

MODEL QUESTION
MANMOHAN TECHNICAL UNIVERSITY
OFFICE OF THE CONTROLLER OF EXAMINATIONS
2081, Jestha
Sample Question

Level: Bachelor
Faculty: School of Engineering
Program: Civil Engineering
Subject: Concrete Technology (EG556CE)

Year/Part: II/II
F.M.: 50
P.M.: 20
Time: 3 Hours

Group A (Attempt ALL Questions:)

[10 × 1 = 10]

Instructions:

- Choose one answer out of four options.
 - Use black ball pen for shading only one circle for correct option of a question in Answer Sheet which you have provided.
 - No mark will be awarded for cutting, erasing, over writing and multiple circles shading
- 1) Slump test of concrete is a measure of its?
a. Compressive strength b. consistency c. tensile strength d. all of the above
 - 2) Which of the following statements accurately describes the strength-density relation in materials?
a. As density increases, strength typically decreases.
b. There is no significant correlation between density and strength.
c. Strength generally increases with increasing density.
d. Higher density results in unpredictable changes in strength.
 - 3) Which of the following factors affects the permeability of a material?
a. Temperature b. Colour c. Hardness d. Electrical conductivity
 - 4) What are common causes of inadequate durability in concrete structures?
a. High cement content b. Insufficient curing
c. Low water-to-cement ratio d. Proper reinforcement placement
 - 5) Which type of concrete is more resistant to chloride attack?
a. Concrete with high permeability b. Concrete with low cement content
c. Concrete with low water-to-cement ratio d. Concrete with minimal curing time
 - 6) Which of the following statements accurately describes a flexure test?
a. Flexure test measures the tensile strength of a material by subjecting it to bending forces.
b. Flexure test measures the compressive strength of a material by applying axial loads. c. Flexure test determines the ductility of a material by stretching it until fracture.
d. Flexure test assesses the resistance of a material to bending and cracking under applied loads.
 - 7) What is the typical range for the air content percentage in air-entrained concrete mix designs?
a. Less than 1% b. Between 3% and 6%
c. Between 8% and 10% d. Greater than 15%
 - 8) What is the typical range for the compressive strength of HPC?
a. Less than 20 MPa b. Between 20 MPa and 40 MPa
c. Between 40 MPa and 80 MPa d. Greater than 80 MPa
 - 9) What are some common applications of ferrocement concrete?
a. High-rise buildings b. Bridges and dams
c. Water tanks and boats d. Road pavements

MODEL QUESTION

- 10) The cube strength of concrete exceeds the cylinder strength by
- a. 10% to 50%
 - b. 10% to 15%
 - c. 15% to 20%
 - d. 20% to 25%

Group B (Attempt any eight questions)

[8*2=16]

- 11. List the admixtures commonly used in concrete and explain any two.
- 12. Explain failure modes in concrete.
- 13. Describe the relation between temperature and strength of concrete.
- 14. Explain transportation mechanism in concrete.
- 15. Describe the process of rusting and its effect in durability of concrete.
- 16. What are factors affecting compressive strength of concrete.
- 17. Explain foamed and sulphur concrete.
- 18. Describe mix proportion and strength of Light weight concrete.
- 19. Describe shrinkage and creep of concrete.

Group C (Attempt all questions)

- 20. Explain high performance concrete (HPC) with applications. [4]
- 21. Describe in detail about Rebound hammer test with an example. [4]
- 22. Describe concrete as three phase system. Explain the effect of transition method at civil zone in the properties of concrete. [4]
- 23. Describe Fiber reinforced concrete and behaviour its behaviour in tension, compression and flexure. [4]
- 24. Explain about green concrete and its impact in environment.
- 25. Design the mix proportion for concrete with the help of following particular using American Concrete Institute (ACI) method: [4]
 - Characteristic compressive strength, (F_{ck}) = 30Mpa
 - Water cement ratio based on compressive strength=0.48
 - Assume all Necessary data

***** All the Best ***