AR18

CODE: 18CEE311 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular & Supplementary Examinations, July, 2022

ADVANCED DESIGN OF REINFORCED CONCRETE

(Professional Elective-1)

(Civil Engineering)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. Design a cantilever retaining wall to retain earth embankment 4 m height above ground level the density of earth is 18 kN/m^3 and its angle of repose is 30^0. The embankment is horizontal at its top. The safe bearing capacity of the soil may be taken as 200 kN/m^2 and the coefficient of friction between soil and concrete is 0.5. Adopt M20 grade concrete and Fe415 HYSD bars. 12 M

(OR)

2. Design a counterfort type retaining wall to suit the following data: 12 M
   Height of wall above ground level = 6 m
   S.B.C. of soil at site = 160 kN/m^2
   Angle of internal friction = 33^0
   Density of soil = 16 kN/m^3
   Spacings of counterforts = 3 m c/c
   Materials = M20 grade concrete and Fe415 HYSD bars

UNIT-II

3. Design a circular tank with a flexible base for capacity of 500000 litres. The depth of water is to be 4 m. Free board = 200 mm. Use M20 concrete and grade 415 steel. Permissible direct tensile stress in concrete = 1.2 N/mm^2. Permissible stress in steel in direct tension = 100 N/mm^2. 12 M

(OR)

4. A rectangular RC water tank with an open top is store 80000 litres of water. The inside dimensions of tank may be taken as 6 m × 4 m. The tank rests on walls on all the four sides. Design the side the side walls of the tank using M20 concrete and grade I steel. 12 M

UNIT-III

5. Draw the typical yield line pattern for following slabs with support conditions. 8 M
   i. Square slab with simply supports
   ii. Rectangular with simply supports
   iii. Triangular slab with simply supports
   iv. Rectangular with fixed supports
   v. Triangular slab (adjacent side supports) simply supports
   vi. Circular slab with simply supports

   Define yield line theory. Also, write assumptions made in yield line analysis of slabs. 4 M

(OR)

6. Design a circular roof slab of inside dia. 4.5 m, simply supported on brick wall of 230 mm for the following data : 12 M

i. Roof slab thickness = 170 mm
ii. Cement concrete thickness = 150
iii. Live Load on roof = 1 kN/m^2

Use M 20 concrete and Fe 415 steel

UNIT-IV

7. Design a pile cap to support a column service load of 750 kN. Size of the column is 400 mm × 400 mm. The column is supported by centroid of pile group. The cap is supported on three piles at 900 mm centres. Use M20 Concrete Mix and Fe415 Steel. 12 M

(OR)

8. Design a pile carrying compressive load of 1500 kN. Use M20 grade concrete and Fe415 grade steel. The pile is driven to a hard stratum available at a depth of 10m. 12 M

UNIT-V

9. A reinforced framed building 55 × 18 m in plan and 18 m in height consisting of 5 storeys in height. It is braced in the longitudinal direction by rigid frame action and by reinforced concrete in fill wall in the transverse direction. Determine wind force on the framed building. 12 M

(OR)

10. Explain about ductile detailing of beam-column connection requirements 12 M

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AR18

CODE: 18CSE324 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular & Supplementary Examinations, July, 2022

CRYPTOGRAPHY AND NETWORK SECURITY

(Professional Elective – II)

(Common to CSE & IT)

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	List and explain the various security services and mechanisms.	6M
	b)	Generate the playfair matrix using the keyword "monarchy" and find the ciphertext for the plaintext "balloon". Explain the steps involved	6M
		(OR)	
2.	a)	Explain the Masquerade, modification and replay attacks with an example diagram.	6M
	b)	Describe the encryption procedure for row transposition cipher. For row transposition cipher, the Plaintext is "attackpostponeduntiltwoamxyz" and key is 4312567, find the cipher text.	6M

UNIT-II

3.	a)	Explain the IDEA algorithm with a neat diagram.	6M
	b)	Briefly narrate the different attacks on DES algorithm.	6M
		(OR)	
4.	a)	Explain the S-box operation in DES algorithm	6M
	b)	Explain the procedure of expanding the 4 words key to 44 words in AES-128. Show the procedure diagrammatically.	6M

UNIT-III

5.	a)	Write short note on (i) authentication, (ii) confidentiality, (iii) shared secret key, (iv) symmetric key cryptography, and (v) public key cryptography, (vi) Digital signature	6M
	b)	List and explain the possible attacks on RSA Algorithm.	6M
		(OR)	
6.	a)	Explain the overall architecture of SHA algorithm. Give an example of a simple hash function.	6M
	b)	Briefly describe Overview of Kerberos.	6M

UNIT-IV

7.	a)	What are the services of PGP? Explain relation among services with neat diagram	6M
	b)	What are types of MIME transfer encodings? Explain them in detail.	6M
		(OR)	
8.	a)	Describe IP Sec protocol header with a neat diagram. .	6M
	b)	Write about Cryptographic Algorithms Used in S/MIME and their requirements.	6M

UNIT-V

9.	a)	Explain SSL Change Cipher Spec Protocol	6M
	b)	Explain the characteristics of Firewalls.	6M
		(OR)	
10.	a)	Explain SSL Alert Protocol	6M
	b)	Describe various types of Firewalls.	6M

AR16

CODE: 16CE3020 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July-2022

ADVANCED DESIGN OF CONCRETE STRUCTURES

(Civil Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a.	Explain various checks for stability of retaining wall.	8M
	b.	Write a note on shear key.	6M
		(OR)	
2.		Write steps to design cantilever retaining wall.	14M

UNIT-II

3.		Design a Rectangular tank resting on ground with internal dimensions as 6mx5mx3m high. Take the free board as 300mm. Use M30 grade concrete and HYSD steel of grade Fe415.	14M
		(OR)	
4.		Design a Circular tank with flexible base for a capacity of 200 kilo litres resting on ground having a soil with SBC of 200kN\m^2. Provide a depth of 4.0m with a free board of 250mm. The construction materials to be used are M30 grade concrete and Fe415 steel.	14M

UNIT-III

5.		Design a roof slab for a circular room 5m inside diameter. The thickness of wall is 230mm and the slab projects outside the walls by 1m all around. The live load on the slab is 3kN\m^2 at service Use M25 concrete and Fe 415 steel.	14M
		(OR)	
6.		Design a typical flat slab which is supported on 500mm diameter circular columns spaced 6mx5m apart in both the directions. The live load on the flat slab is 4kN\m^2. Use Fe 415 steel and M20 concrete.	14M

UNIT-IV

7.		Design a pile cap for supporting a column of section400mmx400mm carrying an axial load of 1000kN at service state. The pile cap contains a group of four friction piles each of 250mmdiameter for transfer of load from column to soil. Use M30 concrete and Fe 415 steel.	14M
		(OR)	
8.		Explain detailing of reinforcement in a bearing pipe with neat sketch.	14M

UNIT-V

9.		Explain provisions for ductile detailing of structures as per IS13920.	14M
		(OR)	
10.		Explain the procedure to determine the wind loads on multi-storeyed structure with an example.	14M

AR16

CODE: 16EC3022 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July-2022

COMPUTER ORGANIZATION AND ARCHITECTURE

(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain about functional units of computer and basic operational concepts.	7M
	b)	Explain arithmetical micro operations and logic micro operations.	7M
		(OR)	
2.	a)	Compute the content of 8 bit register namely R1 containing a value of -17_{10} and with initial carry bit as 1 after performing following shift or rotate operations by 2 times (i)SHR R1,2 (ii) SAR R1,2 (iii) ROR R1,2 (iv) RCR R1,2	7M
	b)	Write the basic performance equation. Explain the role of each parameter in the equation of the performance of the computer	7M

UNIT-II

3.	a)	Explain Booth algorithm and multiply the following pair of signed 2's complement numbers using Booth algorithm. Assume A is the multiplicand and B is Multiplier. A= 010111(+13) & B=110110(-10)	8M
	b)	Explain IEEE standard for floating point number	6M
		(OR)	
4.	a)	Give the circuit arrangement for binary division, Perform restoring division (A/B) on the 5-bit unsigned numbers, A=10101 and B=00101 and compute remainder and quotient by constructing chart.	8M
	b)	Represent 0.0625_{10} in double precision format and calculate the decimal value of a floating point number represented in single precision format	6M

UNIT-III

5.	a)	Explain about types of memories.	7M
	b)	Explain the process of address translation with a neat diagram	7M
		(OR)	
6.	a)	Describe different types of cache memory mapping techniques	7M
	b)	What is virtual memory? Explain virtual memory organisation	7M

UNIT-IV

7.	a)	With neat sketch explain DMA controller and its working.	7M
	b)	Define bus arbitration. Explain in detail any one approach of bus arbitration	7M
		(OR)	
8.	a)	Explain how interrupt request from several IO devices can be communicated to a processor through a single INTR line	7M
	b)	Define interrupt. Point out and explain the various ways of enabling and disabling interrupts	7M

UNIT-V

9.	a)	Explain the microinstructions of the micro programmed control.	7M
	b)	Explain pipeline arithmetic and instruction pipeline process.	7M
		(OR)	
10.	a)	Draw the flowchart of a micro program for the Add scr, Rdst instruction.	7M
	b)	Explain with neat diagram the basic organization of a micro programmed control unit	7M

AR13

CODE: 13CS3024 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations, July, 2022

SOFTWARE PROJECT MANAGEMENT

(Computer Science & Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Why ROI is important?
   b) Define Stakeholders.
   c) Mention about late risk resolution
   d) What are major milestones?
   e) Give the importance of Gantt Charts.
   f) What is the key role of Business Analyst?
   g) What is use of PERT?
   h) Define Periodic Status Assessment
   i) What are the obstacles to decision making?
   j) What is Process discriminates?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Discuss about the drawbacks of waterfall model. 6M
   b) Explain about the conventional software management. 6M

(OR)

3. a) What are the Principles of Modern Software Management? Explain 6M
   b) Explain few problems associated with Software projects 6M

UNIT-II

4. a) What are the modern process approaches for solving conventional problems? 6M
   b) Discuss about the process of reducing software product size. 6M

(OR)

5. a) Explain about improving automation through software environments. 6M
   b) What are the skills required for Project manager? Explain 6M

UNIT-III

6. a) Describe about the life-cycle phases of Unified Software Management Process Framework. 6M
   b) Write short notes on(i) Management Artifacts (ii) Engineering Artifacts 6M

(OR)

7. a) Discuss about model based architecture in technical perspective. 6M
   b) Explain the Checkpoints of the Process in detail. 6M

UNIT-IV

8. a) Explain Forward engineering with a neat diagram. 6M
   b) Discuss about the cost and schedule estimating process. 6M

(OR)

9. a) Explain about evolutionary work breakdown structures. 6M
   b) What do you mean by Process Automation? Explain 6M

UNIT-V

10. a) Describe about pragmatic Software Metrics. 6M
    b) What are the seven core metrics in managing a modern process? Discuss 6M

(OR)

11. a) What are management indicators? Explain 6M
    b) Give a common subsystem overview of CCPDS-R 6M