

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech. II Year II Semester Regular & Supplementary Examinations March/April-2026
CONCRETE TECHNOLOGY
(Civil engineering)

Time: 3 Hours

Max. Marks: 70

PART-A

(Answer all the Questions 10 x 2 = 20 Marks)

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|---|---|---|-----|----|----|
| 1 | a | List Bogue's compound? | CO1 | L1 | 2M |
| | b | Classify aggregates according to their shape | CO1 | L2 | 2M |
| | c | What is meant by batching in concrete production? | CO2 | L1 | 2M |
| | d | Define workability of concrete. | CO2 | L1 | 2M |
| | e | List the different factors affecting workability. | CO3 | L1 | 2M |
| | f | Define Abram's Law. | CO3 | L1 | 2M |
| | g | Define Poisson's ratio. | CO4 | L1 | 2M |
| | h | Define Shrinkage. | CO4 | L1 | 2M |
| | i | What is meant by Special concrete? | CO5 | L1 | 2M |
| | j | Explain the standard mix of concrete. | CO5 | L2 | 2M |

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

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|---|---|---|-----|----|----|
| 2 | a | Describe the process of manufacture of cement by wet process. | CO1 | L2 | 5M |
| | b | List and explain different grades of cement. | CO1 | L1 | 5M |

OR

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|---|---|---|-----|----|----|
| 3 | a | Discuss about the chemical composition of Ordinary Portland cement. | CO1 | L2 | 5M |
| | b | Describe the process of hydration in Portland cement. | CO1 | L2 | 5M |

UNIT-II

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|---|--|--|-----|----|-----|
| 4 | | Define the term workability. What are the various tests conducted to determine the Workability of concrete and explain them. | CO2 | L3 | 10M |
|---|--|--|-----|----|-----|

OR

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|---|--|---|-----|----|-----|
| 5 | | Explain different types of compaction that can be used in Production of concrete. | CO2 | L2 | 10M |
|---|--|---|-----|----|-----|

UNIT-III

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| 6 | | What are the various factors affecting the strength of concrete? | CO3 | L1 | 10M |
|---|--|--|-----|----|-----|

OR

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|---|--|---|-----|----|-----|
| 7 | | Explain how a compression test is conducted and discuss its importance in material testing. | CO3 | L2 | 10M |
|---|--|---|-----|----|-----|

UNIT-IV

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|---|--|--|-----|----|
| 8 | | Explain the procedure to conduct Modulus of elasticity test in the laboratory and explain the various factors affecting the modulus of elasticity. | CO4 | L2 |
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OR

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| 9 | | Explain Creep of concrete and relation between creep and time. | CO4 | L2 |
|---|--|--|-----|----|

UNIT-V

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|----|--|---|-----|----|
| 10 | | Design a M30 concrete mix using IS method of Mix Design for the following data: | CO5 | L3 |
|----|--|---|-----|----|

i)Maximum size of aggregate - 20mm (Angular).

ii)Degree of workability - 0.90 compaction factor.

iii)Quality control – good

iv)Type of exposure - severe

v)Specific Gravity: A. Cement - 3.10 B. Sand - 2.68 C. Coarse aggregate - 2.69

vi)Water absorption: A. Coarse aggregate -1.0% B. Fine aggregate - 2.0%

vii)Free surface moisture: A. Coarse aggregate- Nil B. Fine aggregate- 2.0%

viii)Sand confirms to zone III grading.

Assume any other data required suitably

OR

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|----|--|---|-----|----|
| 11 | | Discuss various factors which affect the choice of mix proportions. | CO5 | L2 |
|----|--|---|-----|----|

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