MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION
(Autonomous)
(ISO/IEC-270001 – 2005 certified)

WINTER -14 EXAMINATION

Subject code: 17308 **Model Answer** **Page No: 1/20**

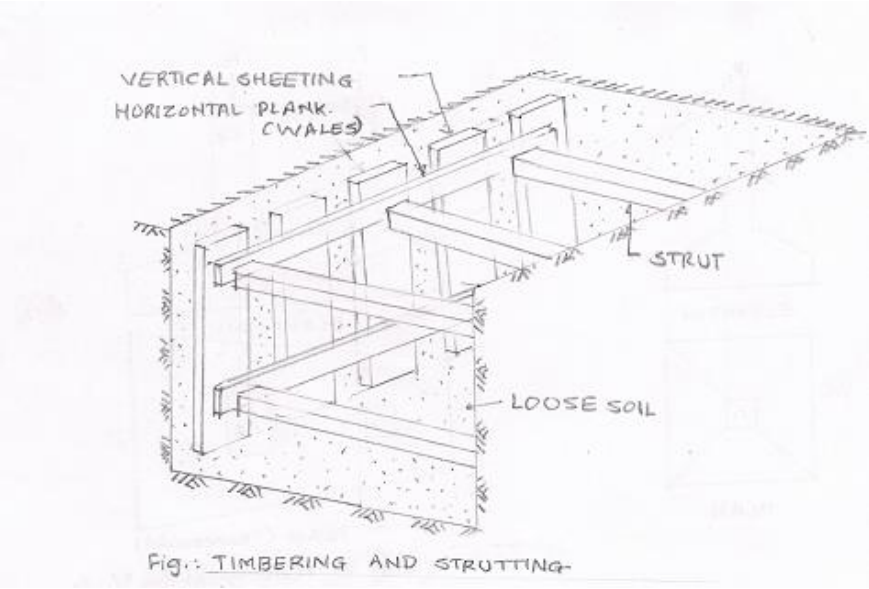
Important Instructions to examiners:

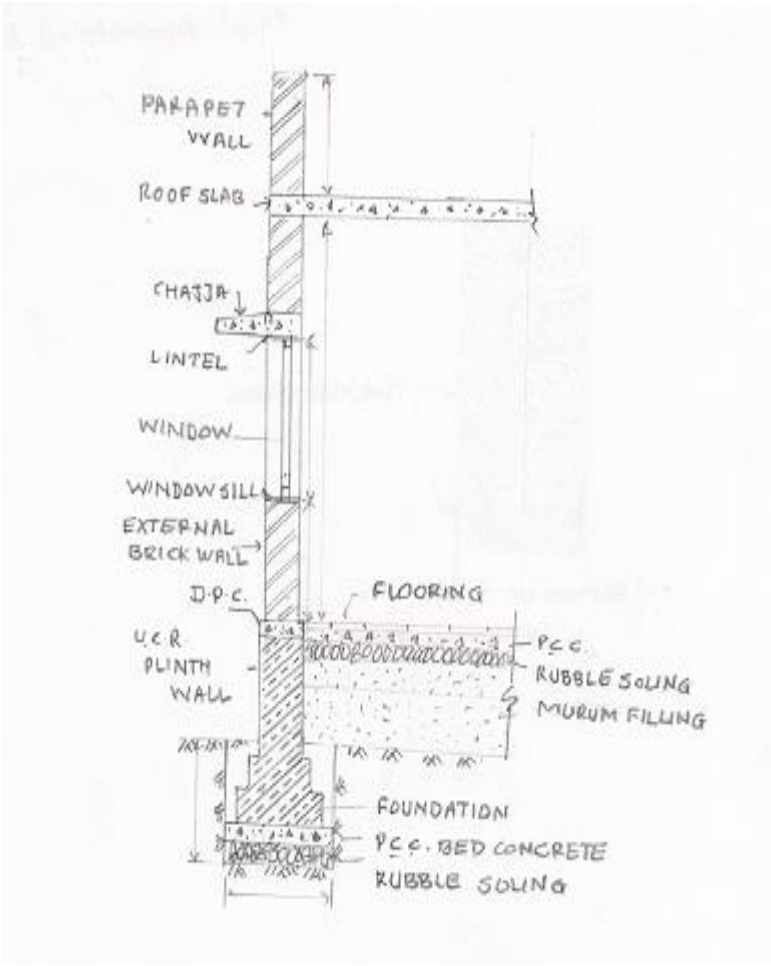
1) The answer should be examined by keywords and not as word-to-word as given in the model answer scheme.
2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
3) The language error such as grammatical, spelling errors should not be given more importance. (Not applicable for subject English and communication skill).
4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figure drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
5) Credits may be given step wise for numerical problems. In the some cases, the assumed constants values may vary and there may be some difference in the candidates answer and model answer.
6) In case of some questions credit may be given by judgment on part of examiner of relevant answer based on candidates understanding.

Q.1 a)Attempt any SIX of the following :	**12**
i) Define foundation. Give one purpose of it	
Ans:- Foundation:-The lowest part of a structure below ground level which provides a base for the superstructure and transmit the load of superstructure to subsoil properly is known as foundation. **Purpose:-**To give the firm support to the structure**.**	**01** **01**
ii) State the importance of frog .	
Ans:- Importance of frog:- Frog provides a space for the mortar in top face of brick , on setting of mortar which forms a key ,Frog is important to prevent displacement of the bricks above in lateral direction ,to provide proper bonding between successive layer and to get safe construction of brick work.	**02**
iii)Give four component part of staircase	
Ans:- Component of door frame are as follows: 1) Post 2) head 3) Horn 4) Iron hold fast 5) Rebate ***(1/2 mark each any four)***	*

iv) List any four component parts of staircase?	
Ans:- Component part of stair case are as follows: 1) Flight 2) Landing 3) steps 4) Riser 5) Tread 6) Soffit 7) hand rail 8) Baluster ***(1/2 mark each any four)***	*
v) State the suitability of escalator and ramp .	
Ans:- Escalator is a moving stair suitable for fast vertical communication between successive floors where user only stands on its plat form. it is provided in malls and aerodrome etc. Ramp is suitable for vertical communication in building such as hospital, schools, business center using wheel chairs or vehicles or cars etc.	**01** **01**
vi)Define Neeru finishing ?	
Ans:- Final coat of plaster if provide with a thin layer of neeru (i.e. sagol or sanala), a lime base material as a finishing coat is known as neeru finishing	**02**
vii) Enlist any two uses of crack fills.	
Ans:- **Two uses of crack fills are as follows**:- 1) To fill crack of exposed wall surface for good appearance 2)To fill cracks to stop the leakage of water from roof or walls 3) to fill cracks of water tank to stop the leakage. 4) To stop the leakages in plumbing works 5) To join the PVC component. 6) To carry out small repair works of the structures ***(1 mark each any two)***	*
Viii) List any four accessories required for .Pre-stressing work.	
Ans:- Accessories required for prestressing work are as follows; 1) Hydraulic jack with dial gauge. 2) High tension cables or wires 3) End block and anchorages 4) Wedges 5) Cutting devices 6) Plat form 7) Form work 8) Concrete mixer and tools ***(1/2 mark each any four)***	*
b)Attempt any TWO of the following	**08**
i) List any component of super structure with their function.	
Ans:- Components of superstructure with their function are as follows:- 1) Plinth: To provide protection from rainwater and crawling animals and insects, to provides a space for plinth filling layers and flooring, 2) Floors: To provide horizontal smooth good looking surface in every room for occupant to his routine work in the house. 3) Wall: to acts as a outer limit or boundary of the building, to separate the rooms from each other, to support the roof in load bearing structure , to act as a partition wall in frame structure, to provide safety to user of rooms	*

4)Column: To give the support to the floors at various levels in frame structures, to take the compressive load of the structure. 5) Beam: To support the transverse (vertical) load of building structure, to resist shear forces and bending moment developed in it due to loads. 6) Roof : T o protect inside building from rains and wind , snow fall, to provide safety to users of building. 7) Doors and windows: Doors: To allow entrance in the building and circulation across different rooms Window: To provide air and light inside the light inside the room. 8) Lintel: To support the portion of wall over the opening to transmit the load on either side of opening 9) Sill: To provide protection to wall bellow the window, to provide support to window or vertical member of opening. 10)Stair case : to provide easy access or vertical communication from one floor to the others. 11) parapet: To provide safety of terrace user (usually children's) , to prevent upward movement (uplift) of pitched roof on walls. ***(1/2 for name and ½ mark for function write any four)***	
ii)Give eight precautions you will take while marking (setting out) for function of residential building .	
Ans :- Precautions to be taken while marking (setting out)for foundation of residential building are as follows:- 1) All vertical wooden posts should be firmly fixed into the ground with concrete and cured. 2)Horizontal railing (wooden planks)should be straight and should have standard size . 3) Joints of the wooden railing should not be overlapped but should be joined by small wooden plank on either side of joint and nail it properly. 4) All vertical l posts should be kept generally at the same level 5) Horizontal wooden railing should have same level throughout ,checked by level tube or dumpy level. 6)Proper nail size(4mm)should be used on railing for locating the centre of column in framed structure and locating the centre of masonry wall in load bearing structure. 7) A diagonal check should be done for locating the centre of column. 8) See that no one should seat on railing to avoid bending o f railing for better accuracy . 9)Peridical checking should be by measuring the distances of each nail from the face marking or origin. 10) Height of railing should be minimum to reduce error in marking of footing of large depth. 11)Nail position on horizontal railing should not be disturbed till the completion of plinth work. 12) All column nos C1 ,C2,C3,….. etc mark on the wooden railing should be visible. 13) To prevent the lime powder flowing away with wind action , it should be thoroughly mixed with sand.	*

14) Marking with lime powder should beclear and distinct to excavate the pits and trenches properly by labour. 15) Any discrepancies or errors found at any stage shuld be immediately brought to the notice of architect and RCC consultant. 16) All the work should be get certified by RCC consultant and architect. 17) Measure or check all distances by steel tape. 18) Prepare the location sketch of reference marikings. 19) Mark the face line or center line correctly. 20) Use proper or correct plumb bob for centering. ***(1/2 for each any eight)***	
iii)Explain timbering and strutting in excavation .	
Ans:-Timbering and strutting:- A method of giving the temporary support to the side of deep trench or when subsoil is loose or very soft is known as timbering (i.e. shoring) and strutting It consist of timber planks and strut to give temporary support to the side of trench . it help to reduce width of foundation . Methods of timbering and strutting are: 1) Vertical sheeting 2)Box sheeting 3) Runner system 4)Sheet piling 5) stay bracing Figure below shows arrangement for timbering and strutting  Fig.: TIMBERING AND STRUTTING. ***(explanation -2mark and fig -2 mark)***	*

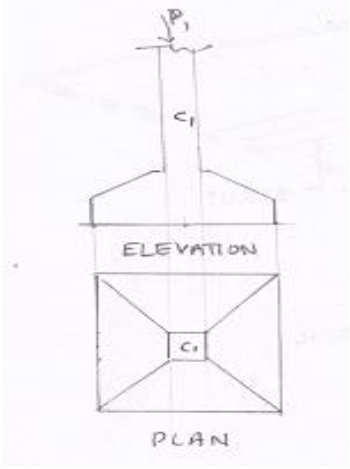
Q.2 Attempt any FOUR of the following	**16**
a) Draw a neat sketch of section of load bearing wall from foundation to parapet .Label its component	
Ans:-  ***(sketch-2marks and labeling -2 marks)***	*
b)Difference between load bearing and structure and framed structure (any four point).	

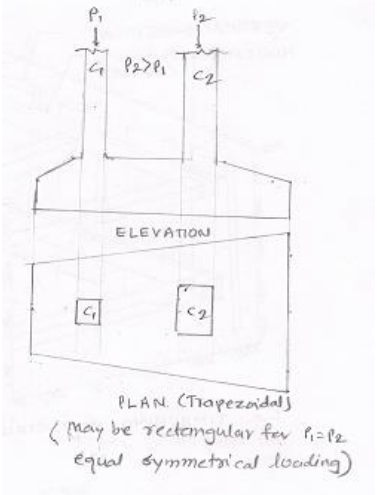
Ans:- *

Load bearing structure	**Framed Structure**
1)Suitable for hard strata available at shallow depth .	1) Suitable for any type of strata at any depth .
2)Thick wall reduce the floor area.	2)More floor area available due to thin walls .
3)Allowed up to and storeys .	3)Multi storied construction is possible .
4)constriction is slow and time consuming .	4)Fast and speedy construction .
5)Economical up to two storeys	5)Economical for multistoried building .

6)Vibration due to machine and earth quake seriously affects .	6)Without machine vibration and earth quake forces.	
7) Flexibility for internal support charges or alterations .	7) Flexibility due to partition walls.	
(1 mark for each write any four)		
c) What is meant by site clearance and give any four points to be considered while preparing job –layout .		
Ans:-Site clearance means , if the site exists plants, shrubs , big size stones, trees etc. All should be removed and disposed of properly .the permission must be taken from respective authorities , if ground is uneven ,make it plan for this contour survey may be carried out .if the approach roads ,parking place ,material storage is not available ,do make it available . **Points to be considered while repairing job layout are as given below (any four)** 1) Method of construction. 2) Nature and type of work. 3) Location, area and topography of the site . 4) Requirements of site office, store rooms, labour quarter, god wans, first aid and space for it. 5) To get proper co-relation and co-ordination of a different units to increase efficiency, safety, speed in construction work. ***(*Note -2 marks for definition and ½ marks for each point write any four)***		*
d)Differentiate isolated column footing and combined column footing .		
Ans:-		*

Isolated column footing	**Combined column footing**
1)An independent footing provide the under column to distribute the board uniformly on the soil below is known as isolated column footing	1)Footing provided under two or more columns to distribute the loads uniformly on soil below is known as combined column footing
2)it may be of brick masonry or stone masonry, RCC ,Steel .	2)It usually provided in RCC or steel.
3)It may be steeped footing , or trapezoidal footing .	3)It may be steeped footing or trapezoidal in cross section .
4)It is usually axially loaded ,below internal single columns may be eccentric at close to the property line .	4)In this c.g. of column loads and footing must get coin side .
5)F.g	5)F.g





(*Note-1 marks for each write any four)

e) state situation where you would recommended the following type of foundation with reason:
i)well foundation .
ii) stepped foundation .
iii)raft foundation .
iv)pile foundation

Ans:- i)Well foundation :-For the deep foundation underwater below the reverse bed having granular material .retain this granular material and to prevent the entry of water into the foundation excavation. *

ii) Stepped foundation :- For eccentric footing ,the footing near or close to property line
OR
For easy construction of footing below the column ,which allows good compaction then trapezoidal footing .

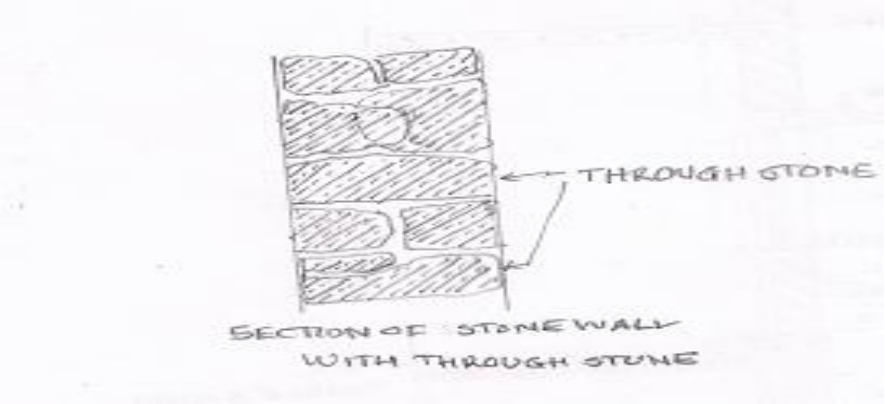
iii)Raft foundation:-For made up ground ,Soft clay ,marshy site having low bearing capacity and heavy concentered loads on column such soil may have uncertain behavior of its sub soil water conditions .

iv)pile foundation :-For the strata having the required bearing capacity is available at a grater depth or at steep slops ,water logged soil .made upsil ,pile foundation resist he column load due to the friction or bearing .in this type other type of foundation are not suitable .

(*Note -1 mark for each)

f) Define the following
i)facing
ii)backing
iii)heating
iv) through stone, with sketch

Ans:-
i)Facing:-The material used in the face of the wall is known as facing. *
ii)Backing:-The material used in forming the back of the wall is known as backing **.**

iii)Heating:-The Portion of a wall between facing and backing is termed as hearting**.** **iv) Through stone, with sketch:-**A stone passing through a wall from front to back face and acting as a binder for the two faces of the wall is termed as through stone.  ***(*Note -1 mark for each)***	
Q.3 Attempt any FOUR of the following	**16**
a)As a civil engineer what you will be observe in the construction of brick masonry work (eight point)	
Ans:- 1) The bricks should be as per specification it should be well burnt and uniform size and shape . 2)Before using masonry work ,it should be soaked in water 3) The brick should be laid properly on their beads and from should be on top surface . 4) More brick –bats should be not be used at the time of construction . 5) Brick masonry work should be perfect in level . 6) The brick work should be done in proper band. 7) The Mortar should be used as per specification . 8)Expansion joint should be provided . 9)After completion of brickwork proper caring should be done at least 7 days. ***(*Note -1/2 marks for each write any eight)***	*****
b)Mention four type of doors and draw a sketch	
Ans:- Type of doors:- 1)Framed and panel door . 2)Battened and ledged doors . 3)Glazed or sash door. 5)Flush doors . 6) louvered doors . 7) Fly-proof doors . 8) Rolling steel shutter doors . 9) Revolving doors . 10)Side –sliding door. 11) Steel plated door .	*****

12)Hallow metal door.
13)Metal covered plywood door .
15) Swinging doors.

(1/2 marks for each write any four)

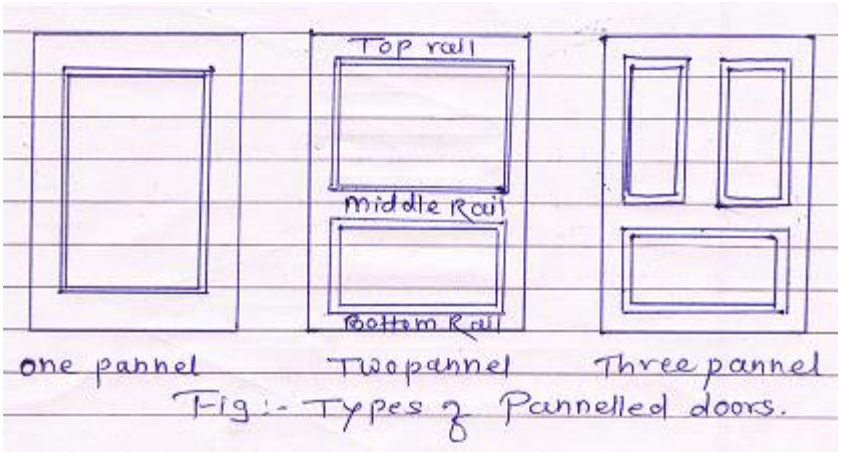
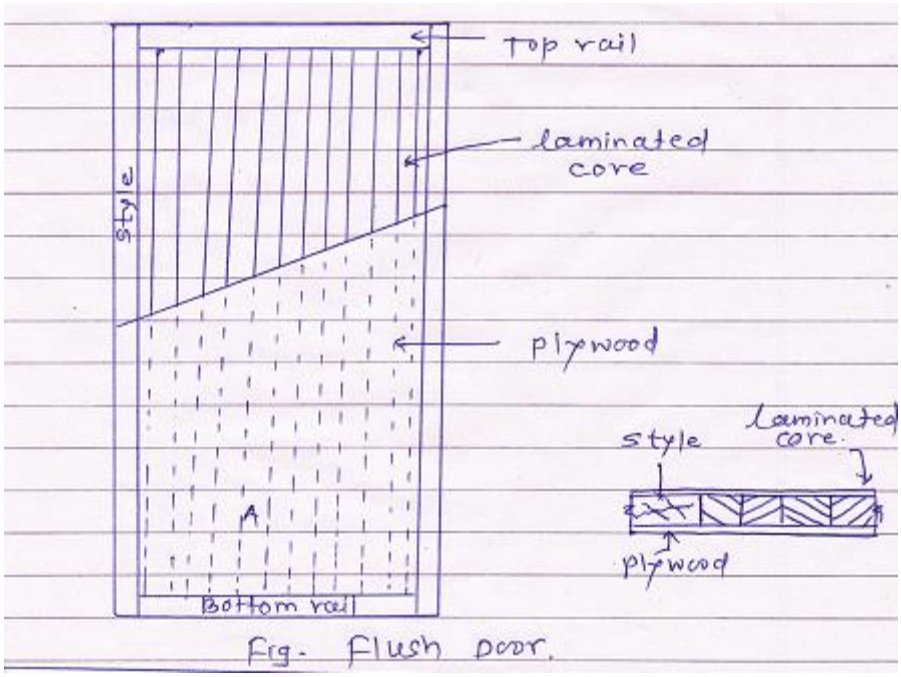


Fig :- Types of Pannelled doors.

OR

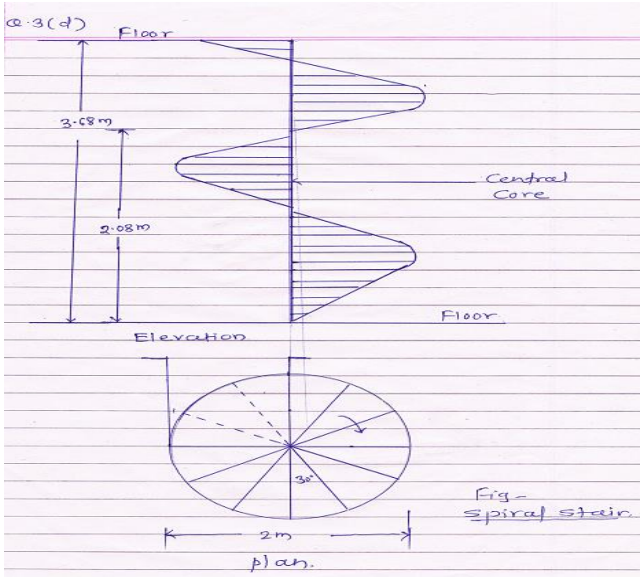


Frg. Flush door.

(sketch-01 mark, labeling -01 mark)

c) Suggested a type of window with reason for the following buildings:
i))residential bungalow.
ii)Cinema hall.
iii)school iv)enclosed R.C.C .staircase

Ans:-
i))residential bungalow:- 1)Sliding window :-It is easy accessible for users. *
ii)Cinema hall:- Fixed window -It is suitable for privacy and darkness.
iii)school :- a)Metal window :-1) More stronger and durable windows.
2)It is more fire resistant.

iv)Enclosed R.C.C .staircase:-Glazed window –It is suitable for ventilation and more sunlight . ***(*Note -1 mark for each)***	
d) Draw a neat sketch showing plan and elevation of spiral staircase.	
Ans:  ***(*Note-Plan -2 marks and elevation -2marks)***	
e)Explain the terms: **i)skirting .** **ii)dado.** **iii)mezzanine floor** **iv)pitched roof .**	
Ans:- **i)skirting** .:- 1)The skirting . is the full or half tiles as finish to the wall ,held in between bottom of the wall and floor . 2)The skirting is the helpful at the time of washing and cleaning the floor and not allowing the water on painted surface of the wall. 3) Skirting. Improve internal appearance of the all . 4)The height of skirting . Normally provided 100mm to 150 mm. 5)Mosaic tiles, granite strips kaddapa ,marble strips are used as strips . **ii)Dado:-** 1)If the glazed tiles or any other tiles are placed and fixed to the vertical wall between window sill and floor of both and W.C room and in kitchen then it's terminal as dado. 2)The height of dado are provided from 0.9m to 1.2 m(normally). 3)The dado to prevent the exposure of water to the walls of bathroom and toilet . **iii) Mezzanine floor :-**	*****

1) Mezzanine floor can create the additional floor of space for a variety of different use such including storage or extra office space . **2)** Mezzanine floor are very quick and cost effective way to create a new space without the expenses and inconvenience of relocation. iv) **Pitched Roof :-** These roof are inclined roofs and generally provided over varendah. These roofs are mostly suitable in heavy rainfall areas. These roofs are provided with roofing tiles at the top. **(*Note-1 mark for each)**	
f)Explain king post truss and queen post truss with its suitability	
Ans:- King post truss:- 1)The king post type of truss central post is known as a king post .it support tie beam. 2)The inclined member is known as a strut.it ‘s function is to prevent the principle refter from bending in the middle . **Suitability:-** It is suitable for roofs having spam 5 m to 8m. **Queen post truss:-** **1)The** queen post truss to vertical members are used so it is known as Queen post. 2)The upper end of the queen post are kept in position by means of a horizontal member it is known as straining beam . 3)The additional purlins are supported on the queen **post.** **Suitability:-** 1)It is suitable for roofs having span 8 m to 12 m.	**1** **1** **1** **1**
Q4 Attempt any FOUR of the following	**16**
a)Mention where the following are used as floor finish : **i)Shahabad tiles.** **ii)Granite** **iii)Vitrified tiles.** **iv)Interlocked blocks .**	
Ans: **i) Shahabad tiles:-** basement parking god owns etc. **ii)Granite :-** Temple cladding of windows .cladding of doors etc. **iii)Vitrified tiles:-**Living room ,bed rooms **.** **iv)Interlocking blocks:-**Footpath ,petrol pump ,bus –stand four all public place etc.	**1** **1** **1** **1**
b)What is pointing ?Explain procedure of pointing .	
Ans:- **Pointing:-** The joint are raked out to a depth of about 20mm and then this spaces are filled up by suitable mortar in the desired shape is known as pointing . **Procedure of pointing :-** 1)All the mortar joints in the masonry are racked out to a depth of 15-20mm with the help of pointing tools . 2)These joints are washed with clean water and it is kept for some time .	**2** **2**

3)After this joints are filled up with small trowel by pressing it into the joints to from a closed contact . 4)Then excess mortar is scrapped away. 5)finishing work is curing for minimum 7 days .	
c)Explain the procedure of plastering a brick wall with cement mortar.	
Ans:- **Procedure of plastering:-** 1)The mortar joints on the brick work are racked out to a depth of 20mm ,the surface is clean and it is well watered . 2) In the first coat fill up the hollows n the surface of the wall .after filling first coat of plaster is applied on the surface of brick wall. 3)The first coat of plaster are very rough . 4)The usual thickness of first coat for brick masonry 9mm to 10 mm. 5) The second coat of plaster is applied after 6 hours of first coat. 6)The usual thickness of second coat of plaster is 2 to 3 mm.it is finished as per requirement for smooth surface ,the neeru or sagol is applied for hard surface . 7)The completed work is allowed to rest for 24 hours. 8) The surface of plastering is kept well watered /curing at least one week. ***(*Note -1/2 mark for each)***	*****
d)Describe method of application of point on new-wooden surface	
Ans:- **Method of application of point on new-wooden surface:-** 1)Wood finishing start with sanding either by hand ,typically using a sanding block or power sander ,scraping or planning imperfection are nail holds on the surface may be filled using wood putty or pores may be filled by using wood filter .often ,the wood color of number of other techniques . 2)Once the wood surface is prepared and stained the finished is applied .It usually consists of several coats of wax and each coat is typically followed by sanding . 3)Finally surface may be polished or buffed using wood, pumice ,rotten stone or other materials ,depending on the shine desired. 4)Final coat of wax is applied over the finish to add a degree of protection . ***(*Note -1 mark for each)***	*****
e)Draw the form work sketches for column and beam.	
Ans:-	*****

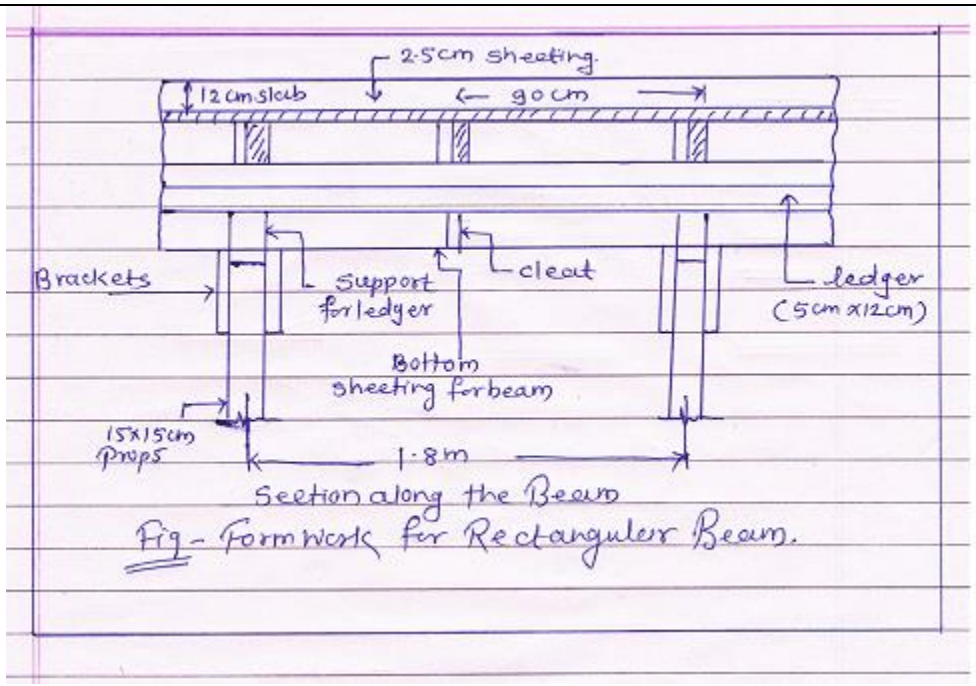
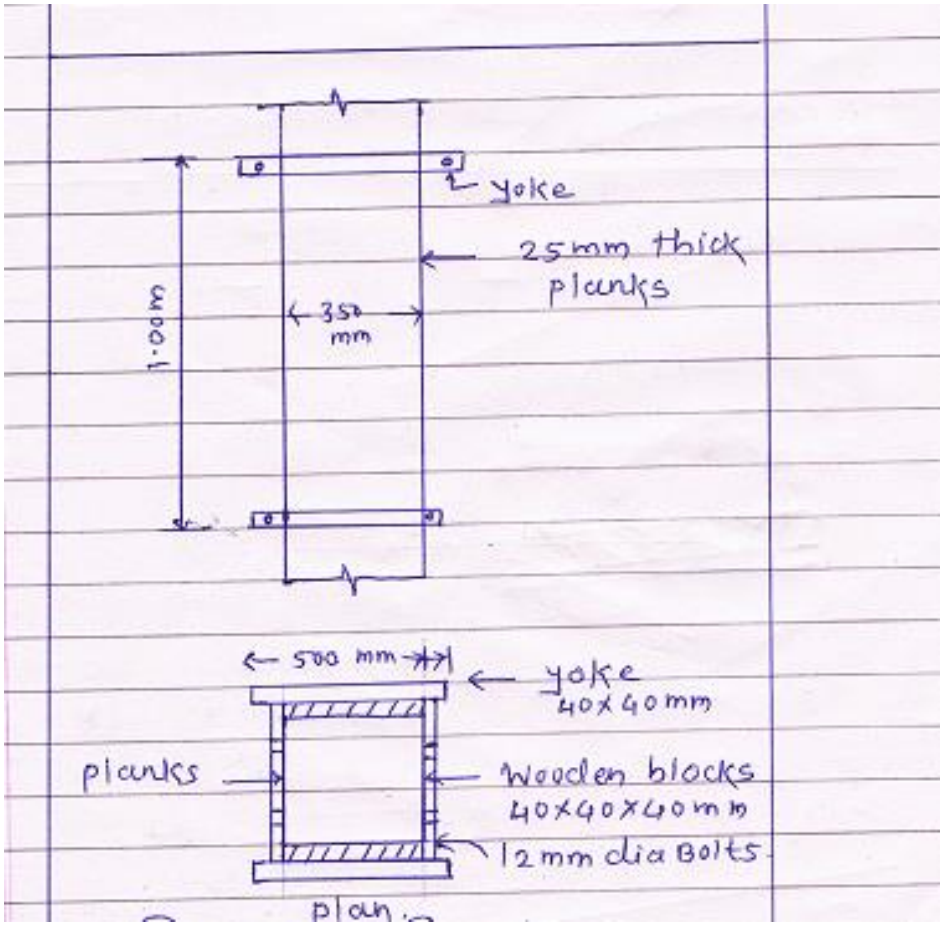


Fig - Formwork for Rectangular Beam.



F.g Formwork for column

(*Note -2marks for beam sketch and 2 marks for column sketch)

f) Describe any two causes of formation of cracks and measures adopted them.	
Ans:- **Cause of cracks and measures adopted to prevent them:-** **Cause of cracks:-** 1)It is occurred due to moisture changes . 2)It is occurred due to temperature variation . 3)Due to vegetation . 4) Due to elastic deformation and creep. **Cracks due to moistures changes can be presented by following measures:-** 1) Minimum use cement mortar . 2) Use lean cement mortar in masonry work . 3) Cracking due to temperature. Variation can be presented by introducing expansion, contraction and slip joints at appropriate location. 4) Crack due to chemical reaction can be presented by using good quality of concrete and provide increase cover for RCC member. 5) Provide adequate damp proofing treatment to structures. ***(2 marks for cause and 2 marks for measure, any two each)***	*
Q.5 Attempt any FOUR of the following	**16**
a)State the various remedial measures for unseen settlement of a structure	
Ans:- Remedial measures for unseen settlement of a structure:- 1)More bearing capacity of soil should be required . 2)The foundation should be taken at adequate depth, so that it reduce the adverse effect of atmosphere. 3)The consistency of mortar should be such that it provided easy working . 4)The limit of the load on soil should be 05.5 tonnes/m2 . 5)The foundation should be taken at a such a depth where the cracks are extended. 6)The masonry work should be properly caved for a period at least 10 days and it should be carried out and it gets adequate strength . 7)The foundation should be properly caved at least 10-15 days. ***(*Note –1 mark for each write any four)***	*
b)State four uses of wire mesh and geosynthetics.	
Ans:- Uses of geosynthetics:- 1) By using geosynthetics material the bearing capacity of work soil can be improved by 300%. 2) It is use as rein forcing element for improving ground condition. 3)Geo drains are use for dissipating for pore water pressure. 4) Geo drains are used for improving the characteristics of soil mass. **Uses of wire mesh:-** 1)The wire mesh are used for plastering work in between the joints of column and wall. 2)The wire mesh are used in plastering to improve the quality of work.	**2** **2**

c) Differentiate between shallow and deep foundation.

Ans:-

Shallow Foundation	Deep foundation.
1)The depth of foundation are upto 1.5 m then it is called shallow foundation.	1)The depth of foundation are more than 01.5 m .
2)it is used for steeped foundation ,reinforced concrete footing raft foundation etc .	2)It is used for pile foundation ,caissons cofferdam etc .
3)The Shallow Foundation are suitable for hard strata .	3)The deep foundation are suitable for all types of soil .
4)It is Less safe during earthquake.	4)It is safe during earthquake .

*(*Note –1 mark for each write any four)*

*

d)Define 'Ready Mix Concrete ' and enlist any four equipment for R.M.C

Ans:-RMC:-

The automated & computerized system of concrete manufacturing as per the design constraints at one centralized location it is known as Ready mix concrete .

2

Equipment's for RMC:-

1)Conveyor.
2)vibrator screen .
3)Storage Hooper
4)Sand mill
5)Mixer .
6)Cement silo.
7)Cement input
8) Transit mixer.

2
(any 4)

e)Distinguish between roller compacted concrete and high impact resisting oncrete(any four points)

Ans:-

Roller compacted concrete	**High impact resisting**
1)It is lean no slump concrete, it is compacted by vibratory roller .	1)It is tougher than roller computed concrete.
2) It has become an accepted material for constructing dams and pavement.	2) it is use in constructing railway platforms docks ,yards and industrial floors .
3)It is used in various concrete application in paving project, saving labour cost.	3)It is used in parking places saving l,abour cost .
4)In India it has been used as base concrete in construction of concrete road the grade of concrete has a 10 mpa.	4)It has a great resistance to wear and tear and resisting power to impact loads .

*(*Note -1 mark for each)*

*

f) Write the procedure of vacuum dewatering concreting for construction of floors.	
Ans:- Procedure of vacuum dewatering concreting for construction:- 1)It has stressed time that adoption of low water cement ratio will be given to improve the quality of concrete. 2) The use of super plasticizer in the vacuum dewatering of concrete. 3)it required formwork in the forms of channel internal vibrates ,double beam screen vibrater ,bull float filter pads vacuumed pump. Is floater power trowel. 4)First concert with higher water cement ratio and it is full compacted with needle vibrate then this concrete is further compacted by double beam screen vibrate it makes surface smooth . 5) Filter mat is place and it is press with in 30 min and the vacuum pump are started with sunks the unwanted water . 6)it is rub about 20 to 30 min it is depend upon thickness of concrete floor . 7)Then the concrete with skin floated further power trowel and finish . 8)After vacuum dewatering it gives the ideal condition for application of surface hardener . In this way factory from may be constructed. ***(*Note-1/2 mark for each step)***	*
Q.6 Attempt any TWO of the following	**16**
a) Explain in detail any four method of dewatering.	
Ans:- Method of dewatering:- 1)Pumping 2)Providing sumps and side drains 3)Cement grouting 4)Well Point System. 5)Chemical Process or chemical grouting . 6)Freezing Process . 7)Electro-osmosis Process . **1)Pumping** :- 1)In this method, the pumps are installed along the foundation trenches at suitable point. 2)The pump is use for dewatering process of following features . 3)The Pump should be portable and easily move when required . 4)It should be capable of handling impurities of water such as sand, earth etc. 5)The pump should be reliable for this purpose ,the centrifugal pump are used . **2)Providing sumps and side drains :-** 1)In this method ,the side drains are constructed along a bottom of the foundation trenches at a distance or 45 m to 60 m and side drains are given such slop that the water is collected in these sumps . 2)the collected water is then pumped out by centrifugal pump. The size of pumps will be 1 x1 x1m .	*

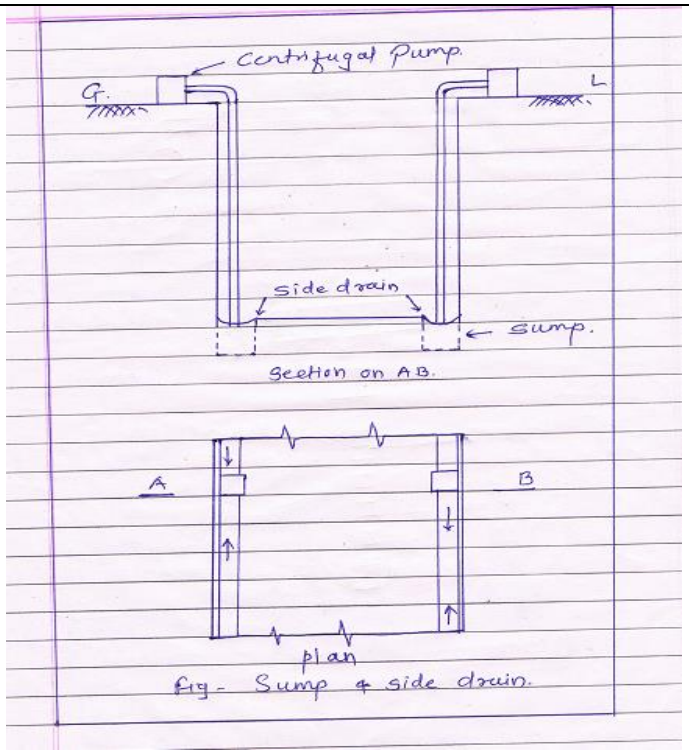


Fig - Sump & side drain.

3)**Cement grouting** :-

1)The process consist of making a number of holes in a ground and filling these holes by cement grout under the pressure .

2)In this process the cementing material injecting in to the cracks and voids in the soil .it make the soil water tight the grouting has been used in stopping the leakages from the rocks .

4)Well Point System:-

1) The area to be dewatered is surrounded by number of wall points . it depends upon the nature of ground and volume of ground water flowing the minimum spacing is 1 m .

2)The water is forced down at the rate of 20-25lit per second .

3)When wall point has reached the desired depth the water is kept flowing .

4)The well point is connected to the header and swinger as shown in f.g

5)The work as excavation is completed .the suction is stopped the water is forced down the pipe make the well point lose in the ground and it is recovered by dewatering .

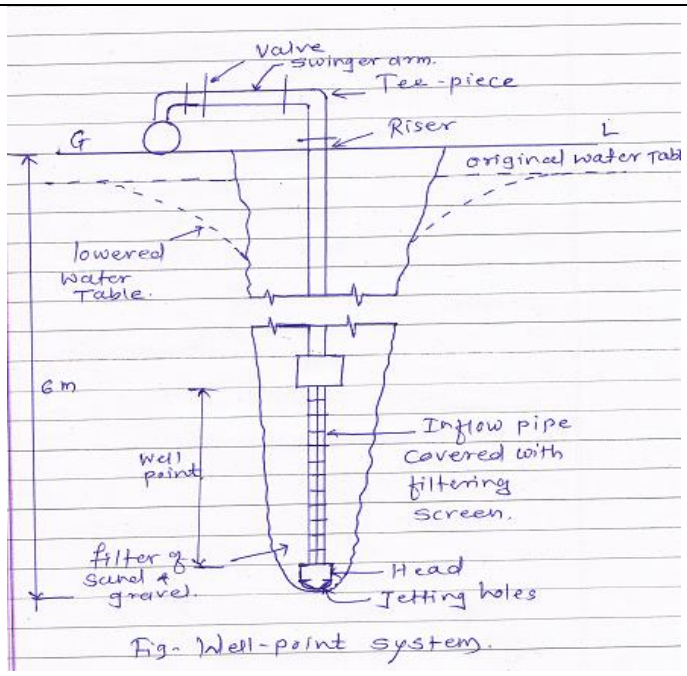


Fig- Well-point system.

(*Note -2 mark for each and write any four)

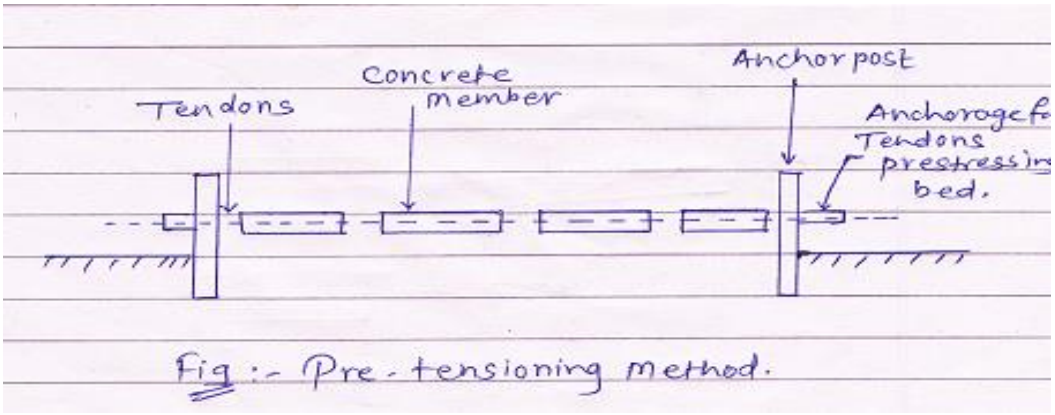
b)Make the comparison between stone masonry and brick masonry.

Ans:-

Stone masonry	**Brick masonry**
1)The construction of stone work required less skill labour .	1)The construction of brick work required skill labour .
2)Stone work are more water ,tight than brick work .	2)Brick work is less water tight than stone work.
3)Stone work is cheaper at those place where stone are easily available .	3)It is more costly at those place where stone are easily available.
4)It having higher crushing strength ,so it is used in construction of dams ,piers ,docks and water related structure	4)It having less crushing strength so it is not in water related structure .
5) It require proper dressing and more time for construction	5)It is available in regular size and shape ,so it can be constructed in proper bond .
6) The minimum thickness of stone wall should be 300 mm .	6) The minimum thickness of 100 mm .
7) The stone masonry work more durable.	7) The brick masonry work are less durable as compare stone masonry.
8)The life of stone masonry is more then Brick masonry	8)The life of Brick masonry is less then stone masonry

*

(*Note -1 mark for each)

c) Explain pre-tensioning and post – tensioning prestressed concrete.	
Ans:- **Pre-tensioning:-** 1) The pre-tensioning method of making a pre-tensioned member is to pull the tendon between abutments or bulkheads which are secured or anchored firmly the ends of the stressing bed . 2) The tendons are cut off at each end after the concrete hardens ,the prestress is transferred to the concrete . 3)the balk heads at the ends and the bed should be designed to resist the prestress and the eccentricity . 4) pre-tensioning is economical for mass production of pre-stressed member .  Fig :- Pre-tensioning method. **Post – tensioning member** :- 1)The post – tensioned system is to introduce prestresses in the contract member cast previously by tightening the tendons accommodated in the ducts which are formed while casting the beam . 2)As the tendons are pulled ,using a jack against the end of the concrete member ,the desired prestressing force is obtained . 3)The wires are pulled ,they are anchored in their stretched position against the end of the concrete –member by a suitable wedging device . 4)The load applied to jack as well as consequent extension of the reinforcement . 5)Extension measurements give an idea as to how much of the steel is being properly stretched . 6)This defect is liable to occur when curved cable are provided ,on the other hand ,it may be possible that the extension might have be taken place due to certain part of the tendon being over stressed. 7) Excessive bearing stress will be produce at the ends of the members due to anchoring device which bears against the concert	2 2 2

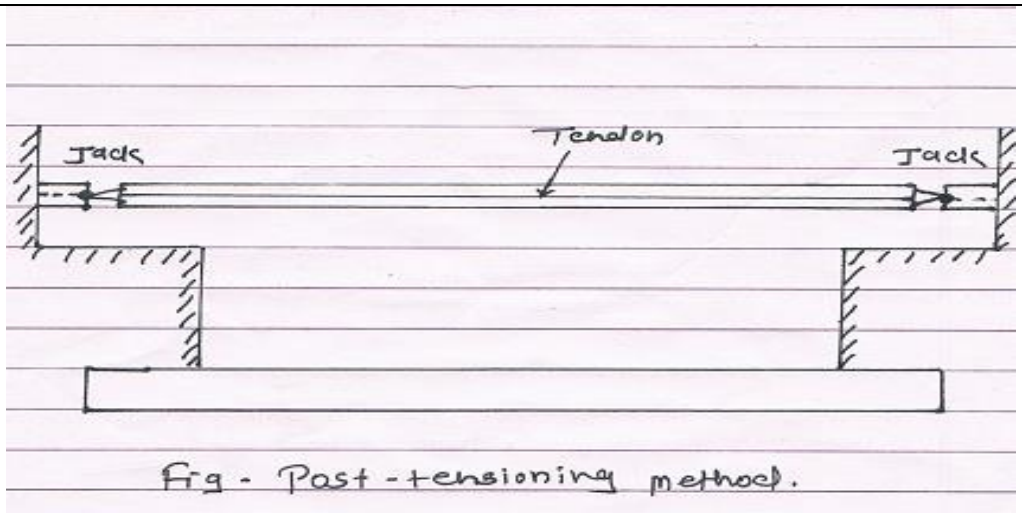


Fig - Past-tensioning method.

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