

# AR13

**CODE: 13CE3015**

**SET-2**

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

**III B.Tech II Semester Regular & Supplementary Examinations, April-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) What is the condition for one way shear in footing design?  
b) What is the condition for two way shear in footing design?  
c) Define flat slab.  
d) Write two important assumptions in flat slab design.  
e) What is the function of drop in flat slab?  
f) What are the types of bridges?  
g) Where generally pile foundation will be prefer?  
h) What is meant by pile cap?  
i) What are the types loads to be consider while design the bridge?  
j) Classify the different types of water tanks.

### **PART-B**

**Answer one question from each unit**

**[5x12=60M]**

#### **UNIT-I**

2. Design an isolated footing for a rectangular column 300 mm x 500 mm with 16 numbers of 20 mm diameter longitudinal bars carrying a service load of 2500 kN. Assume safe bearing capacity of soil as  $260 \text{ kN/m}^2$  at a depth of 1 m below ground level. Use M-20 grade concrete and Fe-415 HYSD bars.

**(OR)**

3. A rectangular column 550 mm x 450 mm carries an axial load of 750kN. Design a rectangular footing to support the column. The safe bearing capacity of soil is  $200 \text{ kN/m}^2$ . Use M-20 grade concrete and Fe-415 HYSD bars.

#### **UNIT-II**

4. Design a circular slab for a room inside diameter is 4 m. The thickness of wall is 200 mm and the slab protects outside the walls by 1.2 m all around. The superimposed load may be taken as  $3 \text{ kN/m}^2$  at service.

**(OR)**

5. A flat slab floor with drops is proposed for a ware house  $20 \text{ m} \times 30 \text{ m}$  in size. Using a column grid of  $5 \text{ m} \times 5 \text{ m}$  design an interior panel of the flat slab to support a live load of  $7.5 \text{ kN/m}^2$ . Adopt M-20 grade concrete and Fe-415 HYSD bars.

**UNIT-III**

6. a) What are the types of bridges? What are the loads would act on bridge?  
b) Write step by step design procedure of abutments in a bridge.
- (OR)**
7. A reinforced concrete T-beam and slab deck is 2.5 m wide between main girders and 3.5 m between cross girders. Design slab for IRC class A loading. Adopt M-25 grade concrete and Fe-500 bars. Assume required data

**UNIT-IV**

8. The foundation for a structure comprising six piles of square cross section have 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. A pile cap connecting 4 reinforced concrete piles of 300 mm × 300 mm is to be designed to support a reinforced concrete column 400 mm × 400 mm carrying a service load of 2000 kN. The piles are located parallel to the column faces with their centres located 800 mm from the centre of the column. Using M-25 grade concrete and Fe-500 grade steel bars, design the pile cap.

**UNIT-V**

10. Design a Rectangular tank resting on ground with internal dimensions as 6.5 m x 5.0 m x 2.5m high. Consider the free board as 250 mm. Adopt M-25 grade concrete and Fe-500 grade steel.
- (OR)**
11. Design a circular tank resting on ground having a soft soil with SBC of 100 kN/m<sup>2</sup>. Design the tank for capacity of 5000 kilo litres by providing a depth of 4 m with a free board of 250 mm. Adopt M-25 grade concrete and Fe-500 grade steel.

**SUB CODE: 13HS3005**

**SET-1**

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

**III B.Tech II Semester Regular & Supplementary Examinations, April-2017**

**MANAGERIAL ECONOMICS AND MANAGEMENT SCIENCE  
(Common to EEE and ECE)**

**Time: 3 Hours**

**Max Marks: 70**

**PART-A**

**ANSWER ALL QUESTIONS**

**[1 x 10 = 10]**

1. a) Define Managerial Economics  
b) Explain the concept of law of demand  
c) What is the meaning of Break-Even Point  
d) Explain the concept of Laws of Returns  
e) Explain the features of perfect competition  
f) List out Fayol's principles of management  
g) Define Management  
h) Define Social Responsibility.  
i) Explain the concept of performance appraisal  
j) What is personnel management?

**PART-B**

**Answer one question from each unit**

**[5 x 12=60]**

**UNIT-I**

2. Define Demand Forecasting. Explain its influencing factors  
(OR)
3. What are the methods of demand forecasting? Explain its significance

**UNIT-II**

4. Draw a Break-Even-Chart. Explain its limitations  
(OR)
5. Analyze various cost concepts in Managerial Economics. Explain

**UNIT-III**

6. "Monopoly price need not necessarily be high." Examine this statement theoretically and indicate some case in practice.  
(OR)
7. Define oligopoly. Explain how prices and output decisions are made in an oligopolistic market

**UNIT-IV**

8. Define organization. Is it necessary to create an organization?  
(OR)
9. 'Scientific management did much more than what was planned.' do you agree? discuss

**UNIT-V**

10. Discuss the function of Human resource/personnel manager in an industrial setting.  
(OR)
11. Explain and evaluate the analytical methods of job evaluation.

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

1. a) Explain the term interchangeability?  
b) Interpret the meanings of the following fits.  
i)  $H_7f_6$  ii)  $H_7h_6$  iii)  $H_7s_6$   
c) With the help of neat sketches show clearance fit and interference fit.  
d) What is the least count of micro meter screw gauge.  
e) State the precautions to be taken while using a surface plate.  
f) Select the size of angle gauges required to build  $20^0 29' 54''$ .  
g) Define the following terms used in surface measurement  
i) Roughness  
ii) Effective profile  
h) What is meant by run out in gear measurement?  
i) State the various sources of the errors in manufacturing gears.  
j) What are the different equipment required for geometrical tests?

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

2. a) A hole and mating shaft are to have a nominal assembly size of 50 mm. the assembly is to have a maximum clearance of 0.15 mm and a minimum clearance of 0.05 mm. the whole tolerance is 1.5 times the shaft tolerance. Determine the limits for hole and shaft.  
b) Describe briefly the systems of obtaining different types of fits, with suitable sketches.

**(OR)**

3. a) Describe the procedure for deriving End Standards from Line standards.  
b) What is a basic dimension? what are the different ways of expressing tolerances explain in brief with suitable examples.

**UNIT-II**

4. a) Explain the working principle of a sigma comparator and also specify the disadvantages of sigma comparator.  
b) State the principle of vernier instrument. Explain briefly the construction and use of vernier caliper with a neat sketch

**(OR)**

5. a) Explain the principle of GO and NO GO gauge  
b) What is wringing? How are slip gauges were manufactured?.

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SET-2

## UNIT-III

6. a) Describe with neat sketches:  
i) Straight edges  
ii) Surface plates
- b) What is optical flat? Explain how interference fringes are formed when optical flat is placed on a surface to be tested.
- (OR)**
7. a) Explain the method of checking the height of a component with the help of optical flat  
b) What is tool makers microscope? And how to measure the screw thread pitch and angle of thread using tool maker's microscope.

## UNIT-IV

8. a) Describe the principle and operation of:  
Taylor-Hobson talysurf surface roughness instrument.  
b) How does a comparator differ from a measuring machine? Explain the principles and operation of optical comparators.
- (OR)**
9. a) Explain the procedure for measuring surface roughness using a spirit level and auto collimator.  
b) Differentiate between  
i) Pneumatic comparator and electrical comparator  
ii) Gauge and comparator.

## UNIT-V

10. a) Define the term constant chord. Calculate the chord length and its distance below the tooth tip for a gear of module 3 and  $20^\circ$  pressure angle.  
b) What is the 'best size wire'? derive the expression for the same in terms of pitch and angle of the thread
- (OR)**
11. a) Specify with the diagrams how two of the following tests would be carried out on a center lathe:  
i. The straightness of the bed, horizontally and vertically.  
ii. The centers axis parallel to the bed.  
b) Write a brief note about:  
Coordinate measuring machine equipped with a laser probe and Virtual measuring system.

# AR13

CODE: 13CS3015

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI  
(AUTONOMOUS)

III B.Tech II Semester Regular & Supplementary Examinations, April-2017

## DATA WAREHOUSING AND DATA MINING (COMPUTER SCIENCE ENGINEERING)

Time: 3 Hours

Max Marks: 70

### PART-A

ANSWER ALL QUESTIONS

[1 x 10 = 10 M]

1. a) What are the similarity measures?  
b) List some applications of data mining?  
c) Define data mart and types?  
d) Define the features of the Data Warehouse?  
e) What is called Dimensional Modelling?  
f) What are the different types of data warehousing?  
g) What is Normalization in Data mining?  
h) Define fact constellation schema?  
i) What is data cleaning?  
j) What is the difference between clustering and classification?

### PART-B

Answer one question from each unit

[5x12=60M]

#### UNIT-I

2. a) What are the Data mining Functionalities? Explain in Detail. **4M**  
b) What kind of data can be mined? **8M**  
(OR)
3. a) What are the challenges faced by data mining? **6M**  
b) Explain the scope of Data mining? **6M**

#### UNIT-II

4. a) Differentiate the operational Database system and Data warehouse. **6M**  
b) Explain the various approaches to build a Data ware House? **6M**  
(OR)
5. a) Compare DBMS, OLAP and Data Mining? **4M**  
b) Explain Attribute Oriented Induction Algorithm With example? **8M**

#### UNIT-III

6. a) Explain generating association rules from frequent item sets with example? **6M**  
b) Explain Mining association rules from transactional database using FP-growth? **6M**  
(OR)
7. a) Explain algorithm for mining frequent item sets using candidate generation with suitable example? **8M**  
b) Briefly explain quantitative, single dimension, multilevel association rules? **4M**

**UNIT-IV**

8. a) Explain the concept of decision tree induction algorithm **6M**  
b) Explain in detail about Rule-based classifier algorithm **6M**  
**(OR)**
9. a) Explain classification by back propagation **6M**  
b) Write naive Bayesian classification? **6M**

**UNIT-V**

10. a) What are the advantages and disadvantages of density based spatial clustering of applications with noise? **4M**  
b) Use the K-means algorithm and Euclidian distance to cluster the following 8 samples into three clusters: **8M**  
A1(2,10) , A2(2,5) , A3(8,4) , A4(5,8) , A5(7,5) , A6(6,4) , A7(1,2) , A8(4,9)  
Suppose that the initial seeds (centers of each cluster) are A1, A4 and A7. Run the K-means algorithm for one iteration only. at the end of this iteration shows:  
i) The new clusters ii) The centers of new Clusters iii) Draw a clusters representation in a 10X10 space.  
**(OR)**
11. a) Explain agglomerative and Divisive hierarchical clustering algorithm with Example? **8M**  
b) List out the strengths and weaknesses of K-means clustering algorithm? **4M**