

FINISHING NATIONAL EXAM 2013

Section A

- 1) a) The door is defined as an operable barrier secured in a wall opening. 1mk
- b) why do you think we need a door and what are 2 main parts of the door? 2mks

⇒ To give access to the inside of a room of a building

* It is connection link between various internal portions of a building

* protection and security

* privacy

* Basically the door consists of 2 parts;

- Door frame ; - Door shutter.

- 2) a) The window is a vented barrier secured in a wall opening.

b) Functions of a window:

- To admit light and air to the building 0.5 mks

- To give the view to the outside 0.5 mks

- To provide insulation against heat loss or against sun 5 mks

- To give a measure of resistance to fire. 0.5 mks

- 3) a) Give with short explanation, 3 pts of good location of the door 1.5mks

- The nbr of doors should be kept minimum to avoid clutter and space/area misuse

- The location of a door should meet the functional requirements of the room

- preferably, always the door should be near the corner and not in the center of the room.
- In a room, 2 doors should be located in opposite walls to provide good ventilation.

b) Also provide with explanation, 4 pts to look while locating the window.

⇒ - The nbr and size of windows is decided based on

* on light distribution

* on ventilation control

* on privacy control.

- The location of a window should also meet the functional requirement of the room including decoration and furniture arrangement. 0.5 mrk

- It should be located from the northern side the room and in the prevalent direction of wind for fresh air provision. 0.5 mrk

- The sill of a window should be at 70 cm to 80 cm above floor level of the room.

4. a) what do you understand by a paint?

⇒ A paint is a liquid composition of pigment and binder which when applied to the surface in a thin coating to form a solid film to impart the surface a decorative finish and protect the base material (concrete, masonry, plaster and timber, steel) from weathering, corrosion and other chemical/biological attacks. 1mr.

b) List any 4 characteristics of an ideal paint

1. paint should form hard and durable surface
2. It should give attractive appearance

It should be such that can be applied easily to the surface

It should be drying in reasonable time

It should have a good spreading quality

5. coloring pigments are added to the base to have desired colors of paints. provide any 4 divisions of pigments with 2 examples for each division

→ - Natural colors: ochre, umber, iron oxide

- Calcined colors: Lamp black, Indian red, carbon black, red lead

- precipitates: prussian blue, chrome green, chrome yellow

- Lakes: prepared by discoloring barites, or china clay with the help of suitable dyes.

- metal powders: powders of aluminium, bronze, zinc

6. The desired tint or shade of paint can be obtained by coloring pigment. Give at least 4 tints with 2 pigments for each.

Tint

Pigments

1. Black

Lamp black, carbon black

2. Blue

Indigo, prussian blue, cobalt blue

3. Brown

Burnt umber, raw umber, burnt sienna

4. Green

Paris Green, Chrome green, Green earth

5. Red

Indian red, venetian red, red lead

6. yellow

chrome yellows, yellow ochre, zinc chrome

7. a) ~~Varnishing~~: Varnish is a solutⁿ of resins or other substances such as common resin, amber, copal, shellac and others in alcohol, turpentine or oil.

b) purposes of varnishing the wood surface:

- To intensify or brighten the appearance of natural grain in wood
- To render brilliancy to the painted surface.
- To protect painted surface from atmospheric action
- To protect unpainted wooden surfaces of doors, windows, floors, roof trusses from atmospheric action

8. a) understanding on the meaning of partition wall:

⇒ The partition wall is a thin internal wall which is constructed to divide the space within the buildings into rooms or areas.

b) types of partition walls according to load bearing ability:

- Load bearing partition wall: They work as actual walls and support their own load and carry all load from super structure.
- Non-load bearing partition wall: Designed to support their self-weight only but with no ability to carry out any (dead load _{super-imposed-load})

9. Requirement to be fulfilled by an efficient partition wall:

- The partition wall should be strong enough to support its own weight.
- It should be strong enough to resist impact which the occupation of a room is likely to involve.
- It should have capacity to support suitable decorative surface

- 3 -
- It should be stable and strong enough to support some wall fixtures, wash basins, ...
 - It should be as light as possible
 - It should be thin as possible.
 - It should ~~be~~ act as sound barrier especially when it divides two rooms.
 - It should be fire resistant.

10. a) House drainage; =

b) The aims of house drainage; =

11. a) objectives of plastering; =

b) =

12. definition of cracking:

→ cracking consists of formation of cracks or fissures in the

plaster work resulting from the following reasons:

1. Imperfect preparation of the background
2. Structural defects in building
- 3.
- ...
- 7.

13. a) The term bench work denotes production of an article by hand on a bench whereas the term fitting denotes assembling of parts together & removing metals to give the necessat fit, & may or may not be done on the bench.

b) Tools used in bench & fitting shop:

- | | |
|------------------------|-----------------------|
| - Measuring tools | - Tightening tools |
| - Measuring devices | - Miscellaneous tools |
| - Measuring instrument | - planing tools |
| - supporting tools | - Abrading tools |
| - Holding tools | - setting cut tools |
| - Striking tools | - Smoothing tools |
| - ... | |

14. a) Micrometers are commonly employed for measuring small dimensions with extreme accuracy of 0.01 mm.

They may be of 3 kinds:

- External micrometer for measuring external dimension
- Internal " " " " " " internal " "
- Depth micrometer " " " " " " depths
- combined micrometer for measuring both internal & external dimension.

b) The four visible parts for that ceiling rectangle:

- wall angle - panel - main Tee - cross Tee

15. —

16. a) A choice of insulating material should be based on:

- cost of material
- Area to be covered
- standard of insulation require
- cost of heating or cooling.

b) Insulating materials should have the following properties:

- It should have high thermal resistance
- It should be insect proof
- It should be durable & cheap
- It should be non-absorbent of moisture
- It should be readily available
- It should be reasonably fire proof.

~~17~~ SECTION II

17. a)

b) A Good varnish should possess the following characteristics:

- It should dry quickly
- The protective film obtained on drying should be hard, durable & resistant to moisture.

The finishing surface should be uniform in nature and pleasing in appearance.

- It should exhibit glossy surface.
- It should not shrink or cracks on drying.
- It should have sufficient elasticity.
- The color of varnish should not fade away with time.

18. I. The 2 famous relationships b/w the height & width of a door.

$\rightarrow w = 0.4 \text{ to } 0.6 H$
 $\rightarrow H = (w + 1.2) \text{ meters}$

$\left\{ \begin{array}{l} w = \text{width} \\ H = \text{Height} \end{array} \right.$

II. The standard sizes of door for buildings

a) Door of residential buildings:

- External door = 1.0m x 2.0m to (1.1 x 2) m
- Internal door = 0.9m x 2m to 1m x 2m
- Door for bathroom & water closet = 0.7m x 2.0m to 0.8m x 2.0m
- Garages for cars = (2.25 x 2.25) m

b) Doors of public buildings (schools, hospitals, libraries)

- External = 1.2m x 2.0m
- Internal = 1.2m x 2.1m
- bathroom & WC = 1.2m x 2.25m

19. a) The four main types of timber defects:

- Knot, wane, shake, check and splits,
- pitch pocket, cracks, bow, twist, warping

b) The file =

c) - The cement mortar is the best mortar for external plastering work since it is practically non-absorbent. It is preferred to lime mortar in both rooms & external walls, in dry & damp climates. It is stronger & the mix proportion (Cement : Sand) may vary from 1:4 to 1:6.

- The lime mortar contains properties of both the lime mortar as well as cement mortar. Addition of lime imparts plasticity resulting in a smooth plastered surface. The mix proportions (Cement : Lime : Sand) may be 1:1:8 or 1:2:8. Generally fat lime is used.

20.

Linear measurement tools		Angular measurement tools	
Precision	Non precision	precision	Non precision
1. micrometer 2. vernier caliper	1. Tape measure 2. steel rule 3. flat square rule or circumference rule	1. Bevel protractor 2. surface plate	1. Engineering square 2. protractor 3. try square

21. a) Term rendering means much the same as plastering except that rendering concerns external surfaces of structures. Thus, it is the process of applying cement and sand plaster to external walls of a building.

b) Function of rendering:

We apply external render for:

- Improving the appearance of concrete block walls.
- Providing water proof to porous blocks.
- Providing a base for color finish.

2.1. c. types of render:

- smooth render
- Rough render
- scrapped render
- pebble render
- Tyrolean rend

SECTION C

24. types of paints

1. Aluminium paint: Finely ground aluminium suspended in quick drying varnish or slow drying oil varnish.
2. Anti-corrosive paint: used to protect metal structures against adverse effects of moisture, fume, acids, corrosive chemicals of rough weather.
3. Asbestos paint: special-purpose paint for surface exposed to acidic gases & steam, patch work & stopping leakage in metal roof.
4. Bituminous paint: prepared by dissolving asphalt, tar or mineral pitches in naphtha, petroleum or white spirit.
5. Bronze paint: used to paint interior & exterior metallic surface.
6. Casein paint: protein substance mixed with white pigments to form powder or pasty paint.
7. Cement base paint: water paint in which white or colored cement forms the base.
8. Colloidal paint: It does not contain any inert material & it takes more time to settle.

9. Emulsion paint: It dries very quickly (1 to 2 hours) good workability & high durability.
10. Enamel paint: It contains few good constituents which are metallic oxide, oil, petroleum spirit & resinous matter.
11. Graphite paint: Black color, used on iron surfaces in contact with ammonia chlorine, sulphur gases.
12. Lustrous paint: contains white lead or zinc white mixed with methylated spirit.
13. Oil paint: Ordinary paint consisting of 2 main constituents (base & vehicle)
14. plastic paint: They contain plastic as base constituent.
15. Silicate paint: Mix of calcined & finely ground silica with resinous substances.
16. Synthetic rubber paint: synthetic resins in appropriate solvents & suitable pigments.

2.2. Explanation:

a) Rock faced or Quarry faced:

In this type of finish, the exposed stone is not dressed. It is kept as such except that the burrings extending 80 mm in projection are removed by hammering. A strip of about 25 mm is made with the help of chisel around the perimeter of exposed surface.

- Hammer dressed finish:

The stone blocks are made roughly square or rectangular by means of waller's hammer.

The exposed face of the stone is dressed with the help of punch, thus making depressions or punch holes or at some regular distances of about 20 mm. A strip of 25 mm width is made around the perimeter of the stone with the help of chisel.

- Axed finish: This type of finishing is used in hard stones like granites, where the dressing is done using axe.

II. Other types of stones finish.

- Scabbling finish
- Punched finish
- Picked finish
- Boasted finish
- Tooled finish
- Furrowed finish
- Combed finish
- Vermiculated finish
- Reticulated "
- Plain finish
- Rubbed "
- Polished "