

AR13

CODE: 13CE3015

SET-1

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

III B.Tech II Semester Supplementary Examinations, July-2017

DESIGN OF CONCRETE STRUCTURES –II (Civil Engineering)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) Generally where, pile foundation would be prefer?
b) How would you determine the minimum depth of foundation?
c) List the different types of foundations.
d) What do you understand about flat slab?
e) What is the function of column head in flat slab?
f) Write the components of Bridge?
g) List the different types of piles.
h) What is the function of pile cap?
i) Which code book would be use while designing the water tank?
j) List the different types of water tanks.

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. A reinforced concrete column 400 mm × 400 mm supports an axial service load of 1000 kN. The safe bearing capacity of the soil at site is 200 kN/m². Adopting M-20 grade concrete and Fe-415 HYSD bars. Design a square footing for the column.

(OR)

3. Design a rectangular combined footing for two columns A and B both of 350mm x 350mm, spaced at 4.2m c/c and carrying axial factored loads of 1000 kN and 1300 kN respectively. The width of footing may be restricted to 1.3 m. Assume a SBC of 210 kN/m² for the underlying soil adopt M-20 grade concrete and Fe-415 HYSD steel.

UNIT-II

4. Design a circular slab of diameter 5 m which is simply supported at the edges. Live load = 4 kN/m². Assume M-20 grade concrete and Fe-415 HYSD bars. Assume load factors according to IS: 456-2000.

(OR)

5. The flat slab is supported on 600 mm dia circular columns spaced 8m x 5m apart in both the directions for a four storey building. The column head has a diameter of 1200 mm. The live load on the flat slab is 4.5 kN/m². Determine the moments in the flat slab in the two directions. Take storey height as 3.1m.

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UNIT-III

6. a) Write the classification of bridges. Also write loadings or forces acting on a bridge.
b) What are the four standard types of live loads considered in the code. Explain them in detail.

(OR)

7. A slab panel of a reinforced concrete T-beam and slab deck is 2.3 m wide between main girders and 4m between cross girders. Design slab for IRC class A loading. Adopt M-20 grade concrete and Fe-415 HYSD bars.

UNIT-IV

8. The foundation for a structure comprising six piles of square cross section has to support a service load of 3600 kN. The piles are driven through a hard stratum and bear on hard rock. Design the reinforcements in the pile assuming the pile to be 6 m long and using M-20 grade concrete and Fe-415 HYSD bars.

(OR)

9. Design a pile cap for a group of two piles spaced 1.5 m apart. The piles are 400 mm diameter and the column transmits a factored load of 1000 kN and is of size 500 mm × 500 mm. Adopt M-20 grade concrete and Fe-415 HYSD bars.

UNIT-V

10. A Rectangular tank resting on ground with internal dimensions as 7.5 x 6 m and 2.5 m high. Design a tank by considering the free board as 350 mm. Use M-20 grade concrete and HYSD steel of grade Fe-415.

(OR)

11. A Circular tank with capacity of 5500 kilo litres resting on ground having a flexible soil with soil bearing capacity of 90 kN/m². Design the tank by provide a depth of 4.5 m with a free board of 300 mm. Adopt M-20 grade concrete and Fe-415 HYSD bars.

Time: 3 Hours**Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

1. a) Differentiate between unilateral and bilateral systems of writing tolerances with suitable examples.
- b) How holes, shafts and fits are designated? Explain with suitable examples.
- c) What is meant by wringing?
- d) Draw the conventional diagrams of limits and fits.
- e) State the uses of angle plate and straight edge.
- f) Select the size of angles required to built $10^0 20'$.
- g) Explain the following terms
 - i) Ra value
 - ii) Rz value surface and finish
- h) What is meant by backlash?
- i) Name the various elements of the spur gear which are checked for accuracy of the gear.
- j) What are interferometers?

PART-B**Answer one question from each unit****[5x12=60M]****UNIT-I**

2. a) What is the difference between unilateral and bilateral tolerances? Why is unilateral tolerance preferred over bilateral tolerance?
- b) Between two mating parts of 100 mm basic size the actual interference fit is to be from 0.05 mm to 0.012 mm .the tolerance for hole is the same as the tolerance for the shaft. Find the size of the both shaft and the hole.
 - i) Hole basis unilateral system and
 - ii) Shaft basis unilateral system.

(OR)

3. a) Write a brief note on imperial standard yard and international standard meter.
- b) A calibrated meter End bar as an actual length of 1000.0005 mm it is to be used in the calibration of two bars, A and B, each having a basic length of 500 mm.
When compared with the meter bar $L_A + L_B$ was found to be shorter by 0.0003 mm. In comparing A with B it was found that A was 0.0006 mm longer than B find the actual length , lengths of A and B.

UNIT-II

4. a) Design the general type GO & NO-GO gauge for components having $20H_7/f_8$ fit. given:
 - i) $I(\text{micron}) = 0.45(D)^{1/3} + 0.001D$
 - ii) Upper deviation of ' f 'shaft = $-5.5 D^{0.41}$
 - iii) 20 mm falls in the diameter step of 18 mm to 30 mm.
 - iv) $IT_7 = 16 i$
 - v) $IT_8 = 25 i$
 - vi) Wear allowance 10% of gauge tolerance.

- b) Write short notes on:
- i) Angle Dekkor
 - ii) Optical Square
 - iii) Optical bevel protractor

(OR)

5. a) Discuss the relative advantage of vernier calipers and micrometer
b) Write a short note on:
- i) Sine bars
 - ii) Slip gauges
 - iii) Snap and gap gauges

UNIT-III

6. a) Define flatness. Describe any one method of testing flatness of a surface.
b) Explain how the flatness and parallelism of the two faces of a slip gauge can be tested with the help of NPL Gauge interferometer.

(OR)

7. a) Write a short note on surface plate with neat sketch and Explain the procedure to test the flatness of surface plate.
b) Explain with a neat sketch the construction and working principle of optical flats

UNIT-IV

8. a) With the help of neat sketch describe the construction and working of the following:
- i) Profilometer
 - ii) Talysurf.
- b) Explain briefly the principle and operation of a electrical and electronic comparator with neat sketches.

(OR)

9. a) What is a comparator? Describe mechanical comparator and clearly explain the magnification method adopted in it.
b) How is surface roughness assessed?
In the measurement of surface roughness, heights of 20 successive peaks and valleys measured from a datum are as follows:
45,25,40,25,30,18,22,34,36,40,26,24,33,37,38,40,42,18,26,41
If these measurements were made over a length of 20 mm, determine the C.L.A and R.M.S values of the surface

UNIT-V

10. a) Describe the Parkinson's gear tester and state its limitations
b) Describe the following pitch errors of thread in brief:
- i. Periodic error
 - ii. Drunken error.

(OR)

11. a) Describe any three alignment tests on a lathe machine with neat sketches.
b) Describe the construction and working of a coordinate measuring machine

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SUB CODE:13HS3005

SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
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III B.Tech II Semester Supplementary Examinations, July-2017

MANAGERIAL ECONOMICS AND AMANAGEMENT SCIENCE
(Common to ECE & EEE)

Time: 3 Hours

Max Marks: 70

PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What is demand forecasting?
b) Discuss about demand analysis
c) Explain the production function
d) How to determine BEA
e) Classify the types of competitions in market
f) What is Monopoly?
g) Discuss the concepts of management and organization
h) Explain the systems approach to management
i) What is PMIR?
j) Give a note on welfare administration

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Discuss the various type of demand analysis used in the managerial economics
b) What are the various methods of measuring the demand forecasting.
(OR)
3. What is elasticity of demand? How to measure the elasticity of demand with suitable example.

UNIT-II

4. a) Explain in-detail the internal and external economics of scale.
b) Distinguish between opportunity costs and variable costs used in cost analysis.
(OR)
5. Explain the following with suitable examples
i) Out of pocket costs ii) Imputed costs

UNIT-III

6. (a) Explain price output determination of Monopoly?
(b) Discuss the various pricing strategies?
(OR)
7. What is perfect competition and explain price output determination?

UNIT-IV

8. What is the importance of management? How the functions of management play a vital role in industrial growth.
- (OR)
9. a) Maslow's theory of needs hierarchy?
- b) Explain the Herzberg's two factor theory of motivation.

UNIT-V

10. Discuss various marketing strategies based on product life cycle with examples.
- (OR)
11. Explain the following
- i) Welfare administration ii) Job evaluation and merit rating

Time: 3 Hours**Max Marks: 70****PART-A****ANSWER ALL QUESTIONS****[1 x 10 = 10 M]**

1. a) Define Precision?
- b) What is an Attribute.
- c) What are OLTP and OLAP systems?
- d) What is Binarization.
- e) Explain KDD Process.
- f) Define a concept Hierarchy.
- g) What is Predictive Accuracy?
- h) What is Minimal Frequent Item set?
- i) Explain about support?
- j) List out various clustering methods.

PART-B**Answer one question from each unit****[5 x 12=60M]****UNIT-I**

2. (a) Describe about the motivating challenges for the development of data mining? 6M
- (b) What is an Attribute? Explain different types of attributes with examples? 6M

(OR)

3. (a) What are Similarities and Dissimilarities between simple attributes? Explain? 6M
- (b) Explain in detail about Summary Statistics 6M

UNIT-II

4. (a) Explain Star, Snow flake and Fact constellation Schemas. 6M
- (b) List and Explain various OLAP operations with examples. 6M

(OR)

5. (a) What is Analytical Characterization? What is the need to perform attribute relevance analysis? 4M
- (b) Describe the procedure for mining class comparisons. 8M

UNIT-III

6. (a) With an example, Explain Frequent item set generation in the Apriori algorithm. 6M
- (b) Explain the principles of Apriori Algorithm. 6M

(OR)

7. (a) Explain the Candidate Generation and Pruning 6M
- (b) Explain FP_Tree Representations with neat diagrams 6M

UNIT-IV

8. (a) What is a Decision Tree? Briefly explain the Algorithm for Decision Tree Induction 6M
- (b) Explain in detail about Attribute Selection Measure 6M

(OR)

9. (a) Briefly Explain Bayesian Belief Networks 6M
- (b) What is Backpropagation.Explain the algorithm for Back propagation 6M

UNIT-V

10. (a) Explain the K-Means Clustering Algorithm with an Example 6M
- (b) What are the issues of K-Means 6M

(OR)

11. (a) List and Explain the Specific Techniques of Agglomerative Hierarchical Clustering. 6M
- (b) Describe the Center based Approach for DBSCAN 6M