

**DETAILED SYLLABUS FOR THE POST OF JUNIOR INSTRUCTOR - FITTER  
IN INDUSTRIAL TRAINING DEPARTMENT**

*(Category Nos: 659/2023)*

**TOTAL :100 MARKS**

**Module-I**

**10 Marks**

**MARKING AND MARKING TOOLS**

Marking media- Linear measurement –Scribers-Dividers –Datum- Calipers- Types of marking punches-Surface gauge- V’ Blocks- Surface plate- marking off table-Angle plates-parallels and Combination set

**Module-II**

**10 Marks**

**HAND TOOLS AND MEASURING TOOLS**

Hammers- Types of vice-C clamp- types of Spanners-pliers-screw driver-Types of Steel rules-

Try square and its types -jenny caliper-straight edge-system of units -Measurements of angles- Angular measuring instruments (Semi - precision) -Measuring standards (English & metric)

**Module-III**

**10 Marks**

**CUTTING TOOLS AND OPERATIONS**

Elements of a file- Cut of files –Grades-shapes- - Types of files- Needle files- Special files- Pinning of files -Care and maintenance -Convexity of files- Filing techniques- Hacksaw frames and blades- types of chisels-scraper-drilling-types of drills-drilling machines-reamers –hand taps-threading dies- Drilling - Cutting speed, feed and r.p.m - drill holding devices -Counter sinking-Radius/Fillet gauge, feeler gauge-grinding-standard grinding wheel marking system-grinding machines.

**Module-IV**

**10 Marks**

**PRECISION INSTRUMENTS**

Micrometers –dial calipers- Vernier calipers -Vernier height gauge- types- working principle- vernier bevel protractor-comparator-measuring errors,Guages-types-slip gauges-angle gauge-sinbar-, Jigs and fixtures- Limits and fits-interchangability-tolerance-allowances-shaft and hole basis system.

**Module-V**

**10 Marks**

**FASTENERS AND POWER TRANSMISSION**

Types of screw threads-fastners-keys-bolts-washers-studs-setscrews-cotters-pins-couplings-circlips-soldering-brazing-rivetting-types of rivets-defects in revetting-taper-springs

**Belt and belting-belt fastenings-slip-creep-crowning-dressing-types of gears-clutches-bearings types-bearing materials**

**Module-VI**

**10 Marks**

**METALS AND HEAT TREATMENTS**

**Ferrous and non ferrous metals-cast iron types-steel making process-types of steels-alloys-heat treatment process- annealing-normalising-hardening process-case hardening-hardness testing-impact testing**

**Module-VII**

**10 Marks**

**FORGING**

**Forge-Refractory materials-forging hand tools- cuttings tools-anvils-forging of steels-forging operations-defects in drawing out-defects in upsetting**

**Module-VIII**

**10 Marks**

**SHEETMETAL WORK**

**Types of snips-mallet-sheet metal hand tools-compass- stakes-types-uses - metals used in sheet metal work-sheet metal operations-joints-bending machines.**

**Module-IX**

**10 Marks**

**WELDING**

**General safety-tools and equipments used in gas welding-gases used in welding-types and uses of oxy-acetylene flames- acetylene gas generators-welding nozzles-melting points of common metals-flashback-backfire-gas welding techniques-joints-arc welding machines-welding defects-inspection of welds**

**Module-X**

**10 Marks**

**LATHE**

**Parts of lathe-specification of lathe-back gear mechanism-work holding devices-cutting tools-tool angles-cutting tool materials-lathe operations-thread cutting-cutting speed-feed-depth of cut-safety in lathe work**

**NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper**