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Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER B.TECH DEGREE EXAMINATION(2019 scheme), DECEMBER 2019**

**Course Code: EST 120**

**Course Name: BASICS OF CIVIL & MECHANICAL ENGINEERING**

**PART I: BASIC CIVIL ENGINEERING**

**(2019-Scheme)**

Max. Marks: 50

Duration: 90 min

**PART A**

*Answer all questions, each carries 4 marks.*

- 1 Explain any two major disciplines of civil engineering.
  - 2 What are the qualities of a good building stone?
  - 3 Discuss the principles of surveying.
  - 4 List out the criteria for the selection of a good roofing material.
  - 5 Define bearing capacity of soil.
- (5x4=20)

**PART B**

*Answer one full question from each module, each question carries 10 marks*

**Module-I**

- 6 a) Discuss the components of a residential building with a neat figure. (5)
- b) Explain the role of NBC, KBR and CRZ norms in building rules. (5)

**OR**

- 7 a) Discuss the requisites of a good site plan for a building. (5)
- b) List out any five major factors to be considered for the selection of a good site for a residential building. (5)

**Module-II**

- 8 a) Explain the types and uses of architectural glass as a construction material. (5)
- b) With sketches explain any five market forms of steel section and their uses. (5)

**OR**

- 9 a) List out any five major qualities of a good timber. (5)
- b) List out two uses of any five different types of cement. (5)

**Module-III**

- 10 a) With a neat sketch explain any two types of shallow foundation. (5)
- b) With neat sketches compare English bond and Flemish bond. (5)

**OR**

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- 11 a) Explain the water management and energy management in green buildings. (5)
- b) Discuss the civil engineering aspects of MEP and HVAC in a commercial building. (5)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2019**

**Course Code: EST 120**  
**Course Name: BASICS OF CIVIL & MECHANICAL ENGINEERING**

**PART II: BASIC MECHANICAL ENGINEERING**  
**(2019-Scheme)**

Max. Marks: 50

Duration: 90 min

**PART A**

*Answer all questions, each carries 4 marks.*

- 1 Draw the p-V diagram of a diesel cycle and define the terms (i) (4)  
Compression ratio, (ii) Expansion ratio, and (iii) Cut-off ratio related to the Diesel cycle.
- 2 With the help of a neat sketch show the important parts of an internal combustion engine. (4)
- 3 Define Cooling and Dehumidification .Also show the process in psychrometric chart. (4)
- 4 Differentiate between Impulse and Reaction turbine. Give examples for each type. (4)
- 5 Define the terms Rapid prototyping and Additive manufacturing. (4)

**PART B**

*Answer one full question from each module, each question carries 10 marks*

**Module-IV**

- 6 An engine working on Diesel cycle has diameter 150 mm and stroke 200 mm. The clearance volume is 10 % of the swept volume. Determine the compression ratio and air standard efficiency of the engine if the cut-off takes place at 6 % of the stroke. (10 )

**OR**

- 7 a) Explain the MPFI system with block diagram. Also give its advantages (6)  
b) Give the concept of hybrid engines. (4)

**Module-V**

- 8 a) A centrifugal pump using 1kW of electric motor for pumping water against 3m suction head and 7m delivery head. The discharge of the pump is 100 litters /minute. Find the efficiency of pump. (5)  
b) Explain the open belt and cross belt drive in power transmission. Also give the applications. (5)

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- 9 a) A turbine is working at a head of 250 m and the discharge through the penstock is  $2 \text{ m}^3/\text{s}$ . If the efficiency of the turbine is 55 % , find the power developed by the turbine. (5)
- b) Explain the reversed Carnot cycle with PV Diagram. (5)

**Module-VI**

- 10 a) How the welding processes are classified? List out the different types of welding methods. (4)
- b) Explain the process of Arc welding with the help of a sketch. (6)

**OR**

- 11 Describe the working of a Milling machine. Draw the block diagram of a Milling machine and indicate its main parts. (10)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech examinations (S) September 2020 S1/S2 (2015 Scheme)

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

- | Marks |   |
|-------|---|
| (3)   | 1 Write short note on NBC.  |
| (3)   | 2 “Orientation is an essential step while planning a building”. Comment |
| (3)   | 3 Define datum, line of collimation and benchmark.                      |
| (3)   | 4 What are the characteristics of a good brick?                         |
| (3)   | 5 Define bearing capacity.  |
| (3)   | 6 What are the requirements of an ideal roof?                           |
| (3)   | 7 What are the ingredients of paint?                                    |
| (3)   | 8 Differentiate between ramps and escalators.                           |
| (3)   | 9 What are the limitations of an intelligent building?                  |
| (3)   | 10 What are functions of chimneys?                                      |

**PART B***Answer any eight questions, each carries 6 marks.*

- | Marks |   |
|-------|---|
| (6)   | 11 “Infrastructural developments have a deep impact on a country’s economic growth and a Civil Engineer thus plays an important role in the development of a country.” Substantiate the statement from what you have learnt in the subject. |
| (6)   | 12 What are the important aspects of a site to be considered for constructing a residential building?   |
| (6)   | 13 What are the functions of doors and windows in a building? List out the factors to be considered for the positioning of these.   |
| (6)   | 14 Explain the need and types of open space requirement for a building  |
| (6)   | 15 Define (a) Plinth area (b) Carpet area (c) FAR.  |
| (6)   | 16 What are the instruments used for horizontal measurements? Explain.  |
| (6)   | 17 List out the classification of surveying. Explain any two.   |
| (6)   | 18 The following consecutive readings were taken with a dumpy level. 1.895, 1.500, 1.865, 2.570, 2.990, 2.020, 2.410, 2.520, 2.960. The level was shifted   |

after fourth and sixth readings. The reduced level of first point was 30.500. Rule out a page of field book and record the readings. Use Height of Instrument method to find the reduced levels of all points and apply the usual checks.

- 19 Enlist the various types of cement. Explain any two. (6)
- 20 What are the constituents of concrete? Explain the uses of concrete? (6)

### PART C

*Answer any two questions, each carries 11 marks.*

- 21 a) Draw a neat sketch of the plan and elevation of 1 brick thick English bond. (6)  
b) Explain the classification of deep foundations through sketches. (5)
- 22 a) Explain the types of pitched roof. (6)  
b) Explain the procedure for the surface preparation of painting on new iron and steel work. (5)
- 23 a) What are the various types of air conditioning systems? Explain. (6)  
b) List down the various types of towers and explain any two. (5)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019**

**Course Code: CE100**

**Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 3 marks.*

- |    |  | Marks |
|----|--|-------|
| 1  | According to NBC, what are features of an assembly building and a hazardous building?        | (3)   |
| 2  | What is the importance of orientation of a building?   | (3)   |
| 3  | What are the advantages of GPS?  | (3)   |
| 4  | Explain the constituents of concrete.  | (3)   |
| 5  | What is the difference between bat and closer in brick masonry?                              | (3)   |
| 6  | Define bearing capacity of soil.   | (3)   |
| 7  | List out the functions of plastering.  | (3)   |
| 8  | What is a ramp? What are the Civil engineering aspects to be considered in its construction? | (3)   |
| 9  | What are the functions of communication towers?  | (3)   |
| 10 | List out the features of intelligent buildings.  | (3)   |

**PART B**

*Answer any eight questions, each carries 6 marks.*

- |    |   |     |
|----|---|-----|
| 11 | What are functions of (a) lintels, (b) sunshades and (c) walls in a building?                           | (6) |
| 12 | What are the factors to be considered for planning a residential building?                              | (6) |
| 13 | What are the factors to be considered while selecting the site for an industrial building?              | (6) |
| 14 | Write short note on built up area, room size and open space requirements.                               | (6) |
| 15 | Explain the centre line method adopted for setting out of a building.                                   | (6) |
| 16 | Explain the classification of surveying.  | (6) |
| 17 | Differentiate between (a) back sight and fore sight (b) reduced level and bench mark.                   | (6) |
| 18 | Write short notes on (a) EDM (b) Digital level.   | (6) |
| 19 | Explain the following properties of bricks: (a) water absorption (b) fire resistance (c) efflorescence. | (6) |
| 20 | What are the grades of concrete? Explain.   | (6) |

**PART C**

*Answer any two questions, each carries 11 marks.*

- 21 a) What are advantages and disadvantages of flat roofs and pitched roofs? (6)  
b) Compare and contrast elevators and escalators. (5)
- 22 a) Neatly sketch the elevation and plan of header bond and stretcher bond each with 40cm height and 80cm length? (6)  
b) Explain the procedure of plastering a brick wall? (5)
- 23 a) Write short notes on uses of (a) Chimney (b) Towers. (6)  
b) Explain in detail about the various sound proofing materials commonly adopted in buildings. (5)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019**

Course Code: CE100

Course Name: BASICS OF CIVIL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

- |   | Marks |
|---|-------|
| 1 List down the various disciplines of Civil Engineering.                         | (3)   |
| 2 Define (a) Plinth area (b) Carpet area.   | (3)   |
| 3 What are the basic principles of surveying?                                     | (3)   |
| 4 Explain any two types of steels sections available in the market with sketches. | (3)   |
| 5 Explain the purpose of foundations.   | (3)   |
| 6 Explain the terms (a) Quoin (b) Closer in brick bonding.                        | (3)   |
| 7 What are different types of roofs?  | (3)   |
| 8 Differentiate between Elevators and Escalators.                                 | (3)   |
| 9 What are the factors to be considered for air conditioning a building?          | (3)   |
| 10 What is a ramp? Write short notes on its Civil Engineering aspects.            | (3)   |

**PART B***Answer any eight questions, each carries 6 marks.*

- |  |     |
|--|-----|
| 11 List out the type of building as per occupancy. Explain any four.   | (6) |
| 12 Explain the components of a building with neat figure.  | (6) |
| 13 List the steps in setting out of building by centre line method.  | (6) |
| 14 What are the open space requirements as per NBC norms?  | (6) |
| 15 Draw a site plan incorporating all the necessary details.   | (6) |
| 16 Explain the various instruments used for levelling.   | (6) |
| 17 Give short notes on (a) EDM (b) Total Station (c) GPS   | (6) |
| 18 Write any three properties of good bricks.  | (6) |
| 19 Explain the constituents of cement mortar and explain the steps involved in the hand mixing of cement mortar. | (6) |
| 20 List out the uses of steel in building construction.  | (6) |

**PART C***Answer any two questions, each carries 11 marks.*

- |  |     |
|--|-----|
| 21 a) Explain the procedure of plastering.       | (6) |
| b) Explain the concept of intelligent buildings. | (5) |
| 22 a) Explain the types of shallow foundations.  | (6) |

- b) List out the types of floor finishing materials available? Explain any 2 of them. (5)
- 23 a) Write short notes on uses of (a) chimney (b) water tanks (c) towers. (6)
- b) What are the civil engineering aspects of sound proofing? (5)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018**

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

Marks

- |    |   |     |
|----|---|-----|
| 1  | Write short note on the features of Educational building and Institutional building as per NBC. | (3) |
| 2  | What are the commonly adopted open space regulations for a residential building?                | (3) |
| 3  | What are the advantages of total station?   | (3) |
| 4  | Differentiate between PCC and RCC.  | (3) |
| 5  | Differentiate between header and stretcher bond through sketches.                               | (3) |
| 6  | Explain any three functions of foundation.  | (3) |
| 7  | List out the types of paints commonly available in market.                                      | (3) |
| 8  | What are the design parameters of elevators?  | (3) |
| 9  | What are the functions of tower?  | (3) |
| 10 | List out the classification of air conditioning system.   | (3) |

**PART B***Answer any eight questions, each carries 6 marks.*

- |    |   |     |
|----|---|-----|
| 11 | Why is proper planning important for the construction of a building? What are the various stages of planning a building?  | (6) |
| 12 | What are the various components of a residential building? Illustrate the parts with a neat sketch.   | (6) |
| 13 | What are the factors to be considered while selecting the site for a residential building?  | (6) |
| 14 | Differentiate between carpet area and floor area.   | (6) |
| 15 | Explain the procedure adopted for setting out a single room building.   | (6) |
| 16 | What do you mean by ranging? What are the instruments used for ranging?   | (6) |
| 17 | The following staff reading were observed successively with a level, the instrument having been moved after third, sixth and eighth reading: 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 m. Enter the above readings in a page of level field book and calculate the R.L. of points if the first reading was taken with a staff held on a bench mark of 100 m. | (6) |
| 18 | Write short notes on Total Station and GPS.   | (6) |
| 19 | What is the composition of Ordinary Portland Cement? Explain.   | (6) |

20 List out the properties of various types of steel used in building construction. (6)

**PART C**

*Answer any two questions, each carries 11 marks.*

- 21 a) Explain the procedure of painting a plastered wall. (6)  
b) Explain the importance and features of intelligent buildings. (5)
- 22 a) How are foundations classified? Explain with figures any two types. (6)  
b) List down the different roofing materials and explain any two commonly used types of roofing materials. (5)
- 23 a) Write short notes on uses and types of (a) Chimney (b) Towers. (6)  
b) What are the Civil Engineering aspects to be taken care of while planning and constructing a ramp? (5)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION, JULY 2018**

**Course Code: CE100**

**Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions, each carries 3 marks*

Marks

- |    |   |     |
|----|---|-----|
| 1  | List any three components of a residential building. Briefly explain the functions of these components.                               | (3) |
| 2  | What is the function of a door? Where it should be located?   | (3) |
| 3  | List the instruments used in chain surveying for horizontal measurement. Write down the use of any one instrument in chain surveying. | (3) |
| 4  | Differentiate between plinth area and carpet area.  | (3) |
| 5  | Write short notes on different grades of cement concrete.   | (3) |
| 6  | Name any one type of structural steel section available in the market and explain its specifications with a neat sketch.              | (3) |
| 7  | Draw the sketch of any one type of shallow foundation (plan and elevation). Mention the name of foundation also.                      | (3) |
| 8  | Write down the procedure for preparation of surface for painting.   | (3) |
| 9  | Differentiate between elevators and escalators.   | (3) |
| 10 | What is a chimney? Write short notes.   | (3) |

**PART B**

*Answer any eight questions, each carries 6 marks*

- |    |   |     |
|----|---|-----|
| 11 | List and explain the physical properties of Ordinary Portland Cement.   | (6) |
| 12 | Write down the procedure for preparing cement mortar.   | (6) |
| 13 | What is a site plan? Which are the information to be included in a site plan?   | (6) |
| 14 | The wall thickness provided for a single room building of room size 4.00m X 2.00m is 20cm, which is situated in plot of 10m length and 6m width. Determine the plinth area, carpet area and Floor Area Ratio. | (6) |
| 15 | What is meant by a bench mark in levelling? What are the different types of bench marks used?   | (6) |
| 16 | What are the factors to be considered while selecting the site for a residential building?  | (6) |
| 17 | What are the two general principles of surveying? Write short notes.  | (6) |
| 18 | How buildings are classified according to occupancy as per National Building Code?  | (6) |
| 19 | List any six major disciplines of Civil Engineering and write down the significance and scope for each of them.   | (6) |
| 20 | Following consecutive readings were taken with a dumpy level and a levelling staff.<br>1.800, 1.235, 2.000, 0.850, 1.350, 2.250, 1.835, 2.225, 1.200, and 1.900. First  | (6) |



reading was taken on a bench mark whose reduced level is 100.000 and the instrument is shifted after third and seventh readings.

- i) Rule out the page of level book and enter above readings.
- ii) Determine the reduced levels of all points.
- iii) Apply arithmetic checks.

**PART C**

*Answer any two questions, each carries 11 marks*

- 21 a) What are the different types of pile foundations? Explain each in one or two sentences with neat sketches. (6)
- b) Explain about the types of water tanks used in buildings. (5)
- 22 a) Explain in one or two sentences different types of floorings. (6)
- b) How the systems of air conditioning are classified? Give brief description for each system. (5)
- 23 a) What are the benefits of intelligent buildings? (5)
- b) List and explain different types of roof covering materials. (6)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018**

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

Marks

- |    |   |     |
|----|---|-----|
| 1  | List any six types of buildings as per occupancy according to National Building Code. | (3) |
| 2  | Explain the term plinth area, floor area and carpet area.                             | (3) |
| 3  | What are the advantages of Total Station over conventional survey instruments?        | (3) |
| 4  | Differentiate between plain cement concrete and reinforced cement concrete.           | (3) |
| 5  | Describe the functions of foundations.  | (3) |
| 6  | Draw neatly the elevation of a one brick thick English Bond.                          | (3) |
| 7  | What is meant by bearing capacity of soil?  | (3) |
| 8  | Differentiate between Elevator and Escalator.   | (3) |
| 9  | What are the different types of Air Condition equipment based on location?            | (3) |
| 10 | Mention any three points to be kept in mind while preparing site plan for a building. | (3) |

**PART B***Answer any eight questions, each carries 6 marks.*

- |    |   |     |
|----|---|-----|
| 11 | Mention the different components of a building with neat sketch. Describe the functions of any three components.  | (6) |
| 12 | What is meant by setting out of a building? Explain the procedure for setting out of a single room building with neat sketch.   | (6) |
| 13 | What is meant by ranging? Describe the procedure adopted in direct ranging.   | (6) |
| 14 | The following consecutive readings were taken with a dumpy level. 1.89, 1.14, -1.36, 2.75, 1.02, 1.52, 1.07. The level is shifted after fourth and sixth readings. The reduced level of first point was 100.00. Draw page of level field book and enter the readings on it. Also find the reduced levels of all the points. Use height of instrument method and do necessary checks also. | (6) |

- 15 List the properties of good building bricks. Explain any five. (6)
- 16 What are the factors to be considered while selecting the site for a building? (6)
- 17 What is meant by orientation of a building? Why it is important for building? (6)
- 18 List the different types of cement. Explain any three of them. (6)
- 19 Explain any four market forms of steel. (6)
- 20 What are the different instruments used for a chain surveying? Explain any three. (6)

**PART C**

*Answer any two questions, each carries 11 marks.*

- 21 a) Explain any six types of pitched roof with figure. (6)
- b) What is meant by chimney? Mention any three situations at which chimney are preferred. What are the points to be considered While constructing tall chimney? (5)
- 22 a) Explain any four types of shallow foundations with neat figure. (6)
- b) What is meant by Tower? List the different types of tower based on structural action. Describe with at least two sentences. (5)
- 23 a) Explain briefly the concept of intelligent buildings. (6)
- b) Explain the procedure for painting on a wall surface. (5)

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017**

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 3 marks.*

- |    |  |     |
|----|--|-----|
| 1  | Explain relevance of civil engineering in overall infrastructure development of the country. | (3) |
| 2  | Enumerate the factors affecting orientation of the building.                                 | (3) |
| 3  | What are the principles of surveying?  | (3) |
| 4  | Compare PCC and RCC.   | (3) |
| 5  | What do you mean by bearing capacity of soil?  | (3) |
| 6  | Discuss the purposes of plastering?  | (3) |
| 7  | List down the different market forms of steel.   | (3) |
| 8  | What are the design consideration of ramps?  | (3) |
| 9  | List any six sound proofing materials.   | (3) |
| 10 | What is an intelligent building?   | (3) |

**PART B***Answer any eight questions, each carries 6 marks.*

- |    |  |     |
|----|--|-----|
| 11 | Explain classification of buildings as per NBC.  | (6) |
| 12 | Briefly explain different components of building with a neat figure.   | (6) |
| 13 | What are the requisites of a good site plan?   | (6) |
| 14 | Discuss the various principles of building planning.   | (6) |
| 15 | Describe the open space requirements of a building.  | (6) |
| 16 | Explain direct ranging?  | (6) |
| 17 | The following consecutive readings are taken on a level with station A as Bench mark (R.L. of the Bench mark is 200.00 m).<br>2.190, 3.150, 1.060, 0.230, 3.430, 3.170, 3.420, 3.720, 2.390 The instrument is shifted after the reading 3.430. Enter these readings in level book and calculate the reduced level of all points. | (6) |
| 18 | Discuss the different types of tests on bricks.  | (6) |
| 19 | Define the following:<br>i) Height of instrument      ii) Reduced level      iii) Line of collimation  | (6) |
| 20 | Describe the different types of cement and its uses.   | (6) |

**PART C***Answer any two questions, each carries 11 marks.*

- |    |   |     |
|----|---|-----|
| 21 | a) Explain classification of foundation with neat sketches.<br>b) Draw the plan and elevation of one brick thick wall English bond. | (6) |
| 22 | a) Discuss any six types of flooring materials.<br>b) Discuss briefly the different aspects of escalators.                          | (6) |
| 23 | a) Explain different air conditioning systems.<br>b) Write short note on:<br>i) Chimneys    ii) Towers    iii) Water tanks          | (6) |

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Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION JULY 2017**

**Course Code: CE100**

**Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions. Each carries 3 marks.*

- |    |   |     |
|----|---|-----|
| 1  | Write any six factors to be considered in the selection of site for a building. | (3) |
| 2  | Define plinth area, floor area and carpet area.                                 | (3) |
| 3  | What is meant by the terms Backsight, Foresight and Changepoint in levelling?   | (3) |
| 4  | Discuss any three properties of cement blocks.                                  | (3) |
| 5  | Write any three functions of foundations.                                       | (3) |
| 6  | What is shallow foundation? List different types of shallow foundations.        | (3) |
| 7  | Define the terms pitch, rise and span used in connection with sloping roofs.    | (3) |
| 8  | Write any six aspects of escalators.  | (3) |
| 9  | List any six benefits of an intelligent building.                               | (3) |
| 10 | Discuss any six facts about chimneys.   | (3) |

**PART B**

*Answer any eight questions. Each carries 6 marks.*

- |       |   |     |
|-------|---|-----|
| 11    | List various disciplines of civil engineering and briefly discuss on any two disciplines.   | (6) |
| 12    | Draw a rough sketch of the section of a simple single storied building and mark the basic building components.  | (6) |
| 13    | Assume a suitable site and draw to scale the plan of any simple residential building in the site plan.  | (6) |
| 14    | With reference to a suitable sketch explain the setting out a building by central line method.  | (6) |
| 15 a) | What is surveying?  | (1) |
| b)    | Explain the fundamental principles of surveying.  | (2) |
| c)    | Discuss triangulation survey and traverse survey.   | (3) |
| 16 a) | Discuss the term offsets used in surveying.   | (2) |
| b)    | Draw a neat sketch of Dumpy level and mark salient features.  | (4) |
| 17    | The following staff readings were obtained when running a line of levels between two bench marks A (RL=100.000) and B (RL=98.000)<br>1.95(A), 2.90, 3.10, 2.95(CP1), 1.50, 1.91, 3.25 (CP2), 2.51, 3.15, 0.45 (CP3),<br>1.35, 2.75, 2.81 (B) are the readings. Enter the readings in a level book and reduce the levels. Determine the error in the level of B. | (6) |

- 18 a) Define grade of cement. List available grades of cement. (2)  
b) What is standard consistency of cement and how it is determined? (4)
- 19 a) Define workability of concrete and list the factors affecting workability. (2)  
b) Explain any one method to determine the workability of concrete. (4)
- 20 a) What are the uses of steel in building construction? (3)  
b) Discuss with sketches any three forms of steel available in the market. (3)

**PART C**

*Answer any two questions. Each carries 11 marks.*

- 21 a) Discuss with sketches different types of deep foundations. (6)  
b) With the help of suitable sketches explain English bond. (5)
- 22 a) Discuss any two types of flooring used for top floors. (6)  
b) Write short note on sound proofing. (5)
- 23 a) Explain the importance of water tanks in civil engineering. How they are classified? (6)  
b) Discuss the significance and classification of air conditioning systems. (5)

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Reg. No. \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**SECOND SEMESTER B.TECH DEGREE EXAMINATION, JUNE 2017**

Course Code: **CE 100**Course Name: **BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer all questions. Each question carries 3 marks.*

1. List any six disciplines of civil engineering.
2. Why orientation of a building is important?
3. Explain datum, bench mark and line of collimation.
4. What are the functions of lime and silica on brick earth?
5. Differentiate between Plain cement concrete and Reinforced cement concrete.
6. What do you mean by bearing capacity of soil?
7. Differentiate between header bond and stretcher bond.
8. Explain the following terms King post, Eaves and Ridge.
9. List out any six commonly used sound proofing materials.
10. Explain ramps and its uses.

**PART B**

*Answer any 8 questions. Each question carries 6 marks.*

11. How buildings are classified as per occupancy according to national building code?
12. What are the factors to be considered while selecting the site for a residential building?
13. Draw a site plan incorporating all the necessary details.
14. What are the points to be considered while selecting the position of doors and windows in a building?
15. What is ranging? Explain the procedure of direct ranging by eye.
16. Explain different types of chain.
17. The following consecutive readings were taken with a dumpy level and levelling staff on continuously sloping ground at 30m intervals. 0.680, 1.455, 1.855, 2.330, 2.885, 3.380, 1.055, 1.860, 2.265, 3.540, 0.835, 0.945, 1.530, 2.250. The reduced level of starting point was 80.750.
  - a. Rule out a page of level book and enter the above readings.
  - b. Apply the arithmetic checks.
  - c. Determine the gradient of line joining first and last point.
18. What are the constituents of cement? Explain the function of each.
19. What are the functions of sand in mortar?
20. Explain any three types of cement and its uses?

**PART C**

***Answer any two full questions. Each question carries 11 marks.***

21. a. Explain in one or two sentences different types of shallow foundations with neat sketch. (6)
- b. Explain the procedure of plastering in two coats. (5)
22. a. What are the characteristics of an ideal paint? (5)
- b. What is the concept of green building? (6)
23. a. Explain different air conditioning systems. (5)
- b. Explain the civil engineering aspects of tower. (6)

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Reg. No.: \_\_\_\_\_ Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

**FIRST SEMESTER B.TECH DEGREE EXAMINATION, JANUARY 2017**

**Course Code: CE 100**

**Course Name: BASICS OF CIVIL ENGINEERING**

**Max. Marks: 100**

**Duration: 3 Hours**

**PART A**

*Answer ALL questions. Each question carries 3 marks.*

1. What is National Building Code?
2. What is floor area ratio? Mention its importance.
3. Differentiate fore-sight, back-sight and intermediate-sight.
4. Explain the quality classification of bricks.
5. Write a note on Bearing Capacity of Soil.
6. What are the differences between shallow and deep foundation?
7. What are the purposes of Plastering?
8. What is a ramp? Where ramps are used?
9. What are purposes of air conditioning?
10. Define a tall structure with examples.

**PART B**

*Answer any 8 questions. Each question carries 6 marks.*

11. Distinguish between substructure and superstructure of a building.
12. What are the factors to be considered while selecting a site for a building?
13. What are the principles of planning? Explain
14. What are open space requirements as per N.B.C norms?
15. Explain the procedure for setting out of a building.
16. What are the classifications of surveying? Explain primary classification.
17. Write a short note on total station and digital level.
18. Calculate the R.L. of each point and apply, the usual checks, for the following dumpy level consecutive readings. The instrument having been shifted after the fourth and

eighth readings. The first reading was taken on the B.M. of 552.850 m. Adopt height of collimation method.

0.885, 1.640, 2.890, 3.010, 0.955, 0.695, 0.585, 0.255, 1.535, 1.000 and 2.140

19. What are the different types of cement? Explain their uses.
20. Explain the properties and uses of different types of steel.

### **PART C**

*Answer any 2 full questions.*

21. a) Explain & Draw a neat sketch of plan and elevation of one brick thick wall with English bond. (5)  
b) Describe the various types of pile foundation. (6)
22. a) Explain in detail plastering techniques. (5)  
b) What are the factors to be considered while designing a ramp? (6)
23. a) Explain classification of air conditioning systems. (5)  
b) Explain the principles of acoustics and acoustical defects. (6)

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Reg. No.: \_\_\_\_\_

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIRST/SECOND SEMESTER B.TECH DEGREE SPECIAL EXAMINATION, SEPTEMBER 2016

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer ALL questions. Each question carries 3 marks*

1. Explain the role of civil engineers to the society in various fields.
2. Write down the various details to be included in the site plan.
3. Explain the terms: (i) Benchmark (ii) Datum.
4. Illustrate any 6 properties of good bricks
5. Differentiate between header and stretcher bonds in brick masonry.
6. Explain the different types of roofing materials.
7. Explain the procedure for preparing the surface for painting.
8. What are the purposes of air conditioning a building?
9. List various materials used for sound proofing.
10. List out the limitations of intelligent building.

**PART B***Answer any 8 questions (6 x 8 = 48 Marks)*

11. What will be the conditions for the selection of site to buy a plot for constructing a residential building?
12. Illustrate the components of residential building and their function with neat sketch.
13. Explain the orientation of a building in tropical climate.
14. Explain the procedure for setting out of building by centre line method.
15. "Doors should be provided in such a way that there is maximum work space in front of the door and wastage of space is to be reduced." Justify the statement with neat figures.
16. Write short notes on : i) Total station    (ii) EDM    (iii) GPS
17. The following consecutive readings are taken on a level with station A as Bench Mark with RL 200.000m. They are 2.190, 3.150, 1.060, 0.230, 3.430, 3.170, 3.420, 3.720 and 2.390. The instrument is shifted after the reading 3.430. Enter these readings in a level field book and calculate the reduced levels of all points by Height of Instrument method.

18. List out the properties of mild steel and HYSD steel.
19. Explain plinth area, floor area, carpet area, plot area, coverage, and floor area ratio.
20. What are the constituents of RCC? List out the grades of concrete with their uses.

### PART C

*Answer any 2 full questions*

21. A) Differentiate between shallow and deep foundations (5)  
B) Draw the plan and elevation of one brick thick wall in English bond. (6)
22. A) Explain any five types of paints with their functions. (5)  
B) Differentiate between Elevators and Escalators. (6)
23. A) Explain the different types of towers in detail. (5)  
B) What are the main features of an intelligent building? (6)

10013

Reg. No.: \_\_\_\_\_

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION, JULY 2016

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer ALL questions. Each question carries 3 marks*

1. List out any six disciplines of civil engineering.
2. What are the factors affecting site selection of a building?
3. What is direct ranging?
4. Illustrate any 6 properties of good bricks.
5. What do you mean by bearing capacity of soil?
6. What are the various flooring materials available?
7. Differentiate between header bond and stretcher bond.
8. Discuss the principles of comfort air conditioning
9. Explain about towers and its uses?
10. What do you mean by intelligent building?

**PART B***Answer any 8 questions (6 x 8 = 48 Marks)*

11. Describe with sketches the components of a residential building.
12. How can you classify the buildings based on occupancy according to National Building Code? Explain briefly.
13. Describe about the site plan of buildings.
14. Explain setting out of a building.
15. What are the factors affecting orientation of a building?
16. What are the main principles of surveying?
17. The following consecutive readings were taken with a dumpy level: 0.555, 0.725, 1.235, 0.73, 0.825, 1.560, 0.285, 0.945, 0.785, 2.465. The instrument was shifted after the third and seventh reading. The first reading was taken on a benchmark whose R.L. is 100.00 metres. Rule out the

page of a level field book and enter the above readings. Calculate the reduced levels of stations and apply arithmetic check.

18. What are the constituents of good brick earth?
19. Explain types of cements and its uses.
20. Mention the physical and chemical properties of OPC.

## PART C

*Answer any 2 full questions*

21. a) Write short note on emulsion and distempering (5)  
b) Describe the functions of various types of foundations (6)
22. a) Explain the method of applying plaster on a wall surface. (5)  
b) Explain the civil engineering aspects of escalators and elevators in detail? (6)
23. a) What are the practical measures to provide sound insulation in a building? (5)  
b) What are the limitations of intelligent buildings over ordinary buildings? (6)



Reg. No. :

Name :

SECOND SEMESTER B.TECH. DEGREE EXAMINATION, MAY/JUNE 2016

**Course Code : CE 100**  
**BASICS OF CIVIL ENGINEERING**

Max. Marks : 100

Duration : 3 Hours

**PART – A**Answer **all** questions. **Each** question carries **3** marks.**(10x3=30 Marks)**

1. Explain very briefly about the classification of buildings based on occupancy.
2. 'Orientation is an essential step while planning a building'. Comment.
3. What are the principles of surveying ?
4. List out the commercial forms of steel available.
5. What do you mean by bearing capacity of soil ?
6. Explain the following terms related to brick masonry: Course, Queen closer & Perpends.
7. Explain how to prepare a wall surface for painting.
8. Differentiate between elevators and escalators.
9. What are the purposes of air conditioning of a building ?
10. What are the precautions taken to achieve imperviousness of water tanks ?

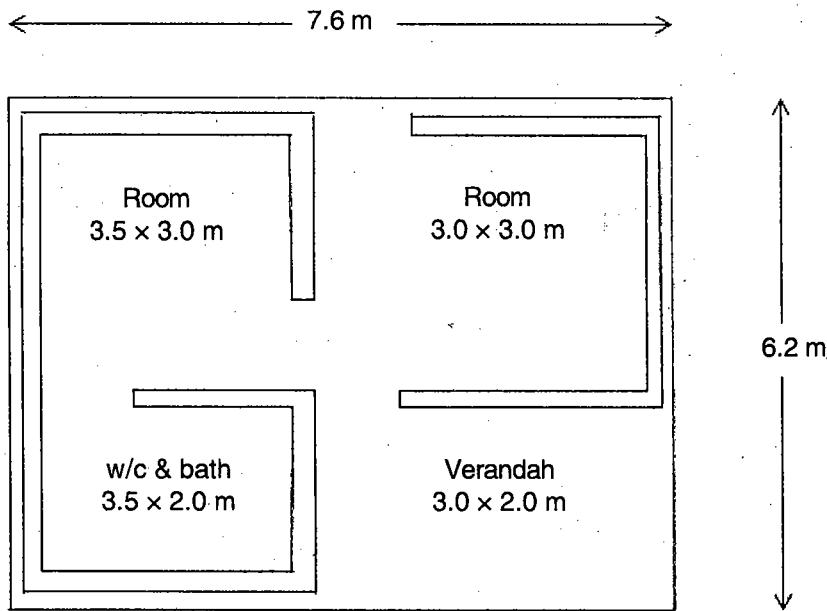
**PART – B**Answer **any 8** questions.**(6x8=48 Marks)**

11. Write a short note on various components of a residential building and their functions.
12. Write a note on the importance of civil engineering on infrastructural development of India.

P.T.O.



13. Calculate plinth area, floor area and carpet area for the plan of a building given below: Wall thickness is 30 cm.



14. Explain the need and types of open space requirement for a building.
15. Explain the centre line method adopted for setting out of a building.
16. What is direct ranging and what are the instruments used for ranging ?
17. The following consecutive readings were taken with a dumpy level and a 4 m levelling staff on a continuously sloping ground at a common interval of 30 m: 0.585 on A, 0.930, 1.955, 2.840, 3.645, 0.960, 1.035, 1.680, 2.535, 3.845, 0.950, 1.575, 3.015 on B. The elevation of A was 520.150. The instrument was shifted at 6<sup>th</sup> and 11<sup>th</sup> readings.
- A) Rule out a page of level book and enter the above readings.
- B) Find R.L of B.
- C) Determine the gradient of line AB.
18. What is the composition of ordinary cement ? Briefly explain grades of cement.
19. Explain the preparation of concrete.
20. What are the characteristics of a good brick ?

**PART - C**

Answer any 2 full questions.

21. A) Define :

- i) Span
- ii) Ridge
- iii) Eaves
- iv) Batten
- v) Cleats.

(1×5=5 Marks)

B) Describe the functions and various types of foundations.

(6 Marks)

22. A) Explain the method of applying plaster on a wall surface.

(5 Marks)

B) Explain the concept of intelligent building.

(6 Marks)

23. A) How is sound proofing done in a building ?

(5 Marks)

B) List out the specification of the following :

(6 Marks)

- i) Towers
- ii) Chimneys
- iii) Water tanks.

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Reg. No.: \_\_\_\_\_

Name: \_\_\_\_\_

## FIRST SEMESTER B.TECH DEGREE EXAMINATION, JANUARY 2016

**Course Code: CE100****Course Name: BASICS OF CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**Part A*****Answer ALL questions. Each question carries 3 marks***

1. Explain relevance of Civil engineering in the overall infrastructural development of the country.
2. Discuss the difference between plinth area and carpet area.
3. Enumerate the principles considered for the survey of a land.
4. Explain different types of steel with their properties.
5. Define bearing capacity of soil.
6. What are the various roofing materials available?
7. List the different types of flooring materials.
8. What are the purposes of air conditioning a building?
9. Write short note on towers.
10. Difference between elevators and escalators.

**Part B*****Answer any 8 questions (6 x 8 = 48 Marks)***

11. List out the types of building as per occupancy. Explain any two, each in about five sentences.
12. Discuss the components of a building with a neat figure.
13. List the steps in the setting out of foundation in centre line method
14. What are the open space requirements you should provide in constructing a building?
15. What are the points to be considered while selecting the position of doors and windows inside a building?
16. Write short notes on Total Station.
17. The following staff readings were observed successively with a level, instrument having been moved after third, sixth and eighth readings: 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684, meters. Enter the above readings in a page of a level book and calculate R.L. of points if the first reading was taken with a staff held on a bench mark of 432.384
18. What are the constituents of cement and explain the function of each?

19. Write short notes on electronic distance meter and digital level.
20. What are the different kinds of cement available and what is their use?

### Part C

*Answer any 2 full questions*

21. A) Draw neat sketch of the following foundations. (6)  
(i) Isolated stepped footing (ii) Cantilever footing (iii) Continuous footing.  
B) Draw the elevation and plan of one brick thick wall with English bond (5)
22. A) Explain step by step procedure for finishing of a wall using plastering (5)  
B) What is meant by intelligent building? What are the various conditions to be satisfied by intelligent buildings? (6)
23. A) Explain different types of air conditioning systems. (5)  
B) What are the major sound proofing materials? Explain briefly. (6)