

# Marking Scheme of Model Test Paper

Class 10<sup>th</sup>

Subject-Construction

Q No.	Answer	Marks
1.	<p><b>Laying of Bricks in Walls</b>                      Laying of bricks in a wall is done in the following two steps:                      (a) Laying of bricks in the foundation that is up to the plinth level.                      (b) Laying of bricks in the wall above the plinth level.</p> <p><b>Laying of Bricks in the Foundation upto the Plinth Level</b>                      The steps to lay bricks is as follows:                      (i) Spreading mortar on a concrete bed: about 2 cm thick layer of prepared mortar is first spread on top of the concrete bed in the area to be occupied by the corners.                      (ii) Constructing corners: after spreading the mortar, the extreme corners are constructed in two courses after leaving the required concrete offset on each side. The surfaces of these extreme corners are made in vertical direction.                      (iii) Laying the first course: first, two strings are stretched at the upper level between the extreme corners to mark the external and internal edges and to lay the bricks in line and level with the corner bricks of this course. Then the bricks are laid on the layer of the mortar between these strings, till the first course is completed.</p> <p style="text-align: center;">Or</p> <p><b>English Bond</b> consists of an alternate course of headers and stretchers . Queen closer, that is, half of the brick cut lengthwise, shall be introduced after the first header to break the vertical joint.                      • <b>Flemish Bond</b> is an arrangement of bonding brickwork. Each course consists of alternate headers and stretchers. The headers of each course are centred over the stretcher in the course below. For breaking of vertical joints in successive courses, closers are inserted in alternate courses next to quoin (a cornerstone) headers.</p>	5
2	<p><b>Shuttering for the column</b>                      (a) The side yokes are two each.                      (b) They are suitably spaced along the height of the column</p> <p><b>Shuttering for Beam and Slab Floor</b>                      (a) The ends of the battens are supported on the ledger, which is fixed to the cleats throughout the length</p> <p><b>Shuttering for Stairs</b>                      (a) The riser planks are fixed after reinforcement has been fixed in position                      (b) A cut string made of a 5 cm plank carries the outer end of the risers.</p> <p style="text-align: center;">Or</p>	5

	<p>Slabs and beams are usually constructed together by laying concrete in the formwork. The formwork consists of rows of vertical posts, which carry wooden beams on top. Wooden or steel planks are placed on top of the horizontal beams. At different heights, the vertical posts are suitably supported by lateral posts from the sides. The bottom of the vertical posts rests on tapered wooden wedges and flat steel plates. For constructing a formwork for a beam, the formwork is supported by tapering blocks from the sides, bad beam from the bottom and the beam is supported by wooden blocks and struts on the vertical posts. Some important points are given below. (a) The slab is continuous over a number of beams. (b) The slab is supported on a 2.5 cm thick sheathing laid parallel to the main beam. (c) The sheathing is supported on wooden battens, which are laid between the beams, at suitable intervals. (d) In order to reduce deflection, the battens may be propped at the middle of the span through joists.</p>	
3	<p><b>Procedure</b></p> <p>(a) Properly consolidate the floor by manually compacting the base to the required level and slope.</p> <p>(b) A 10 to 15 cm thick layer of lean cement concrete in the ratio of 1:6:12 or lime concrete should be laid over the entire area of the floor to be constructed.</p> <p>(c) A proper slope of 1:80 should be provided in the sub-grade</p> <p>(d) The slope should be checked with a straight edge at five to six places and any differences should be corrected.</p> <p>(e) Lime concrete should be properly cured for seven days.</p> <p>(f) The bricks should be properly soaked in water for six hours.</p> <p>(g) Cement sand mortar or lime mortar of the required proportion should be prepared.</p> <p>(h) The bricks should be laid on the edge on a 12 mm thick mortar bed.</p> <p>(i) All the joints should be filled with mortar. The thickness of the joints should not exceed 1.0 cm.</p> <p>(j) The flooring should be cured for a minimum of seven days</p> <p style="text-align: center;">Or</p> <p>Following is the procedure to lay tiles on the floor.</p> <ol style="list-style-type: none"> <li>1. Establish a datum level for the finished floor.</li> <li>2. Tiles must be correctly positioned when they are placed and laid with joints.</li> <li>3. Control the overall level of the finished floor by means of a spot check of levels.</li> <li>4. Check whether the width of the joints is specified before setting out or use a tile spacer for uniform width spacing.</li> <li>5. Provide 1% slope going to the floor drain.</li> <li>6. Set out the tiling width joints of consistent width,</li> </ol>	5

	<p>ensuring they are horizontal and parallel.</p> <p>7. Grouting of the joints should be carried out within four hours of the completion of the laying of the tiles so that the grout attaches itself firmly to the bedding. Avoid disturbing the tiles during grouting.</p> <p>8. Ensure that the joints are continuous from one surface to the next where adjoining tile surfaces are in different planes.</p>	
4	<p>(a) Properly consolidate the floor by manually compacting the base to the required level and slope.</p> <p>(b) A 10 to 15 cm thick layer of lean cement concrete in the ratio of 1:6:12 or lime concrete should be laid over the entire area of the floor to be constructed.</p> <p>(c) A proper slope of 1:80 should be provided in the sub-grade</p>	3
5	<p>Scaffolding is a temporary structure on the outside of a building, made of wooden planks and metal poles, used by workmen while building construction, repairing, or cleaning the building. The material used for scaffolding is tubes, bamboos, couplers and boards.</p>	3
6	<p>Single scaffolding is generally used for brick masonry. It is also called bricklayer's scaffolding. Single scaffolding consists of standards, ledgers, putlogs, etc. It is parallel to the wall at a distance of about 1.2 m.</p> <ul style="list-style-type: none"> <li>• The distance between the standards is about 2 to 2.5 m. Ledgers connect the standards at a vertical interval of 1.2 to 1.5 m.</li> </ul>	3
7	<p>In cement lime mortar, a portion of the cement is replaced by hydrated lime. It spreads more easily under the trowel and produces a more elastic material. In lime cement mortar a portion of lime is replaced by cement. It makes the mortar stronger, more smoother and workable and also the mortar sets earlier.</p>	3
8	<p><b>English Bond</b> consists of an alternate course of headers and stretchers. Queen closer, that is, half of the brick cut lengthwise, shall be introduced after the first header to break the vertical joint.</p> <ul style="list-style-type: none"> <li>• <b>Flemish Bond</b> is an arrangement of bonding brickwork. Each course consists of alternate headers and stretchers. The headers of each course are centred over the stretcher in the course below. For breaking of vertical joints in successive courses, closers are inserted in alternate courses next to quoin (a cornerstone) headers</li> </ul> <p>or</p>	3

	Trowel, Plumb Rule and Bob, Straight Edge, Mason's Square, Spirit Level, Steel Tape, Brick Hammer also write short note on above	
9	<p>In construction, rubble masonry stones of irregular sizes are used. The stones as obtained from the quarry are used as they are or are broken and shaped to suitable sizes by means of a hammer as the work progresses. The strength of rubble masonry depends upon the following three factors:</p> <p>(i) The quality of mortar  (ii) The use of long through stones at frequent intervals  (iii) The proper filling of mortar in the space between Stones</p> <p>Or</p> <p>This is a superior quality of masonry and is built from accurately dressed stones with uniform and very fine joints (Fig. 1.14). The various types of Ashlar masonry can be classified under the following categories.</p> <ul style="list-style-type: none"> <li>• Ashlar fine</li> <li>• Ashlar rough-tooled</li> <li>• Ashlar rock quarry-faced</li> <li>• Ashlar chamfered</li> <li>• Ashlar facing</li> <li>• Ashlar block in course</li> </ul>	3
10	<p>In concrete construction, the false work supports the shuttering moulds. Temporary Timber, plywood, metal or other material is used to provide support to wet concrete mix till it gets strength for self support in formwork. The formwork also produces the desired finish on concrete surface. Shuttering or formwork should be strong enough to support the weight of wet concrete mix and also the pressure of concrete inside or on top of the formwork</p>	2
11	<p>A good formwork should satisfy the following requirements.</p> <p>(a) The material for formwork should be cheap and can be reused many times.  (b) It should be waterproof and should not absorb water from the concrete. There should be minimum shrinkage and swelling.  (c) It should be strong enough to bear all loads – dead load of concrete, live load of labour during pouring, compaction and curing.  (d) It should be hard so that there is minimum deflection.</p>	2

12	<p>(a) study and find good jobs to take care of ourselves and our families.</p> <p>(b) work hard and contribute to society.</p> <p>(c) learn and develop skills so that we get add value in our community</p>	2
13	<p><b>Fulfil Customer Needs</b> Demand means a product or service that people want. Entrepreneurs find out what people want. Then, they use their creativity to come up with a business idea that will meet that demand.</p> <p><b>Use Local Materials</b> Entrepreneurs use the material and people available around them, to make products at low cost.</p>	2
14	<p>Steel scaffolding is constructed by steel tubes, which are fixed together by steel couplers or fittings .</p> <ul style="list-style-type: none"> <li>• It is very easy to construct or dismantle.</li> <li>• It has great strength, durability and high fire resistance.</li> <li>• It is not economical but is safer for workers. It is used extensively.</li> </ul> <p>Or</p> <p>The different hand tools used for erecting or dismantling scaffolds are as follows.</p> <ul style="list-style-type: none"> <li>• <b>Hammer:</b> delivers a blow (a sudden impact) to an object. Most hammers are hand tools used to drive nails, fit parts, forge metal, and break apart objects</li> <li>• <b>Spanner:</b> is used to provide grip and mechanical advantage in applying torque to turn objects – usually rotary fasteners, such as nuts and bolts – or to keep them from turning</li> <li>• <b>Pulley:</b> is a wheel with a grooved rim around which a cord passes that helps to change the direction of force applied to the cord. A pulley is used to raise heavy weights</li> </ul>	2
15	<p>In construction, rubble masonry stones of irregular sizes are used. The stones as obtained from the quarry are used as they are or are broken and shaped to suitable sizes by means of a hammer as the work progresses. The strength of rubble masonry depends upon the following three factors:</p> <ol style="list-style-type: none"> <li>(i) The quality of mortar</li> <li>(ii) The use of long through stones at frequent intervals</li> <li>(iii) The proper filling of mortar in the space between Stones</li> </ol> <p>Rubble masonry is further classified into the following categories.</p> <ul style="list-style-type: none"> <li>• Coursed rubble</li> <li>• Uncoursed rubble</li> </ul>	2

	<ul style="list-style-type: none"> <li>• Random rubble</li> <li>• Dry rubble</li> <li>• Polygonal rubble</li> <li>• Flint rubble</li> </ul> <p>Or</p> <p>In construction, rubble masonry stones of irregular sizes are used. The stones as obtained from the quarry are used as they are or are broken and shaped to suitable sizes by means of a hammer as the work progresses. The strength of rubble masonry depends upon the following three factors:</p> <p>(i) The quality of mortar  (ii) The use of long through stones at frequent intervals  (iii) The proper filling of mortar in the space between stones</p>	
16	A	1
17	D	1
18	A	1
19	B	1
20	B	1
21	B	1
22	A	1
23	D	1
24	D	1
25	C	1
26	A	1
27	B	1
28	C	1
29	Horizontal	1
30	standard	1