purpose of a die nut?

Q46 When may it be necessary to use a thread insert?

Q47 (a) When is a thread file used?

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

## **REVIEW QUESTIONS SIX**

Q48 Describe the operating principle of a grinder.

Q49 Give eight safety features that should be observed when using a bench grinder.

Q50 List four workshop tasks that can be carried out using a bench grinder.

Q51 Name the three main types of portable grinding wheels used in the automotive industry.

Q52 Complete the following sentence.

The \_\_\_\_\_ grade is a measure of the amount of \_\_\_\_\_ the  
bond has on the \_\_\_\_\_ grit. The grade of the \_\_\_\_\_ wheel  
is indicated by a \_\_\_\_\_, which is \_\_\_\_\_ onto the wheel.

Q53 Describe how grinding wheels should be stored.

Q54 Why is it not recommended to grind aluminium?



Q55 Explain what do the following markings on a grinding wheel indicate?

**51 A 60 L 6 V**

**A**

**60**

**L**

**6**

**V**

Q56 Explain the procedure for checking that a replacement wheel is free from cracks.

Q57 Why is it important to regularly dress grinding wheels.