

(c) Explain with neat sketches i) Landing ii) Nosing iii) Going iv) Newel post.

[05]

CO4 L2

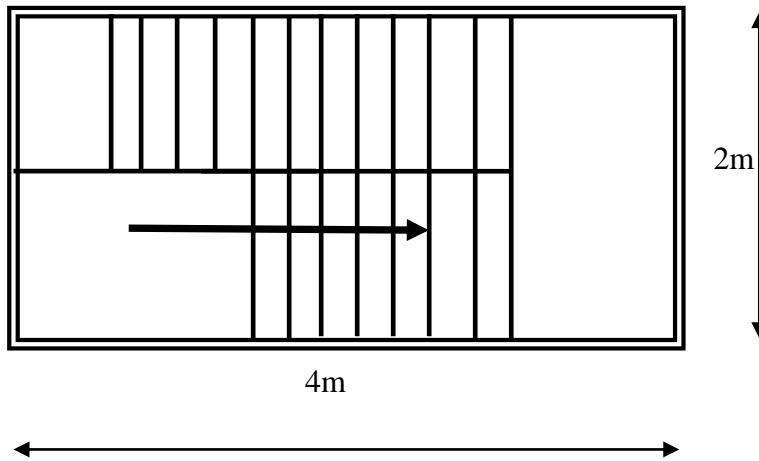
- i) This is the horizontal platform provided at the head of series of steps .it is used as a resting place during use of stairs .it facilitates change of direction of flight.
- ii) It is the projecting part of tread beyond the face of riser.it is usually rounded to give pleasing effect to tread and make staircase convinient and easy to use.
- iii) total length of stairs in horizontal plain including length of landings
- iv) Vertical member which is provided at the end of flight

2 (a) The inside dimensions of a stair case in a residential building are 2m X 4m. The height of floor including the roof slab is 3.42m. Design a proper layout of stairs for this building.

[03+05]

CO1 L2

- Adopt a dog legged stsr.
- Take rise as 180mm .
- Number of rises = Total height of floor//height of rise $3420/180 = 19$, Provide 12 rises in the first flight and 7 rises in the second flight.
- Assume a tread of 230mm
- Number of treads in the first flight will be 11
- Width left for landing = $46000 - 11 \times 230 = 2070\text{mm}$
- This width will be adequate.



(b) Explain the following with neat sketches i) Rolling shutter ii) Bay window

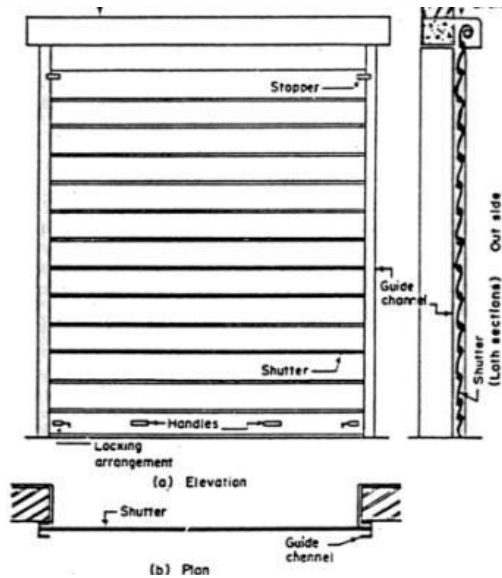
[06]

CO5 L2

i) Rolling shutter

These are commonly used for shops, godowns, stores etc.

- The door shutter acts like a curtain and thus provides adequate protection and safety against fire and thefts.
- The shutter is made up of thin steel slabs called laths or slates about 1.25 mm thick interlocked to each other and coiled upon specially designed pipe shaft called drum mounted at the top.
- The shutter moves in two vertical steel guide channels installed at their ends.
- The channel is made up of steel sheets and deep enough to accommodate the shutter and to keep it in position.
- A horizontal shaft and spring in the drum which allow the shutter to coiled in or out.
- These may be manually operated for smaller openings (upto 10 sq.m.). Above 10 sq. m., they may be operated manually/motorized.



ii) Bay window

The window projecting outward from the external walls .

- Wide and decoratively impressive allow for 180° view.
- A multi-panel window, with at least three panels set at different angles to create an extension from the wall line.
- it is commonly used in cold country where snow often falls.
- They may be triangular, circular, rectangular or polygonal in plan.



(c) What are the factors to be considered while locating doors and windows in a room?

- The number should be kept as minimum.
- It should meet the functional requirement.
- It should preferably be located at the corner of the room, nearly 20 cm from corner.
- If in a room, more than 2 doors are there, they shall be located facing each other.

[04]

3 (a) Mention the characteristics of Ideal paint.

- Form hard and durable surface
- Give attractive appearance
- Cheap and readily available
- Applied easily to the surfaces
- Good spreading quality
- Should dry in reasonable time

[05]

CO5 L2

CO5 L2

(b) Describe the methods of application of painting on old and new metal surfaces.

[04+04]

CO5

L2

Painting new iron and steel work

- The surface is cleaned off scale and rust by scrapping or brushing with steel wire brushes, oil, and greases by washing the surface with petrol, benzene.
- The cleaned surface is treated with film of phosphoric acid. This film protects the surface from rusting and provides better adhesive surface for the paint.
- First coat consist of 3kg red lead in 1 litre of boiled linseed oil.
- After first coat, two or more under coats are applied with brush or spray gun.
- Then final coat is applied.

Repainting new iron and steel work

- Old surfaces are cleaned by application of soap water or otherwise flat oxy –acetylene flame is passes over the metal, burning off old paint and loosening rust. The surface is scrapped with wire brush and washed with solution of caustic soda and slaked lime.
- After that surface is thus prepared , painting is carried out as for the new surface.

(c) Write short notes on effects of Dampness.

[04]

CO5

L2

- It is the cause of pathogenic bacteria as well as fungal colony and gives rise to the breeding of the mosquitoes causing unhealthy living conditions.
- Unsightly patches are found due to travel of water through walls and ceilings causing defacing of the walls through destruction of the designs and plastering.
- Also it causes softening and crumbling of plaster especially lime plaster in the old buildings.
- The spalling of concrete as well as lost decoration is a costly affair to recover.
- Also spalling off of the concrete from the roof ceiling endangers the safety of users.
- Continuous presence of moisture may cause efflorescence resulting in disintegration of bricks, stones, tiles etc., and consequent reduction in strength.
- This may result in eccentric loading due to load imbalancing during load transfer which may cause tension cracks in the structure.
- Due to reduction in the adhesive force due to presence of water caused by dampness, the flooring gets loosened up.
- Timber fittings like doors and windows etc. get deteriorated due to wrapping, dry rotting and buckling due to the dampness. Also the joints get tightened up and may result in misplacement of the elements due to swelling, bulging etc.
- Electrical fitting due to deterioration, possesses a threat of leakage of electricity consequently causing the danger of short circuit.
- Floor coverings get damaged.