

FITTER

THEORY – I

SAFETY MEASURES FIRE AND FIRST AID :

Importance of safety and general precautions observed the institute and in the section – Importance of the trade in the development of industrial economy of the country – Recreational medical facilities and other extra curricular activities of the Institute.

MEASUREMENT :

Linear measurement and its units – Scribes – methods of scribes with the help of rule – Dividers construction and use – Harmaphrodite calipers – construction and use. Centre punch and dot punch – construction and use – Use of marking media – Hammer types and uses. Surface gauge – description use and care – Vee-blocks – construction – use and care – Marking of table – construction – use and care. Engineers square – description use and care – Micrometers outside – Principle – construction features – name of the parts – graduations – reading use and care – Micrometer – inside construction features – Graduations – reading use and care. Depth gauge construction and use Vernier calipers – principle – construction graduations – Reading use and care and adjustment of vernier calipers – vernier height gauge – construction – parts use and care. Combination set 1. square head 2. Protractor head. 3. Centre head and their uses in marking out- checking and setting the job vernier bevel protractor – Construction uses and care.

BENCH TOOLS :

Bench vice – constructional details – function type – use and maintenance – vice clamps and hack saw frame construction and types – methods of using hacksaw – chisels – types and used. Files-types grade – out care and uses of various common files. Method of stocking a number of strokes per minute for steady and accurate filing – Right method of fixing the file handle – care of files.

MARKING OUT PRACTICE :

Angle plates – parallel becks used in marking out practice – surface plate constructions use and care “C” clamp and parallel clamp description on uses. Marking out operations and procedure – Marking line parallel to the adjacent sides or edges – marking lines by turn over method. Marking out from the datum lines – Marking out tangent to the curves.

DRILLS AND DRILLING MACHINES :

Drills and drilling – flat drills – construction – cutting angles and shanks – various parts and their function – lips – Twist drill – straight fluted and special types – parallel and taper shanks – various parts and their function – Drill grinding – common faults and their ill effects – Drill chucks – keydrill drift – sockets and sleeves – Introduction to drilling – machines – principal - types of drilling machines – Bench and pillar or upright drilling machines – method of drive – sizes and specifications and capacity of a drilling machine, special feature and care.

GRINDING, WHEELS AND GRINDING :

Grinding grades and grits – Right method of pressing against the face of wheels – Motorised double ended units – Method of mounting grinding wheels – How to dress grinding – the Wheels dressing cutters – Safety precautions for grinding – Tool grinding – the art of tool grinding broken drills – old screws drivers – chisels of various shapes and dot punches should form the range of tool grinding.

THREAD CUTTING TOOLS :

Reamers – Types – Uses. Allowances for reaming – coolants used while reaming – Tapes, sizes of tape – tapping – tapping blind holes – lubricants for tapping – causes of broken taps – Removing a broken tap from a hole – Tap wrenches – Construction – External threading dies – type a commonly used – solid and spirit Design of stocks and handles.

FASTENINGS :

Discuss fastenings permanent – Semi permanent and temporary Locking devices –key and key ways – The pre-requisites of a key Prevention of the circular and longitudinal motions of the mating parts kind – uses and preparation of keys – keys fitting procedure and removing keys

SMITHING AND FORGING :

The extent and scope of hand forging – the forge, its constructional features and types – Building up and renewal of fire prevention of clinker and slag formation – Anvils names of various parts and their use – Tongs their chief varieties – Tongs types of hammers and their uses – Hammer and sledges – Hot and cold chisels convenient method of holding chisel fullers and a sages etc. Precautions necessary.

SHEET METAL WORKING :

Sheet metal and wire gauges – Equivalent inch and millimeter sizes of standard wire gauges – metal commonly rolled into sheets and tin plate – galvanized iron sheets – Copper and brass sheets – aluminium sheets brief accounts of physical properties of the above – Common tools used for sheets metal work – Simple developments and the method of laying out – Types of joints such a folded joints – grooved seams – Wire edges etc – Allowances for lap joints – grooves beds etc – Soldering and brazing – Hard and soft percentage compositions – Fluxes and spelters their use – method of soldering.