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| **Task:** | **Knowledge Questions** |
| **Assessors stamp:** |  |

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| **Assessor Comments/Observations** | | |
| **Questions complete** | **Yes** | **No** |
| **Anti – plagiarism Policy** | | |
| **I certify that the work submitted for this assignment is my own. I have clearly referenced any sources used in the work. I understand that false declaration is a form of malpractice.**  **Learner signature: Date:** | | |

1. Describe the health and safety requirements and safe working practices and procedures required for the hand fitting activities undertaken.

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1. Describe the importance of wearing appropriate protective clothing and equipment (PPE), and of keeping the work area safe and tidy.

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1. Describe the hazards associated with the hand fitting activities (such as use of power tools, trailing leads or hoses, damaged or badly maintained tools and equipment, using files with damaged or poor fitting handles), and how they can be minimised.

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1. Describe the procedure for obtaining the required drawings, job instructions and other related specifications.

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1. Explain how to use and extract information from engineering drawings and related specifications (to include symbols and conventions to appropriate BS or ISO standards), in relation to work undertaken.

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1. Explain how to interpret first and third angle drawings, imperial and metric systems of measurement, workpiece reference points and system of tolerancing.

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1. Explain how to prepare the materials in readiness for the marking out activities, in order to enhance clarity, accuracy and safety (such as visually checking for defects, cleaning the materials, removing burrs and sharp edges, applying a marking out medium).

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1. Explain how to select and establish a suitable datum; the importance of ensuring that marking out is undertaken from the selected datum, and the possible effects of working from a different datum.

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1. Describe the methods of holding and supporting the workpiece during the marking out activities, and equipment that can be used (such as surface plates, angle plates, vee blocks and clamps, parallel bars, screw jacks)

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1. Describe the use of marking out conventions when marking out the workpiece (including datum lines, cutting guidelines, square and rectangular profiles, circular and radial profiles, angles, holes which are linearly positioned, boxed and on pitch circles).

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1. Describe the ways of laying out the marking out shapes or patterns to maximise use of materials.

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1. Describe the need for clear and dimensional accuracy in marking out to specification and drawing requirements.

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1. Explain how to set and adjust tools (such as squares, protractors and Verniers).

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1. Describe the importance of using tools only for the purpose intended; the care that is required when using the equipment and tools; the proper way of storing tools and equipment between operations

Producing components using hand fitting techniques.

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1. Describe the cutting and shaping methods to be used, and the sequence in which the operations are to be carried out.

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Describe the various types of file that are available, and the cut of files for different applications.

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1. Describe the importance of ensuring that file handles are secure and free from embedded foreign bodies or splits.

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1. Explain how to prepare the components for the filing operations (cleaning, de-burring, marking out).

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1. Describe the use of vice jaw plates to protect the workpiece from damage.

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1. Explain how to file flat, square and curved surfaces, and how to achieve a smooth surface finish (such as by draw filing, the use of abrasive cloth, lapping using abrasive pastes)

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1. Explain how to select saw blades for different materials, and how to set the saw blades for different operations (such as cutting externally and internally)

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1. Explain how to cut external threads using hand dies, and the method of fixing and adjusting the dies to give the correct thread fit.

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1. Explain how to determine the drill size for tapped holes, and the importance of using the taps in the correct sequence.

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1. Explain how to prepare drilling machines for operations (such as adjustment of table height and position; mounting and securing drills, reamers, countersink and counterbore tools in chucks or Morse taper sockets; setting and adjusting spindle speeds; setting and adjusting guards/safety devices)

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1. Explain how to mount the workpiece (such as in a machine vice, clamped to table, clamped to angle brackets); techniques of positioning drills to marking out, use of centre drills and taking trial cuts and checking accuracy, and how to correct holes which are off centre.

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1. Explain how to produce a sliding or mating fit using filing, scraping and lapping techniques.

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1. Describe the problems that can occur with the hand fitting activities, and how these can be overcome (such as defects caused by incorrectly ground drills, inappropriate speeds, damage by workholding devices)

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1. Explain when to act on their own initiative and when to seek help and advice from others.

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1. Describe the importance of leaving the work area in a safe and clean condition on completion of the fitting activities (such as removing and storing power leads, isolating machines, removing and returning drills, cleaning the equipment and removing and disposing of waste).

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