AR13

PART-A
ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1.   Briefly explain the following
  a)   SDOF systems
  b)   Free vibration
  c)   Rigid base excitation
  d)   Use of response spectra
  e)   Define drift
  f)   Provisions for torsion
  g)   Earthquake size
  h)   Seismic waves
  i)   Incorporation of ductility in R.C buildings
  j)   Factors effecting ductility

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

UNIT-I
2. a)   What is viscous damping? Also obtain equation of motion for critically damped **6 M**
        system.
   b)   Explain in detail the damping system response to harmonic excitation. Give **6 M**
        suitable examples

(OR)

3. a)   Explain in detail the usual range of damping of the metal frame structures   **6 M**
   b)   Derive an expression for the natural frequencies of vibration. Also discuss the **6 M**
        mode superposition method of obtaining response.

UNIT-II
4.   Derive the equation for the multi degree of freedom system for damped system. **12 M**
        Hence draw the curve for displacement vs time for an over damped system.

(OR)

5.   Give a detailed note on the earthquake response analysis of single storyed building. **12 M**
        Also highlight the uses of response spectra.

UNIT-III
6.   A 100 kN electrical generator of a emergency power supply system is to be **12 M**
        installed on the fourth floor of a 6-storey hospital building in Guwahati (zone V). It
        is to be mounted on four flexible vibration isolators, one at each corner of the unit,
        to damp the vibrations generated during the operation. Floor to floor height of the
        building is 3.0 m. except the ground storey which is 4.2 m. Determine the shear
   and tension demands on the isolators during earthquake shaking.
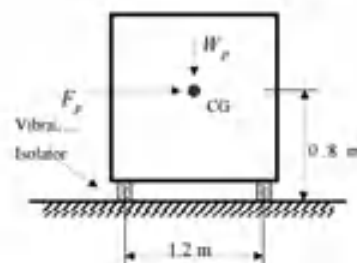
(OR)

7.   Consider a four-storey reinforced concrete office building shown in Fig.. The   **12 M**
        building is located in Shillong (seismic zone V). The soil conditions are medium
        stiff and the entire building is supported on a raft foundation. The R. C. frames are
        infilled with brick-masonry. The lumped weight due to dead loads is 12 kN/m^2 on
        floors and 10 kN/m2 on the roof. The floors are to cater for a live load of 4 kN/m^2
        on floors and 1.5 kN/m^2 on the roof. Determine design seismic load on the
        structure as per new code.
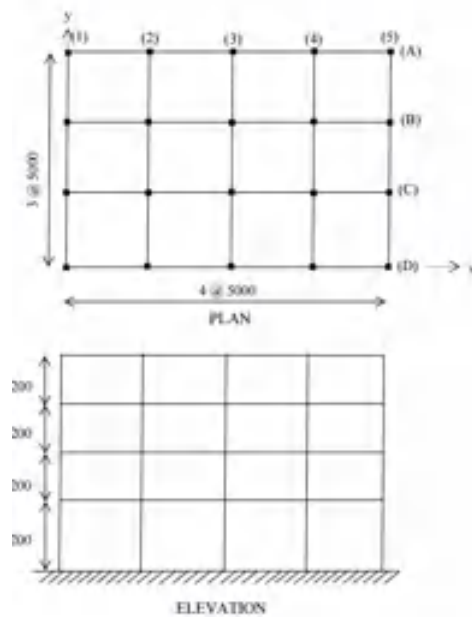
UNIT-IV

8.   Sketch and explain the seismic zoning map of India in detail.   **12 M**

(OR)

9. a) What are the causes and effects of Earthquakes?   **6 M**
    b) Explain about the Magnitude and Intensity of Earthquake in detail.   **6 M**

UNIT-V

10.   What are the latest Indian seismic codes? Explain them in details with their   **12 M**
        applications.

(OR)

11.   Briefly discuss the RCC framed structure. List out the provisions for ductile **12 M**
        detailing of the RC buildings.

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CODE: 13CE3021   **SET-2**

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

INDUSTRIAL WASTE AND WASTE WATER MANAGEMENT
(Civil Engineering)

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

PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1. a) What is solidification?
    b) What are the characteristics of hazardous wastes?
    c) Give the limitations in segregation of waste?
    d) What is meant by equalization?
    e) Write any two problems causes due to discharge of Industrial waste water into oceans?
    f) Write any two characteristics of coal washer as in steel plant?
    g) What are the effects of antibiotic waste?
    h) What are the characteristics of a typical diary waste?
    i) Write any two advantages of a CETP?
    j) What is the discharge effluent standards of BOD for CETP to dispose into water bodies?

PART-B

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

2. a) What are the physical and biological characteristics of industrial waste?   **6 M**
    b) What is 'biomedical waste'? Discuss the treatment and disposal of it.   **6 M**
                                         (OR)
3. a) Discuss the various categories of hazardous wastes and explain the difficulties involved in their disposal from different sources.   **12 M**

UNIT-II

4. a) Explain the method of reducing the strength of waste with an example.   **6 M**
    b) What are the problems involved in the joint treatment of industrial waste and domestic sewage.   **6 M**
                                         (OR)
5. a) How to control industrial waste water by neutralization? What are its advantages? **6 M**
    b) Describe how volume reduction of waste can be achieved in industries.   **6 M**

UNIT-III

6. a)   Give suggestions on how to control the Industrial waste disposal into oceans **6 M**
    b)   Explain the difference between Industrial waste water & Municipal waste water. **6 M**

(OR)

7. a)   What are the advantages of recirculation of industrial waste? **6 M**
    b)   What are the major factors to be considered for the use of treated municipal waste water in industries? **6 M**

UNIT-IV

8. a)   Discuss the origin and characteristics of Distilleries wastes in detail **6 M**
    b)   Describe massive Lime treatment for colour removal in pulp and paper mill. **6 M**

(OR)

9. a)   What are the sources of effluent from a nitrogenous fertilizer plant? Mention the typical characteristics. **6 M**
    b)   What are the textile waste water characteristics? Explain briefly. **6 M**

UNIT-V

10. a)   Explain about the Data needed for design of common effluent treatment plant. **6 M**

    b)   What are the hazards associated with discharge of treated of waste water from common effluent treatment plant into small streams? **6 M**

(OR)

11. a)   What are the merits and demerits of common effluent treatment plants? **6 M**
    b)   Explain the methods which can be used for disposal of effluents. **6 M**

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AR13

CODE: 13CE3023   **SET-2**

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

PRESTRESSED CONCRETE STRUCTURES
(Civil Engineering)

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

PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1.   a)   What is meant by Cracking Moment?
      b)   Explain chemical prestressing
      c)   What is meant by relaxation in steel?
      d)   Draw anchorage zone stresses in post tensioned beams
      e)   Define kern points
      f)   Define pressure line
      g)   Draw web shear cracks in prestressed beams
      h)   Explain loss of prestress due to friction
      i)   State ways to improve shear resistance of concrete beams by prestressing
           techniques
      j)   Define bond stress?

PART-B

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

2.   Explain the general principles of prestressing.
      What are the advantages and disadvantages of prestressed concrete over reinforced
      concrete?
<div align="center">(OR)</div>

3.   Explain about materials used for prestressed concrete.

UNIT-II

4.   A prestressed concrete beam 200mm wide and 300mm deep is used over an
      effective span of 6m to support an imposed load of 4kN/m. The density of concrete
      is 24kN/m^3. At the quarter span section of the beam, find the magnitude of
         (i) The concentric prestressing force necessary for zero fibre stress at the
            soffit when the beam is fully loaded and
         (ii)The eccentric prestressing force located 100mm from the bottom of the
            beam which would nullify the bottom fibre stress due to loading.

<div align="center">(OR)</div>

5.   Explain various losses of prestress in pre-tensioning and post-tensioning.

UNIT-III

6.   A prestressed concrete T beam is to be designed to support an imposed load of 4.4kN/m over an effective span of 5m. The T beam is made up of a flange of 400mm wide and 40mm thick. The rib is 100mm wide and 200mm deep. The stress in the concrete must not exceed 15N/mm^2 in compression and zero in tension at any stage. Check for the adequacy of the section provided, and calculate the minimum prestressing force necessary and the corresponding eccentricity. Assume 20 percent loss of prestress.

(OR)

7.   The support section of a prestressed concrete beam 100mm wide and 250mm deep is required to support an ultimate shear force of 80kN. The compressive prestress at the centroidal axis is 5N/mm^2.The cover to the tension reinforcement is 50mm. If the characteristic tensile strength of the stirrups is 415N/mm^2, design suitable shear reinforcement in the section using IS code recommendations

UNIT-IV

8.   A composite T-beam is made up of a pretensioned rib of 120mm wide and 240mm deep and a cast in situ slab 400mm wide and 50mm thick having a modulus of elasticity of 30 kN/mm^2. If the differential shrinkage is 100x10^{-6} unit, determine the shrinkage stresses developed in the precast and cast in situ units

(OR)

9.   A rectangular pretensioned concrete beam has a breadth of 120mm and depth of 250mm and the prestress after all the losses have occurred is 15N/mm^2 at the soffit and zero at the top. The beam is incorporated in a composite T-beam by casting a top flange of breadth 300mm and depth 60mm. Calculate the maximum uniformly distributed live load that can be supported on a simply supported span of 5m without any tensile stresses occurring if a) the slab is externally supported while casting and b) the pretensioned beam supports the weight of slab while casting.

UNIT-V

10.   A simply supported concrete beam of span 8m and rectangular cross section 125mm wide and 250mm deep is prestressed by a single cable in which the total tensile force is 220 kN. The centre line of the cable is parallel to the axis of the beam and 75mm above the soffit over the middle third of the span and is cured upward in a parabola over the outer-thirds of the span to a distance of 175mm above the soffit at the supports. If the modulus of elasticity of concrete is 35 kN/mm^2 and the density of concrete is 24 kN/m^3, calculate a) the upward deflection at mid span due to prestress only b) the deflection when the beam is supporting its own weight and c) the magnitude of concentrated loads Q placed at the third points of the span, which would result in a limiting short term deflection of span/500

(OR)

11.   Explain short term deflections of uncracked members

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PART-A

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

1. a) Define Automobile
   b) Define carburetion.
   c) What are the components of CI engine fuel supply systems?
   d) What is the purpose of Anti freeze solution?
   e) What is the function of capacitor in Battery Ignition system?
   f) Write the principle of generator.
   g) What is the function of a clutch?
   h) Define camber.
   i) What are types of suspension system?
   j) Classify types of brakes according to method of actuation.

PART-B

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

UNIT-I

2. a) Write the advantages and disadvantages of front wheel drive.   6M
   b) Explain splash lubrication with neat sketch.   6M
                              (OR)
3. a) Explain 4 wheel drive with a neat sketch.   8M
   b) Explain centrifugal type lubricating oil pump with neat sketch   4M

UNIT-II

4. a) Explain simple carburetor with a neat sketch   6M
   b) Explain heavy duty type air cleaner with neat sketch   6M
                              (OR)
5. a) Explain S.U. Electrical fuel pump with neat sketch   4M
   b) Explain distributor type fuel injection pump.   8M

UNIT-III

6. a) Explain air cooling system with a neat sketch. Write its advantages and   6M
      disadvantages.
   b) What is the function of Thermostat? Explain bellows type thermostat.   6M
                              (OR)
7. a) Explain magneto ignition system with circuit diagram?   6M
   b) Explain vacuum ignition advance mechanism.   6M

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UNIT-IV

8. a) Explain standard bendix drive with a neat sketch.   6M
   b) Explain electric horn with neat sketch   6M

(OR)

9. a) Explain about cone clutch, write its advantages and disadvantages   6M
   b) Explain constant mesh gear box with neat sketch   6M

UNIT-V

10. a) Explain the working of master cylinder in hydraulic braking system.   8M
    b) What is the function of torsion bar? Explain with a neat sketch   4M

(OR)

11. a) Explain davis steering gear mechanism   6M
    b) Explain rack and pinion steering gear   6M

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AR13

CODE: 13CS3024   **SET-1**

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

SOFTWARE PROJECT MANAGEMENT
(Computer Science and Engineering)

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

PART-A

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

1.   a)   What are the two basic steps to build a program.
      b)   List any 2 neccessary improvements in waterfall model.
      c)   Define Return On Investment ?
      d)   Describe in brief about Macro process
      e)   Define Artifact set
      f)   Explain in brief about major milestone
      g)   What is the role of project review authority in line of business organizations ?
      h)   What is Work Breakdown Structure ?
      i)   List any two Quality Indicators.
      j)   Define Process Maturity

PART-B

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

UNIT-I

2.   a)   List and explain principles of conventional software management   6M
      b)   Explain Software Economics in detail.   6M
                                   (OR)
3.   a)   What are popular cost estimation models? Explain predominant cost estimation   6M
         process ?
      b)   Explain waterfall model in practice.   6M

UNIT-II

4.   a)   Describe the various objectives used for measurement of software size.   6M
      b)   State and explain the principles of conventional software engineering ?   6M
                                     (OR)
5.   a)   What are primary objectives of and essential activities of elaboration phase ?   6M
      b)   State and explain the principles of modern software management ?   6M

UNIT-III

6.   a)   Explain the typical minor milestones in the lifecycle of iteration.   8M
      b)   Explain about periodic status assessment.   4M
                                     (OR)
7.   a)   Explore the different aspects of Architecture from management perspective.   6M
      b)   Draw and explain the workflow of an iteration in workflows of the process   6M

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UNIT-IV

8. a) Discuss the conventional work breakdown structure issues.   7 M
   b) Explain in detail the responsibilities of the four component teams in a default line-of-business organization   5M

(OR)

9. a) Define round-trip engineering. What is the primary reason for round-trip engineering? Explain.   6M
   b) With a neat diagram, explain the software project team evolution.   6M

UNIT-V

10. a) Explain process discriminators that results from differences in project size.   6M
    b) Define MTBF and maturity. Draw a graph for maturity expectation over a healthy project's life cycle.   6M

(OR)

11. a) Explain in detail the Management Indicators used in managing software projects ?   6M
    b) Define architectural risk. Write process discriminators that result from differences in architectural risk   6M

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CODE: 13CS3025   **SET-2**

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

ADVANCED COMPUTER ARCHITECTURE
(Computer Science and Engineering)

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

PART-A
ANSWER ALL QUESTIONS   **[1 x 10 = 10 M]**

1.
a)	Define parallel computing?	1M
b)	Explain the importance of tightly coupled system?	1M
c)	What is meant by hit time?	1M
d)	What is the importance of Pipelined Cache?	1M
e)	Differentiate between asynchronous and synchronous models?	1M
f)	Differentiate between Speedup and Efficiency?	1M
g)	Define Vector and MultiVector?	1M
h)	Define Inter Connection Structure?	1M
i)	Mention the Message Routing Schemes?	1M
j)	Define Message Passing Mechanism?	1M

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

UNIT-I
2	a)	Describe the Flynn's classification in parallel processors briefly?	6M
	b)	Illustrate on (i) States of Computing (ii) Elements of modern Computer?	6M

(OR)

3	Write a short note on system attributes to performance and multiprocessors briefly?	12M

UNIT-II
4	a)	Describe the importance of optimization in Cache Performance?	6M
	b)	Illustrate the small and simple first level cache to reduce hit time and power in detail?	6M

(OR)

5	Explain the mechanism of pipelined cache access to increase cache bandwidth in detail with an example?	12M

UNIT-III
6	State the importance of Clocking and Time Control, Speedup, Efficiency and Throughput briefly?	12M

(OR)

7	a)	Explain the Instruction Execution Phases?	6M
	b)	Differentiate between Linear and Non-Linear Pipeline Processors?	6M

UNIT-IV
8	Explain the cross-bar switch and multiport memory in multiprocessor hardware organization?	12M

(OR)

9	Briefly illustrate the Vector Instruction Types? And explain with examples?	12M

UNIT-V
10	Write about the following:- a.) Cache Coherence Problems b) Snoopy Protocol	12M

(OR)

11	a)	Explain about the Multicast Routing Algorithms?	6M
	b)	Explain about the Flow Control Strategies?	6M

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PART-A

ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. a) What is pixel?
   b) What is Dynamic Range?
   c) What is the purpose of image averaging?
   d) Write the application of sharpening filters.
   e) What are the three types of discontinuity in digital image?
   f) Define coding redundancy?
   g) What is compression ratio.
   h) What is entropy?
   i) What is global, local and adaptive threshold?
   j) Define brightness?

PART-B

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

UNIT-I

2.	a)	What is 2D sampling and quantization? Specify the effect of sampling in digital images.	8M
	b)	What is Digital Image? How it is represented?	4M
		(OR)	
3.	a)	What are the basic relationships between pixels? Explain in detail.	6M
	b)	Define an Image. Explain the various components of general purpose image processing system.	6M

UNIT-II

4.	a)	Differentiate between spatial domain enhancement and frequency domain enhancement?	6M
	b)	What are various spatial operations in a digital image?	6M
		(OR)	
5.	a)	What is meant by Histogram of an image? Sketch Histograms of basic image types.	8M
	b)	What is histogram sliding and histogram specification?	4M

UNIT-III

6. a) What is the difference between lossless and lossy image compression. Specify with suitable examples.   6M
   b) Explain the concept of transform coding.   6M

(OR)

7. a) Draw the general compression system model & Explain?   4M
   b) What is meant by error free compression? Explain the variable length coding.   8M

UNIT-IV

8. Explain any three basic morphological algorithms.   12M

(OR)

9. a) How a color image can be converted to gray scale image. Explain   8M
   b) Explain the concept of Dilation operation.   4M

UNIT-V

10. a) What is image segmentation? What are the applications of image segmentation?   4M
    b) What is region based image segmentation. Compare and contrast with threshold based image segmentation.   8M

(OR)

11. a) Explain the segmentation based on thresholding.   6M
    b) Explain the edge linking using local processing.   6M