# BIRLA INSTITUTE OF TECHNOLOGY
MESRA – 835215, RANCHI, INDIA

UG

Name: …… Roll No.: ……..

Branch: …… Signature of Invigilator: ……

Semester: IVth Date: 04/05/2022 (MORNING)

Subject with Code: **CE427 BUILDING CONSTRUCTION**

| Marks Obtained | Section A (30) | Section B (20) | Total Marks (50) |
|---|---|---|---|
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**INSTRUCTION TO CANDIDATE**

1. The booklet (question paper cum answer sheet) consists of two sections. First section consists of MCQs of 30 marks. Candidates may mark the correct answer in the space provided / may also write answers in the answer sheet provided. The Second section of question paper consists of subjective questions of 20 marks. The candidates may write the answers for these questions in the answer sheets provided with the question booklet.
2. The booklet will be distributed to the candidates before 05 minutes of the examination. **Candidates should write their roll no. in each page of the booklet.**
3. Place the Student ID card, Registration Slip and No Dues Clearance (if applicable) on your desk. All the entries on the cover page must be filled at the specified space.
4. Carrying or using of mobile phone / any electronic gadgets (except regular scientific calculator)/chits are strictly prohibited inside the examination hall as it comes under the category of unfair means.
5. No candidate should be allowed to enter the examination hall later than 10 minutes after the commencement of examination. Candidates are not allowed to go out of the examination hall/room during the first 30 minutes and last 10 minutes of the examination.
6. Write on both side of the leaf and use pens with same ink.
7. The medium of examination is English. Answer book written in language other than English is liable to be rejected.
8. All attached sheets such as graph papers, drawing sheets etc. should be properly folded to the size of the answer book and tagged with the answer book by the candidate at least 05 minutes before the end of examination.
9. The door of examination hall will be closed 10 minutes before the end of examination. Do not leave the examination hall until the invigilators instruct you to do so.
10. Always maintain the highest level of integrity. Remember you are a BITian.
11. Candidates need to **submit the question paper cum answer sheets before leaving the examination hall**.

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI**
**(END SEMESTER EXAMINATION)**

**CLASS: UG** **SEMESTER : IV**
**BRANCH: All (Open Elective)** **SESSION : SP/22**

**SUBJECT: BUILDING CONSTRUCTION, CE 427**

**TIME: 2.00 HOURS** **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions and total 50 marks.
2. Question 1 has 20 Multiple choice questions each of 1.5 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

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| Q.1 | **Select the correct answer for the following multiple choice questions.** | |
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| i. | Gneiss is chemically classified as<br>Calcareous rock, (B) Argillaceous rock, (C) Silicious rock, (D) None of these | [1.5] |
| ii. | Which of the following constituent, when present in excess quantity in clay causes the bricks to melt and distort during burning?<br>Alumina, (B) Silica, (C) Lime, (D) Alkalies | [1.5] |
| iii. | For one cubic metre of brick masonry, the number of bricks required are<br>400, (B) 450, (C) 500, (D) 550 | [1.5] |
| iv. | Quartzite is a<br>Metamorphic rock , (B) Argillaceous rock, (C) Calcareous rock, (D) Silicious rock | [1.5] |
| v | The term frog means<br>An apparatus to lift the stone, (B) A depression on a face of brick, (C) Vertical joint in a brick work, (D) Soaking brick in water | [1.5] |
| vi | The standard size of masonry bricks, is<br>18 cm x 8 cm x 8 cm, (B) 19 cm x 9 cm x 9 cm, (C) 20 cm x 10 cm x 10 cm, (D) 21 cm x 11 cm x 11 cm | [1.5] |
| vii | The lowest part of a structure which transmits the load to the soil is known as<br>Super-structure, (B) Plinth, (C) Foundation, (D) Basement | [1.5] |
| viii | In a mortar, the binding material is<br>cement, (B) sand, (C) surkhi, (D) cinder | [1.5] |
| ix | Sand stone is<br>sedimentary rock, (B) metamorphic rock, (C) igneous rock , (D) volcanic rock | [1.5] |
| x | Varnish is a transparent or semi-transparent solution of resinuous substances in<br>alcohol, (B) linseed, (C) turpentine, (D) all the above | [1.5] |
| xi | The most fire resistant paints are :<br>enamel paints, (B) aluminium paints, (C) asbestos paints, (D) cement paints. | [1.5] |
| xii | A pug mill is used for<br>softening brick earth, (B) moulding brick earth, (C) tempering brick earth, (D) providing brick earth | [1.5] |
| xiii | The kiln which may work throughout the year, is<br>Clamp, (B) Bull's kiln, (C) Hoffman's kiln, (D) none of these. | [1.5] |
| xiv | The slope of a roof which may be expressed as degrees or inclination to the horizontal or the rise to the span is called<br>Hip, (B) Ridge, (C) Eaves, (D) Pitch, (E) Gable | [1.5] |
| xv | A king-post truss is used for spans<br>3 to 5 m, (B) 6 to 9 m, (C) 10 to 15 m, (D) 15 to 18 m, (E) > 18 m | [1.5] |
| xvi | Couple-close roofs are preferred for spans up to<br>3 m, (B) 3.5 m, (C) <4m, (D) 4.5 m, (E) >5 m | [1.5] |
| xvii | Temporary structures are needed when the height of construction exceeds about<br>1.5 m, (B) 2.5 m, (C) 3.0 m, (D) 3.2 m, (E) 3.5 m | [1.5] |

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|---|---|---|
| xvii | This type of scaffolding is commonly used and particularly in the construction of brickwork, which is called<br>Double scaffolding, (B) Mason's scaffolding, (C) Single scaffolding, (D) Suspended scaffolding, (E) Trestle scaffolding | [1.5] |
| xix | Methods of under pinning are<br>(A) Pit method, (B) Pile method, (C) Pier method, (D) Chemical method, (E) All the above | [1.5] |
| xx | The bearing capacity of a soil cannot be increased by<br>(A) Chemical treatment, (B) Grouting, (C) Compacting, (D) Moistening the soil, (E) Drawing the moisture of the soil | [1.5] |
| Q.2 | Distinguish between a King-post truss and a Queen-post truss. | [5] |
| Q.3 | Explain the chemical composition of brick earth and also explain briefly the harmful ingredients in brick earth. | [5] |
| Q.4 | What are the requirements of formwork and discuss the materials used for formwork. | [5] |
| Q.5 | How do you prepare the surfaces for (i) Plastering (ii) Painting (iii) Varnishing (iv) Distempering? Explain the requirements of a good plaster? | [3+2] |