Total No. of printed pages = 8

END SEMESTER EXAMINATION - 2019

Semester : 4th

Subject Code : CT-405

BUILDING CONSTRUCTION AND MAINTENANCE

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instruction :

- The Question Paper consists of two parts : PART –A and PART – B. Both are compulsory.

PART – A

Marks – 25

Answer *all* the questions.

1. Choose the correct answer : 1×10=10

   (i) The horizontal member of wood or steel used to support the common rafters of a sloping roof are called

   (a) purlins (b) cleats

   (c) hip rafters (d) valley rafters

[Turn over

(ii) The combination of a king post truss and queen post truss is known as

(a) couple roof

(b) collar beam roof

(c) mansard roof

(d) purlin roof

(iii) The foundation in a building is provided to

(a) distribute the load over a large area

(b) increase overall stability of the structure

(c) transmit load to the subsoil at an uniform rate

(d) All of the above

(iv) In a sloping roof, the inclined wooden members laid from the ridge to the eaves are known as

(a) hip rafter

(b) jack rafter

(c) common rafter

(d) valley rafter

(v) The lower portion of the arch between the skewback and crown is known as

(a) depth (b) rise

(c) haunch (d) intrados

(vi) The lower most horizontal part of a window frame is known as

(a) sill (b) mullion

(c) transom (d) horn

(vii) The wedge shape unit placed at the crown of an arch is called

(a) skewback (b) intrados

(c) extrados (d) keystone

(viii) The piles which are driven in the type of soil where the rate of increase in strength with the depth is very slow are known as

(a) friction pile (b) bearing pile

(c) batter pile (d) compaction pile

(ix) The type of foundation most suitable for bridges is

(a) pier foundation

(b) raft foundation

(c) pile foundation

(d) strap foundation

(x) The window used with the objective of providing light and air to the enclosed space below the roof is called

(a) Dormer window

(b) Corner window

(c) Bay window

(d) Clerestorey window

2. Fill in the blanks : 1×10=10

(i) _____ stairs have the strings and hand rails continuous.

(ii) _____ is the portion of the brick cut across the width.

(iii) The exterior angle or corner of a wall is known as _____.

(iv) The minimum clear vertical distance between the tread and overhead structure is known as _____.

(v) The inner portion of the wall between the facing and backing is known as _____.

(vi) A _____ stair is one which changes its direction either to the left or to the right.

(vii) _____ is the portion of a brick obtained by cutting a brick lengthwise into two portions.

(viii) The apex line of the sloping roof is called_____.

(ix) _____ is the clear distance between the supports of an arch.

(x) _____ beam prevents the rafters from spreading out of the wall.

3. Define the following terms within one sentence each : 1×5=5

(i) Steining

(ii) Perpend

(iii) Monolithic construction

(iv) Skewback

(v) Suspended floors.

PART – B

Marks – 45

Answer any *five* questions. 9×5=45

4. (a) Write the causes of differential settlement of foundation. 4

(b) What are the types of foundations ? How can you differentiate between shallow foundation and deep foundation ? 5

5. (a) How bonded masonry walls are different from unbonded masonry walls ? With a suitable diagram show perpend, lap, bed joint, vertical joint. 5

(b) Differentiate between Single Flemish Bond and Double Flemish Bond. 4

6. (a) What is dampness in a building ? Discuss the various sources which create dampness in buildings. 2+4=6

(b) What are the various modes of failure of an arch ? 3

7. (a) Describe the process of preparation of base for flooring. 3

(b) In an office building, a staircase is to be located measuring 3m×5m, if the vertical distance between the floor is 3.5m, design the staircase. 6

8. (a) What are the functional requirements of doors and windows ? 3

(b) What do you understand by triple or framed roofs ? Explain the construction of details of a mansard roof truss with the help of a diagram. 2+4=6

9. (a) What are the objectives of plastering ? What are the various types of plasters ? 3+2=5

(b) What are load bearing walls and non-load bearing walls ? A partition wall and a cavity wall fall under which category ? 2+2=4

10. (a) What do you understand by scaffolding and what are its essential requirements ? 2+4=6

(b) Enlist the various components of a shuttering for a column. 3