

NEHRU SCIENCE CENTRE
(A unit of National Council of Science Museums)
Ministry of Culture, Government of India
Dr. E. Moses Road, Worli, Mumbai-400018

Question paper for recruitment of Technician 'A' {Trade: Draftsman (Civil)}.

(Total 100 marks, Time: 3 hours)

I) Tick the correct answer: (no negative marking)

(30x1=30 marks)

1) The trimmed size of A2 drawing sheet is

- (a) 450×625 mm (b) 420×594 mm (c) 594×841 mm (d) 625×880 mm

2) When 1 cm on plan drawing represents 100 meter on the ground, the representative fraction of the scale of drawing is

- a) 1/10 b) 1/100 c) 1/1000 d) 1/10000

3) The maximum permissible free fall of concrete may be taken as _____ to avoid segregation.

- a) 1.5 meter b) 1 meter c) 2 meter d) none of the above

4) The vertical distance between any two consecutive contour lines is called

- a) vertical equivalent b) horizontal equivalent c) contour gradient d) contour interval

5) A first class brick should not absorb water more than _____ of its dry weight after 24 hours immersion in cold water

- a) 5% b) 15% c) 20% d) 30%

6) What is the unit of measurement for brick work 250 mm thick & above?

- a) square metre b) cubic metre c) metre d) none of the above.

7) Admixtures which cause early setting and hardening of concrete are called

- a) retarders b) air entraining agents c) accelerators d) workability admixtures

8) The unit weight of 16 mm diameter tor steel bar is

- a) 0.89kg/mtr b) 1.58kg /mtr c) 2.54kg/mtr d) none of the above.

9) Closed contours of decreasing values towards their centre, represent

- a) a hill b) a depression c) a valley d) a ridge

10) Number of traditional bricks approx. required in 1 cubic metre of 250 thick brickwork is

- a) 301 nos b) 389 nos c) 450 nos d) 600 nos

11) The initial setting time for ordinary Portland Cement as per IS specifications should not be less than

- a) 10 minutes b) 30 minutes c) 60 minutes d) 600 minutes

12) The most commonly used retarder in cement is

- a) gypsum b) calcium chloride c) calcium carbonate d) none of the above

13) The approximate ratio between the strengths of cement concrete at 7 days and 28 days is

- a) $3/4$ b) $2/3$ c) $1/2$ d) $1/3$

14) In brick masonry the bond produced by laying alternate headers and stretchers in each course is known as

- a) English bond b) zigzag bond c) flemish bond d) none of the above

15) The maximum number of steps in a flight generally should be restricted to

- a) 9 b) 12 c) 15 d) no limit

16) Doglegged stairs are

- a) half turn stairs b) quarter turn stairs c) straight stairs d) all the above

17) The unit weight of ordinary Portland cement is taken as

- a) 1840 kg/cum b) 1440 kg/cum c) 1640 kg /cum d) none of the above

18) Depth (D) to Width (B) ratio for shallow foundation is generally considered

- a) ≤ 1 b) ≤ 2.5 c) ≤ 3 d) ≤ 5

19) The approximate weight of each 600mm x 600 mm x 10 mm thick vitrified tiles is

- a) 7.5 kg b) 5 kg c) 10 kg d) 2.5kg

20) What is Floor Area Ratio (FAR):

a)
$$\frac{\text{Plot Area}}{\text{Total covered area of all the floors}}$$

b)
$$\frac{\text{Total covered area of all the floors}}{\text{Plot Area}}$$

c)
$$\frac{\text{Length of the Plot}}{\text{Width of the plot}}$$

d)
$$\frac{\text{Length of the Plot}}{\text{Plot Area}}$$

21) The percentage of residue left after sieving good Portland cement in 90 micron sieve should not exceed

- a) 5% b) 7.5% c) 15% d) 10%

22) Dead weight used for applying the test load on pile is called

- a) Routine platform b) Dead load platform c) Kentledge d) all of the above

23) Cavity wall is generally provided for

- a) heat insulation b) sound insulation c) prevention of dampness d) all of these

24) The vertical members fixed between steps and hand rail, are known as

- a) balusters b) strings c) newel posts d) soffits

25) The vertical side member of a shutter frame work, is known as

- a) style b) reveal c) mullion d) post

26) A Covering of concrete placed on the exposed top of an external wall, is known as

- a) cornice b) coping c) frieze d) lintel

27) The term used by most CAD systems for "rounding corners" is

- a) Curve b) Fillet c) Chamfer d) none of the above

28) Which is not a keyboard shortcut of AutoCAD?

- a) Alt+F4 b) Ctrl+P c) Alt+B d) Ctrl+F4

29) How many grades the ordinary port land cement is available as per IS specification.

- a) 2 b) 1 c) 4 d) 3

30. What is normally the minimum lift considered in estimate for earthwork in excavation.

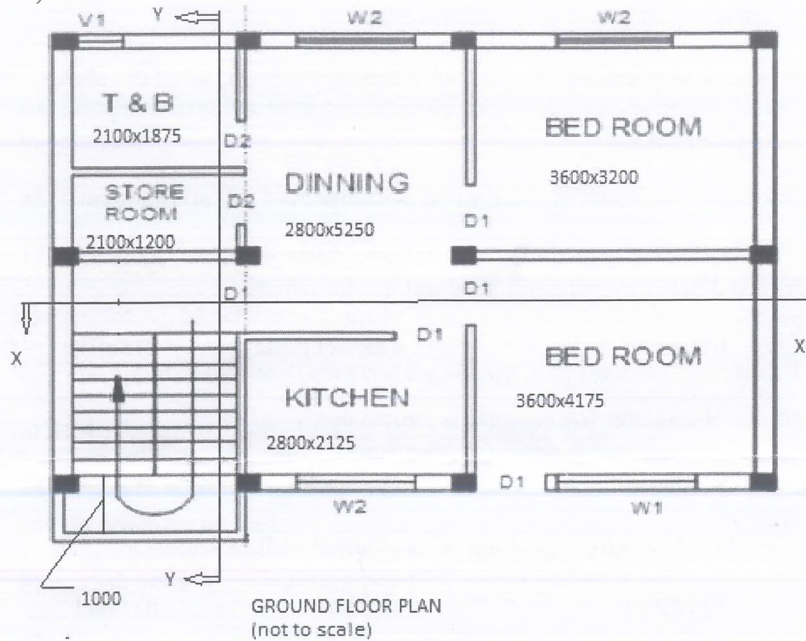
- a) 1 mtr b) 1.5mtr c) 3.0 mtr d) 5mtr

II) Write Short Notes (Any 4)

(4x5= 20 marks)

- a) Bulking of sand
- b) Isometric drawing
- c) Site Plan
- d) Setting time of Cement
- e) Slump test of concrete

III)



i) Draw the Sectional Elevation(not to scale) along X-X , Y-Y and Roof Plan for the single storied building with flat roof whose plan is given above. Also mark the necessary dimensions in the drawings based on the plan and data given below. (3x15 =45 marks)

ii) From engineering drawing aspect, point out two discrepancies in the provided plan drawing. (5 marks)

Given data:

i) All dimensions are in MM.

ii) Assume Plinth height as 600 mm from EGL and RCC Column size 300mmx250mm.

iii) Tread -250 mm & height of riser 150 mm, Roof & Mumty room slab thickness 125mm

iv) Clear height of Mumty room 2700mm.

v) Door D1-900mmx2100mm, Door D2-750mmx2100mm , Window W1-1800mmx1200mm , Ventilator V1-600mmx300mm .

vi) Window Sil height 900 mm from floor , Ventilator V1 height 2400mm from floor.

vii) All external main wall 250mm thick , internal walls 125mm thick.

viii) Assume any dimension/data suitably if not given.

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