AR19

CODE: 19MCS1014   **SET-1**

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

HUMAN COMPUTER INTERACTION
(Computer Science Engineering)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Define user interface. Discuss importance of good design.	6M
	b)	What are the benefits of the good design? How it reflects good user interface?	6M
2.	a)	Is it good design of user interface is important? What comprises good design	4 M
	b)	What are the major principles of user interfaces and characters? Describe them with suitable examples	8 M
3.	a)	Discuss the importance of human characteristics which should be considered in interface design	8 M
	b)	How requirement analysis play role in the interface design process	4 M
4.	a)	How screen designing iteration and prototyping helps to good interface design	6M
	b)	What is prototyping interface design and what is purpose of the prototyping	6M
5.	a)	What is socio organizational? How socio-organizational issues impact in cognitive model	6M
	b)	List few common mistakes of web-based display of information. Explain	6 M
6.	a)	Discuss windows characteristics and components of windows	8M
	b)	List different types of windows. How those windows play role on the interaction	4 M
7.	a)	Give your observations that influences on icon usability	6M
	b)	Describe choosing colors for statistical graphical screens	6M
8.	a)	List and discuss various web interface designing tools used in the web designing interface.	6M
	b)	How overlay and inlay plays a role in the web interface designing	6M

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

DESIGN OF PRESTRESSED CONCRETE STRUCTURES
(Structural Engineering)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1. a) Outline the advantages and Limitations of Pre-stressed Concrete   (6 M)

    b) Differentiate between Magnel Blaton and Freyssinet Systems of prestressing   (6 M)

2. a) Summarize the Characteristics of high strength concrete and high tensile concrete   (6 M)

    b) Illustrate Hoyers long line system of prestressing along with its merits and demerits?   (6 M)

3. a) List various losses in post tensioned concrete members?   (6 M)

    b) A pre-stressed concrete beam, 100 mm wide and 300 mm deep, is pre-tensioned by straight, wires carrying an initial force of 150 kN at an eccentricity of 50 mm. The modulus of elasticity of steel and concrete are 210 and 35 kN/mm^2 respectively. Estimate the percentage loss of stress in steel due to elastic deformation of concrete if the area of steel wires is 188 mm^2.   (6 M)

4.   A beam of symmetrical I-section spanning 8 metres has a flange width of 200 mm. and a flange thickness of 60 mm. respectively. The overall depth of the beam is 400 mm. Thickness of the web is 80 mm. The beam is prestressed by a parabolic cable with an eccentricity of 150 mm at the centre and zero at the supports with an effective force of 100 kN. The live load on the beam is 1962 N/m. Take weight of concrete as 23.54 kN/m^3. Draw the stress distribution diagram at the mid span section for the following condition:(i) Prestress + self-weight; (ii) Prestress + self-weight + live load.   (12M)

5. a. Explain about end block and stress distribution. 6M
   b. Explain about end zone reinforcement and transmission length. 6M

6. A precast pre-tensioned beam of rectangular section has a (12M)
   breadth of 100 mm and a depth of 200 mm. The beam with an
   effective span of 5 m is prestressed by tendons with their
   centroid coinciding with the bottom kern. The initial force in
   the tendons is 150 kN. The loss of prestress may be assumed to
   be 157%. The beam is incorporated in a composite T-beam by
   casting a top flange of breath 400 mm and t = 400 mm. If a
   composite beam supports a live load of 1 kN/m. Calculate the
   resultant stresses developed in precast & in-situ cast concrete.

7. a) What are the various factors influencing the deflections in pre- (6 M)
   stressed concrete members?

   b) A concrete beam with cross-sectional area of 32 mm$^3\times 10^2$ & (6 M)
   the radius of gyration is 72 mm is pre-stressed by a parabolic
   cable carrying an effective stress of 1000 N/mm^2. The span of
   the beam is 8 m. The cable, composed of 6 wires of 7 mm
   diameter, has an eccentricity of 50 mm at the centre & zero at
   the supports. Neglecting all losses, find the central deflection
   of the beam by considering the effect of self-weight + pre-
   stress

8. a. Explain about i) primary and secondary moments ii) Resultant (6 M)
   moments.
   b. Explain about load balancing concept with neat diagrams (6M)

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Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Explain about different ways studying systems.	6M
	b)	Explain about system Modeling and Simulation Procedure	6M
2.	a)	Explain desirable features of simulation software	6M
	b)	Explain object-oriented simulation	6M
3.	a)	Explain in detail about model validation	6M
	b)	Explain in detail about System Integration	6M
4.	a)	Explain about Motion Control models	6M
	b)	Explain about single server queuing systems.	6M
5.	a)	Explain petri net and its analysis	6M
	b)	Explain simple 2-state discrete time Markov process.	6M
6.	a)	Explain in detail about Exponential Distribution	6M
	b)	Explain in detail about simulating Queues	6M
7.	a)	Explain in detail about Queue Behavior and Queue Discipline	6M
	b)	Explain simulating Queuing theory	6M
8.	a)	Explain role of the design of Accurate α-β Tracker	6M
	b)	Brief about Multi-dimensional optimization	6M

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CODE: 19MTE1014   **SET-2**

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

ENERGY CONSERVATION AND MANAGEMENT
(Thermal Engineering)

Time: 3 Hours   Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	a)	Briefly discuss about energy management techniques.	6M
	b)	Explain in detail the role of energy manager in Public sector industries in organizing and managing energy management programs.	6M
2.	a)	Discuss in detail about different principles of energy management.	6M
	b)	Classify the energy audit & Explain the three phases of detailed energy audit.	6M
3.	a)	List and enumerate the Goals of Energy Audit and where they can be applied.	6M
	b)	Explain the barriers in Energy Audit and how it can be overcome?	6M
4.	a)	What are the different types of Depreciation? Discuss any one in detail.	6M
	b)	What is time value of money and give its significance	6M
5.	a)	Explain the different energy conservation methods required for domestic buildings.	6M
	b)	Write a short note on Risk analysis.	6M
6.	a)	Why energy storage is required? State the types of energy storage and explain any one in detail.	8M
	b)	Write a short note on energy flow networks.	4M
7.	a)	Enumerate different methods adopted for Project evaluation and discuss any one in detail.	6M
	b)	What is meant by replacement analysis? Discuss in detail.	6M
8.	a)	Write a short note on methods adopted for energy conservation in industries by taking any one example.	6M
	b)	Explain the working of a plant where combined heating and power generation co exist.	6M