AR19

CODE: 19MCS1013 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular/Supplementary Examinations, August, 2022

COMPUTER VISION AND IMAGE PROCESSING
(Computer Science Engineering)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Describe the concept of computer vision. Does it require in image processing? Explain sampling and quantization with example.	6 M
	b)	How computer vision and image processing used various applications? Mention few applications how does use it.	6 M
2.	a)	How scaling and rotation works in the image transformations. Discuss briefly	6M
	b)	Discuss any five properties of two dimensional DFT	6M
3.	a)	What is histogram? Explain Histogram equalization	6 M
	b)	What are image sharpening filters? Explain the various types of it	6 M
4.		How perform compression standard on JPEG images. Discuss step by step	12 M
5.	a)	What is Image Morphology? Discuss opening and closing operations on Image Morphology	6M
	b)	Give an example how image segmentation performed based on region growing.	6M
6.	a)	How boundary extraction and Region filling can be done Discuss with the methodology	6M
	b)	How edge linking and boundary detection works for the segmentation of the image	6M
7.	a)	What is convex hull? Discuss Extraction of Connected Components	6M
	b)	How perform Region Splitting and merging in an image? Explain step by step process	6M
8.	a)	Discuss wavelet transformation with example	6M
	b)	How Spatial filtering used in Image enhancement.	6M

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CODE: 19MVL1016 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular/Supplementary Examinations, August-2022

CPLD AND FPGA ARCHITECTURE AND APPLICATIONS
(VLSI System Design)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Implement a BCD to Excess-3 code converter using ROM.	6M
	b)	Differentiate between the digital logic implementation using ROM, PLA, PAL by exemplifying the each case	6M
2.	a)	Abstract the salient features of Cypres FLASH 370 Device technology	6M
	b)	Differentiate between the construction of CPLDs and FPGAs.	6M
3.	a)	Demonstrate the architecture of Altera FLEX-8000 series CPLDs	6M
	b)	Explain the functional role of programmable I/O blocks in FPGAs	6M
4.	a)	Demonstrate the implementation of a binary counter using the CLBs of an FPGA	6M
	b)	Explain the construction of Xilinx XC4000 FPGA	6M
5.	a)	Demonstrate the realization of one hot state machines using PAL	6M
	b)	Exemplify the construction of state transition table	6M
6.	a)	Abstract the properties of petrinets for state machines	6M
	b)	Explain the “Meta stability” and synchronization.	6M
7.	a)	Explain the data path design	6M
	b)	Exemplify the importance of one hot encoding in state machine	6M
8.	a)	List out the Digital front end design EDA tools for FPGAs & ASICs”	6M
	b)	Explain the design flow using FPGA's	6M

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CODE: 19MSE1008 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I M.Tech II Semester Regular Examinations, August-2022

DESIGN OF ADVANCED CONCRETE STRUCTURES
(Structural Engineering)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Distinguish between(i) Factor of safety and partial safety factor,(ii) Characteristic load and design load (factored load).	6M
	b)	State different loads to be considered while designing a R.C. structures and also mention the relevant codes.	6M
2.		Discuss the specifications of IS 456 – 2000 for limit state of serviceability in deflection and cracking.	12M
3.	a)	Explain how can you control cracking of reinforced concrete structural element.	3M
	b)	Write the design steps for short term deflection and long term deflection as per IS456 (2000).	9M
4.		Two span continuous beam of effective span 6m is simply supported at supports,The beam is to be designed to carry a dead load of 16kN/m and a maximum live load of 24kN/m. Allowing 15 percent distribution design the beam of cross section 230mm*500mm with an effective cover of 50mm.Use M20 concrete and Fe 415 steel.	12M
5.		Design a corbel to carry an ultimate load of 600kN at distance of 250mm from the face of a column of size 400mm*400mm,M25 concrete and Fe 415 steel are to be used. Take bearing stress of concrete as 0.8fy	12M
6.		Derive the expression for design tensile force in a typical corbel.	12M
7.		Derivation of formula for moment resistance of rectangular shear wall.	12M
8.		Design a rectangular slab of of size 4m*6m which is simple supported along the edges and has to carry a service load of 4kN/m2.Assume coefficient of orthotropy as 0.75.Use M 20 concrete and Fe 415 steel.	12M

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CODE: 19MSE1018 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I M.Tech II Semester Supplementary Examinations, August, 2022

ADVANCED DESIGN OF FOUNDATIONS
(Structural Engineering)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.		Define foundation and also explain different types of foundation with neat sketches.	12M
2.		State the assumptions and explain Terzaghi bearing capacity equation.	12M
3.		A single vertical friction pile of diameter 500 mm and length 20 m is subjected to a vertical compressive load. The pile is embedded in a homogeneous sandy stratum where: angle of internal friction (ϕ)= 30^0 , dry unit weight (γ_d) = 20 kN/m^3 and angle of wall friction (δ = 2ϕ/3) . Considering the coefficient of lateral earth pressure (K) = 2.7 and the bearing capacity factor (N_q) = 25, the ultimate bearing capacity of the pile (in kN) is	12M
4.	a)	a) Discuss IRC recommendations on i) tilts and shifts ii) cutting edge	6M
	b)	b) Discuss the process of checking the stability of well foundations as per IRC.	6M
5.	a)	Discuss the sources of settlement in soils.	6M
	b)	Differentiate between undisturbed and disturbed soil samples	6M
6.	a)	Discuss the process of computing stresses in soils around the tunnels	6M
	b)	What parameters will help in determining the spacing and depth of borings	6M
7.		Explain different types of Sheeting and Bracing Systems.	12M
8.		Explain the design of coffer dam on rocks by TVA Method.	12M