

Syllabus for Written Examination for Recruitment of Vocational Instructor.

Trade:- Surveyor

Syllabus:-

Classification of survey- Accuracy and speed in field & office work. Common terms used and definitions. Conventional signs and symbols. Use of legends.

- **Principles of chain survey-** Instruments used & their description. **Field book-** types, methods of entry of check lines-its importance. Types of offset and their limit, town survey traversing with chain, procedure in plotting. Care & maintenance of chain & accessories. Types of obstacles in chaining and methods of overcoming them. Errors in chain survey & their remedies, problems in chain survey, degree of accuracy required procedure of inking & coloring.
- **Compass Survey-** Use of magnetic needles in survey, types of compass, description, constructional features & uses of compasses, their adjustments/Measurement of directions. Technical terms used in compass survey, difference between angles & bearings, magnetic & true meridians, declination and its variations, local attraction, its detection & elimination. Locating details by bearings, compass survey methods, traversing methods, methods of determining true meridians & declination, methods of plotting closed compass traverse/adjustment of closing errors, limits of precision required, field book entries. Relaying of old service errors in compass survey. Testing & adjustment of compass.
- **Plane table survey-** merits & demerits, equipments used, methods of plane tabling. Errors in plane tabling & their elimination-other instruments used in combination with plane table, their construction & uses. Tangent clinometers, Delisle's clinometers & telescopic alidade. Survey maps-care & maintenance of plane table accessories, procedure of plane tabling.

Leveling- parts, types- Dumpy level & Auto level, types of staff, technical terms used in levelling, permanent adjustment of leveling instruments. Methods of observation, booking, reduction of levels, types of field book, Working out problems on reduction, various methods of leveling namely simple levelling, differential levelling, reciprocal levelling, fly levelling, check levelling, longitudinal sectioning, cross sectioning etc. Plotting of sections and working profiles, establishment of gradient, effects of Earth's curvature & refraction in levelling, common errors and their elimination, degree of accuracy.

Contouring -contour interval-selection of contour interval-characteristics of contours-uses of contours- contouring by various methods- interpolation of contours by various methods- drawing of contours-computation of volume Prismatical formula & trapezoidal

formula . Construction and use of boning rods. Establishment of gradient using Ceylon ghat Tracer, Delisle's Clinometer & Abney level.

Theodolite- Introduction to theodolite, types of theodolites, parts of theodolite, terms used in theodolite surveying, temporary adjustments of theodolite, reading of verniers, booking readings, permanent adjustments of theodolite. Measurement of horizontal angle by repetition method, reiteration method setting out angles by repetition method, measurement of vertical angle, measurement of deflection angle, measurements of bearings, prolongation of lines and locating the intersection points of directions. Traversing using theodolite (closed and open), traverse computation determination of consecutive coordinates, independent co-ordinates, checks for traverse, balancing of traverse, closing error, preparation of Gale's table , computation of area using co-ordinates, omitted measurements.

Types of surveys for the location of a road- Points to be considered during reconnaissance, preliminary and final location survey. Classification of roads and terms used in road engineering. Alignments of roads- relative importance of length of road, height of embankment and depth of cutting- road gradients- foundation, drainage, camber, super elevation, road surfaces such as earth road, water bound macadam and concrete pavements.

Tacheometry- Introduction to tacheometry- advantages and disadvantages- constants of tacheometer and its determination- various method of tacheometry- determination of horizontal and vertical distances by various methods. Technical terms in connection with simple triangulation-base line measurements& its correction.

Survey Equipments- Total Station- Parts of Total Station- temporary adjustments- measurements of angle and coordinates- setting out of angles and lines . Traverse survey of closed and open fields-determination of enclosed areas using total station. Introduction to GPS and its uses- adjustments- determination of coordinates. Photogrammetry- terms - terrestrial and aerial photogrammetry.

CAD- Introduction to computer aided drafting-advantages- working with CAD-setting limits-drawing lines-using grid and snap- saving work- drawing simple shapes- Exit and quit commands. Editing, adding dimension and text. Editing drawing using various MODIFY commands. Developing simple buildings with CAD. Preparation of estimates for simple buildings. Glossary of terms of building construction, building materials and irrigation.