

**Schedule B.—Draughtsmanship.**

(1.) The candidate shall lodge not less than seven days before the examination—

- (a.) A map in black and white for reduction to half scale by photolithography, the work on which shall cover not less than 15 in. square, half the area being covered with plain sectional detail and half with topographical drawing in any style suitable for the above method of reproduction. (50 marks).

The above plan shall be signed under a *nom de plume* only, and be certified to by some responsible officer of the Department as being the applicant's own work.

*Materials.*

(2. The drawing-paper—its composition, best components, adulterations, characteristics of the best quality; composition of second-class papers, bleaching, chemical bleaching, fibre of paper, sizing, effect of damp, mildew, effect of erasure, methods of erasure, chemical erasure, methods and precautions, restoring surface of erasures; storing of paper.

The surfaces of paper, characteristics of each, purposes for which most suitable or not suitable; mounted paper, advantages and drawbacks of; mounting paper, the best mountant, sourness of paste, preservatives, their effect on colours, &c., effects of bad or adulterated paste.

Stretching paper on drawing-board, method of; advantages of; result of over-damping paper in doing so.

The colours, vegetable, animal, mineral, and chemical, respective permanence; permanent, fugitive, and intermediate classes of colours, meaning of "fugitive"; causes of lack of permanence or fading of colours; action of light; impure atmosphere; chemical interaction; bleaching-out colour with chemicals, which colours are insusceptible, effect of doing so on paper substance; liquid colours, waterproof colours, circumstances under which they may be used, drawbacks to use of; waterproofing ordinary colours with bichromate of potash, how this acts; best paper surfaces for colouring; overcoming greasiness of surface; oxgall, soap; drawbacks of latter; transfer paper, making of.

India ink, characteristics of the best; grain, fracture, colour; differences of fresh and stale ink. (50 marks.)

*Instruments.*

(3.) The pencil, the pencil-point, drawing a straight line with; soft and hard pencil lines; inking over.

The pen, the drawing-pen, best pattern of; point of pen, use of pen, holding of pen, cleaning pen. The straight-edge, testing of, care of; cutting-edge, ruling-edge. The parallel ruler, sliding, rolling, care of, testing of. Compasses, the different kinds of, and their purposes; the compass joint and the compass-points.

The scales, measuring with; are not rulers; testing of. Offset scales, plotting scales, diagonal scales, vernier scales, marquois scales, scales of equal parts, logarithmic scales. Artificial and natural units definitions, translation from each to each.

Protractors, purpose of, rectangular, circular, vernier.

The drawing-board, ebony edge; warping and preventives.

The pantograph and eidograph; interrelation of fulcrum tracer and pencil point; positions when reducing or enlarging; rule for setting eidograph; to find scales not on pantograph.

The planimeter fixed and rolling patterns and Coradi compensating pattern; rule for areas on different scales; what unit is the result given in; point in centre and the figure on the weight. (150 marks.)

*Practice.*

(4.) Lettering and figuring; principal styles used in survey draughting; names and characters and principal uses; best proportions. Spacing methods. Designing of titles on maps.

Hill work, vertical hachure, contour-lines, form-lines, difference between these latter, wash methods; conventional lighting, steep hills, precipices, rolling country, plains.

Drawing a straight line, drawing a very long one, producing a line accurately; drawing a right angle accurately in middle of a line, at end of line.

Purpose of maps, selection of a projection, and principles governing the selection. The graticule, method of laying it down, purpose of