AKGEC/IAP/FM/02

**AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZIABAD**
**DEPARTMENT OF CIVIL ENGINEERING**

ST-2 **SESSIONAL TEST SOLUTION**

**Course: B.Tech**
**Session: 2017-18**
**Subject: Building material and construction**
**Max Marks: 50**

**Semester: III**
**Section: CE-1, CE-2**
**Sub. Code: RCE-301**
**Time: 2 hour**

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## Section – A

1. Attempt all the parts –

a) What are the effect of termites?

Sol:- Termites are like insect which do not desirable in construction material. they are formed basic problem in wooden material. Termite convert the wood into powder by consumed it continously. They reduce the strength of construction material.

b) What are the advantages of cement paints?

Sol- Cement paints form a impermeable layer & protect it from temprature effect. it does'nt allow UV rays it is toxic in nature & used to protect the surface from harmful substance & organism. They prepared in boiled linseed oil. It easy to apply & also no need to remove old paint, when new apply.

c) Refine the Distemper & varnishes. what are the various type of varnishes?

Sol. The mixture of white chalk with water form distemper. it lie in water paints catagory. it available in powder or paste form.

Varnishes are protecting layers used for protective purpose. By mixing amber, copal, shellac etc. in alcohol or turpentine oil, get varnish. They are basically —

1. Oil Varnish
2. water Varnish
3. Spirit Varnish.

d) What are the difference between thermoplastic & thermosetting plastics?

Sol.

| Thermoplastic | Thermosetting |
|---|---|
| 1. It can be reshaped | 1. It can't reshaped. |
| 2. Its melting point is low | 2. Its MP high. |
| 3. It is costly | 3. It is cost effective |
| 4. Easily formed | 4. Time taken |
| 5. Tensile strength is low | 5. Tensile strength is high. |
| 6. They melt in heating & solidify in cooling continously. | 6. Once they formed can't be modify again. |

e) What are the different types of flooring? (3)

Sol:-
1. Brick flooring
2. Stone flooring
3. wooden flooring
4. Concrete flooring
5. Terazzo flooring
6. Mosaic flooring
7. Asphat flooring
8. Glass flooring
9. Magnetite flooring
10. Limonite flooring

## Section - B

Qus 2 Attempt all the parts —

a) Enlist the importance of hollow block construction.

Sol:- Hollow block construction is recent construction & highly used in present Era due to its cost effectiveness & Easiness to work.

It reduce the quantity of material. In less quantity, they filled larger space It also used for partition wall. It made according to the requirment. It make wall sound prone also.

It maintain the internal temprature in cold or heating days. It doesn't require more setting

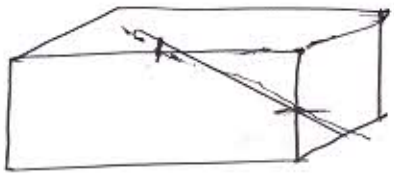
(4)

setting time. it used for thermal insulation Such structures are also used for damp-proofing to some extent. because it its not transffered the moisture to next layer.

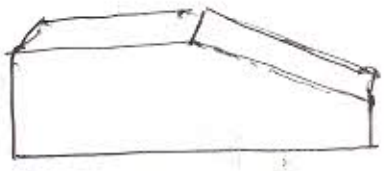
it is also called cavity wall, The inner leaf which is the main load bearing wall.

5) What do you understand by king closer & queen closer?

Sol. King closer: In this type closer a brick cut along the line joining the mid point of two adjcent perpendicular sides. it change the shape of header stretcher both.



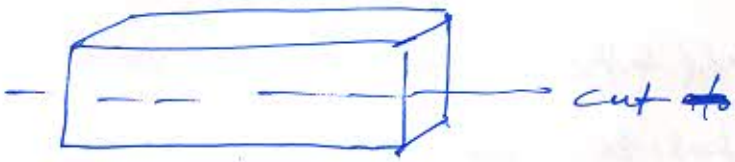
(brick)



(King closer)

Queen closer: In this type of closer a brick cutted along its width without changing the length.

Used in double flemish bond wall at the ending to give strength.




length ratio = 1 : 1
width ratio = 1 : ½

c) What do you understand by masonary construction?

Ans. Masonary construction is done to hold the building effectively. It refers to any construction done by masons using material such as brick, stone tile & so on. The national building code is specify that compressive strength of building block should be more than 3.5 N/mm². The following parts are built using building blocks —

1. foundation
2. Plinth
3. Load bearing & partition wall
4. column
5. Lintel & arches

They are basically two type —

1. Brick Masonary
2. Stone Masonary.

(4) Masonary include various terms —

(i) face: The wall which is open to the sides.

(ii) Back: The opposite wall which is inside the room.

The portion between back & face is known as Heading. it set by using bond.

d) Discuss the details of various principles planning of the building.

Sol- Principles -

Purpose of building:— Firstly we should know the purpose of building. whether it is a hospital, school, office or anything.

Safety:— it is the main requirment of the construction. For safety purpose, we discuss the strength & durability of construction.

Economy:— it is a main point which consider by Govt. it should be economical.

Strength:— it consist enough strength. which depend upon the

quality of bond & material.

Durability :- The construction should be capable to withstand with the standard value or time of construction.

e) Refine the properties of following — brick, Gypsum, Timber, Glass.

Sol Brick —

(1) It should consist enough compressive strength.
(2) It should posses a red - brownish colour.
(3) It should'nt show efflorescence.
(4) It should posses a tolerance upto 18%.
(5) It should be durable & have sharp edges.
(6) It show least shrinkage

Gypsum —

(1) It used for increasing the setting time
(2) It should be white in colour
(3) It should form a paste with water.
(4) It should'nt posses a bad smell.
(5) It form a baste which sets very rapidly.

(8)

## Timber –

(1) Easily available in different forms.
(2) Hard & durable.
(3) colour should be dark.
(4) Absorption of water is high.
(5) it can be cut easily by a saw.
(6) it can be used in place of plastic

## Glass

It should show Hard surface.
it is crystalline or semi-crystalline in nature.
it can affected by chemicals.
it absorb heat inside voids.
it should be transperent & opacity good.

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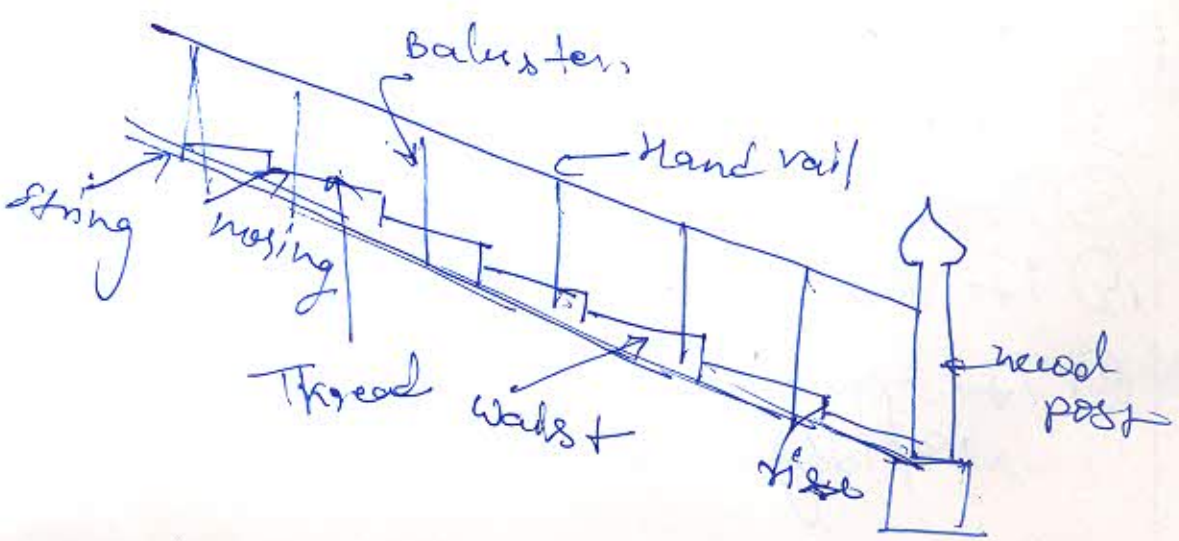
## Section-C

3. Attempt all the parts –

3 a) Explain briefly the different Component used in Staircase Construction with neat sketch.

Sol.



Newal post — Used at the start point to support the whole structure.

Handrail — is used to give the support to the person so as to easily move along the stairs by holding it.

Baluster — are the vertical thin boles which connect hand rail with string.

String - it is the main slope that provides below the stairs to support.

Thread — of side is the horizontal path along the stairs in which person stand or walk.

rise — it is the vertical part to support thread. it is in 90° with thread

waist — is the small gapping b/w string & necking.

flooring - is the base upon which the newel post is fixed.

Ques-3(b) Explain the various method of Damp-proofing?

Sol - It is the process done to make the surface impermeable to moisture content.

(10)

(i) Damp-proofing covering — This is done by covered the surface with water-resistant material such as bituminous felts, etc. This doesn't allow any penetration of moisture.

(ii) Cavity walls — it also done by providing cavity wall which make the wall impermeable by breaking the flow of water.

(iii) Integrated damp proofing — This involves mixing certain materials in the mortar which act as water repellents by filling pores. Certain substance have mechanical action i.e. they react with cement to become water repellent.

(iv) Guniting — This involves using cement rich mortar around drainage pipes.

(v) Silicates of sodium & potassium are used for damp proofing.

(vi) Painting, plastering, colour wash.

(vii) There are many other procedure we have to damp proof.