AR13

CODE: 13CE3020 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2018

Earthquake Resistant Design

(Civil Engineering)

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

PART-A

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

1. a) Define stiffness?
   b) Define vibration?
   c) Define degrees of freedom
   d) Define shear building
   e) Define weak storey?
   f) What is the value of Response reduction factor(**R**) for a special **RC** moment resisting frame?
   g) Define epicentre?
   h) Define earthquake?
   i) Define ductility?
   j) Define lintel band?

PART-B

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

UNIT-I

2. Derive the equation of motion for viscous damping 12M

(OR)

3. A vibrating system consists of a mass 4kg spring of stiffness 100N/m and a damping coefficient of 4 N-s/m. Determine the damping factor, natural frequency, logarithmic decrement and ratio between two consecutive amplitudes? 12M

UNIT-II

4. Explain in detail about Orthogonality and Normality principles 12M

(OR)

5. Determine the natural frequencies and the mode shapes for the shear building with masses 1,1.5 and 2 and corresponding stiffness values as 600,1200 and 1800kN/m.and the storey height as 3m 12M

UNIT-III

6. What is response spectra and explain the importance of it in seismic design of a structure. 12M

(OR)

7. A five storied RCC building of 12m x12m in plan with a storey height 3.5 m located in seismic zone V. The type of soil encountered is hard and it is proposed to design the building with SMRF. The intensity of DL is 8kN/m^2 And the floors are to cater to an LL of 3kN/m^2.Determine the design seismic loads on the structure by seismic coefficient method. 12M

UNIT-IV

8. Explain in detail about Elastic Rebound Theory 12M

(OR)

9. Explain in detail about various Seismic zoning Maps of India? 12M

UNIT-V

10. Explain various codal provisions of IS 13920 for ductile detailing of beam column joints? 12M

(OR)

11. Explain the following in brief 12M

a) Longitudinal reinforcement
b) Shear reinforcement
c) Anchorage of reinforcement development length
d) Lap splices

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AR13

CODE: 13CE3021 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2018

INDUSTRIAL WASTE AND WASTEWATER MANAGEMENT

(Civil Engineering)

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

PART-A

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

1. a) Define Hazardous Waste.
   b) Name any two Organic and Biological Properties of Industrial Effluents.
   c) Give an example for strength reduction in Industrial wastewater management.
   d) What is the purpose of 'proportioning' of Industrial wastes while discharging?
   e) Identify any two problems with discharging Industrial effluents to streams.
   f) What do you mean by recirculation of industrial wastewater?
   g) What are tannins and how are they useful in tanning process of leather?
   h) Name 2 important pollutants that are specific to Textile mill effluent.
   i) Identify any place in India where common effluent treatment plants are operating.
   j) Identify any one approved method for disposal of CETP effluent in India.

PART-B

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

UNIT-I

2. a) How do the Physical and Chemical characteristics of industrial effluent affect the cost of treatment? **6M**
   b) What constitutes Bio-Medical Waste? How are the effluents from Biomedical waste treated? **6M**

(OR)

3. What are the sources of pollution in Industrial activities? How are the liquid wastes from industries handled? When is a waste designated as Hazardous? **12 M**

UNIT-II

4.		Discuss the pros and cons of combined treatment of industrial & municipal sewage.	**12 M**

(OR)

5.	a)	When are equalisation and proportioning of effluents carried out? Why?	**6 M**
	b)	Explain any three strategies for strength reduction in industrial wastewater.	**6 M**

UNIT-III

6.		Can municipal wastewater be used in industries? Explain in detail.	**12 M**

(OR)

7.		Give example of a zero-discharge industrial process. Explain how recirculation of wastewater plays a key role in achieving this benchmark.	**12 M**

UNIT-IV

8.	a)	Compare and contrast the quality and quantity of effluent originating in a virgin fibre paper mill and a recycled fibre paper mill. Which one is easier to treat?	**6 M**
	b)	What is a fractionating column in a refinery? What are the characteristics of effluents from an oil refinery?	**6 M**

(OR)

9.	a)	What are skimmed milk and toned milk? How are they processed in a Dairy? What is Pasteurisation and why is it carried out? Explain the byproducts of making paneer/cheese and how they are treated in Dairy industry.	**8 M**
	b)	What operations in a coal fired power plant are sources of wastewater? What are their characteristics?	**4 M**

UNIT-V

10.		What are the advantages and limitations of treating industrial effluents in Common Effluent Treatment Plants?	**12 M**

(OR)

11.		What is tertiary treatment of wastewater? Elaborate on the disposal conditions when it is adopted.	**12 M**

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CODE:13CE3023 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2018

PRESTRESSED CONCRETE

(Civil Engineering)

Time:3 hours **Max Marks:70**

PART-A

ANSWER ALL QUESTIONS

1. a. What is the minimum grade of concrete to be used for pre-tensioning.
   b.What is the formula for ultimate creep strain.
   c.How do you differentiate between short term and long term deflections?
   d.What is load balancing?
   e. What is post tensioning method?
   f. Define initial prestresing
   g.What is meant by transmission line length.
   h.What do you mean by anchorage zone ?
   i.Define wobble effect
   j.State the types of cracks in prestressed concrete.

PART-B

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

UNIT-I

2. a) What is the principle of prestressing and explain with examples? 6M
   b) What are types of prestressing methods and explain any one. 6M

(OR)

3.a) Mention the advantages and disadvantages of prestressing 6M
   b)With the help of neat sketch,describe the Freyssinet system of prestressing 6M

UNIT-II

4. A Prestressed concrete beam of size 250x400mm is prestressed with wires of area 350mm^2 located at a constant eccentricity of 50mm and carrying an initial stress of 1000N/mm2 .The span of the beam is 12m.Calculate the percentage loss of stress in wires if the beams is (i) pre tensioned (ii)post tensioned for the data given below : Es=210Kn/mm^2 , Ec =35Kn/mm^2,Relaxation of stress in steel =90 N/mm^2 shrinkage of concrete =300x10^{-6} for pretensioning and 200x10^{-6} for post tensioning . Creep coefficient=1.6 and slip at anchorage=1mm 12M

(OR)

5.A prestressed concrete beam of section 120x300mm is used over effective span of 6m to support a u.d.l of 4Kn/m(inclusive self weight).The beam is prestressed by a straight cable carrying a force of 180KN located at a n eccentricity of 50mm.Determine resultant stresses in the beam at the end sections and mid span sections of the beam 12M

UNIT-III

6.A prestressed concrete beam of rectangular section 90mm wide and 180mm deep is to be designed to support two imposed loads of 3.5KNeach located at one-third points over a span of 3m.Design the end block using Guyon's method. 12M

(OR)

7.The support section of a prestressed concrete beam ,150mmwide and 300 mm deep ,is required to support an ultimate shear force of 70KN.The compressive prestresss at the centrodial axis is 5N/mm$^{2.}$.The characteristic cube strength of concrete is 40N/mm^2.The cover to the tension reinforcement is 50mm.If the characteristic tensile strength of steel in 200N/ mm^2,design shear reinforcement at the section 12M

UNIT-IV

8. Explain the design procedure of composite sections 12M

(OR)

9.A Composite T-beam is made up of a pre-tensioned rib of 150mm wide and 200mm deep ,and a cast in situ slab 350mm and40 mm thick having a modulus of elasticity of 28Kn/mm^2 .If the differential shrinkage is100x10^{-6} units ,determine the shrinkage stresses developed in the shrinkage stresses developed in the pre cast and cast in situ units. 12M

UNIT-V

10.List the various factors that influence on deflection of a prestressed concrete member and importance of control of deflections. 12M

(OR)

11.A PSC beam is having a rectangular section 100mm wide and 200mm deep span over 2.8m. The beam is prestressed by a straight cable containing 5 wires of 5mm diameter stressed to 1250N/mm^2 at an eccentricity of 37mm. Assume the modular ratio as 6. The Ec=34KN/mm^2. Calculate the maximum deflection of beam at the following stages: 12M

a) Prestress+ Self weight of beam

b) Prestress+ Self weight of beam+ Imposed Load of 8 KN/m

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CODE: 13ME3025 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2018

AUTOMOBILE ENGINEERING

(Mechanical Engineering)

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

PART-A

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

1. a) Classify automobiles.
   b) What is the purpose of super charging and how is the engine super charged?
   c) What is meant by MPFI system, how it differs from present system.
   d) List out different types of fuel injection systems for Diesel engines.
   e) Explain the function of cooling additives used in automobiles.
   f) Draw a neat diagram of spark plug.
   g) What are the different lights used in automobiles.
   h) Explain the function of over drive.
   i) Define the term 'steering gear ratio'
   j) What are the advantages of disc brakes?

PART-B

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

UNIT-I

2. a) Draw a neat sketch of commercial automobile (layout) and describe each component. 6m
   b) Explain the working of Pressure lubrication system with the help of a simplified sketch. 6m

(OR)

3. a) Discuss the advantages and disadvantages of front wheel drive vehicles over rear wheel drive vehicles. 6m
   b) Write a short note on Euro II and Euro III norms regarding automobile pollution. 6m

UNIT-II

4. a) Describe the methods of fuel feed systems in petrol engines. Explain the difference in method of supply of fuel in SI and CI engines. 6m
   b) Discuss different types of nozzles used in diesel engines. 6m

(OR)

5. a) List out different fuel filters used in SI engines and discuss the working of any type of filter with a neat sketch. 6m
   b) Explain the construction of a fuel injector. 6m

UNIT-III

6. a) Why cooling is necessary in automobiles? Draw a neat sketch of cooling water system and name the various parts. 6m
   b) With the help of a neat diagram, explain the operating of a Battery ignition system by describing the function of each element of the system. 6m

(OR)

7. a) With the help of a sketch explain the function of the following in a cooling system. (i) Water pump (ii) Radiator (iii) Fan (iv) Thermostat (v) Antifreeze mixtures (vi) By pass recirculation. 6m
   b) What are the requirements of Ignition system? Explain the function of each component of Battery ignition system with the help of sketches wherever necessary. 6m

UNIT-IV

8. a) Draw and explain a simple wiring diagram of the electrical system of an automobile. 6m
   b) With the help of neat sketch, show the interior parts of a single plate clutch and describe the purpose of each element. 6m

(OR)

9. a) What are the instruments placed on an automobile fascia(or dashboard)? Briefly explain their functions. 6m
   b) With a simple sketch, describe the principle of working of a differential. 6m

UNIT-V

10. a) What are the functions of vehicle suspension system? List out the parts of vehicle suspension system. 6m
    b) With the help of line diagrams explain different steering linkages. 6m

(OR)

11. a) What are the functions of braking system? Explain different types of brakes. 6m
    b) Describe the constructional details of stub axle and also state different types of stub axles used in automobiles. 6m

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AR13

CODE: 13CS3024 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Regular / Supplementary Examinations, April, 2018

SOFTWARE PROJECT MANAGEMENT

(Computer Science & Engineering)

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

PART-A

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

1. a) Analyze the term software and mention any two characteristics of software
   b) What is a phase in project management?
   c) Define pareto principle or 80/20 principle.
   d) List out each levels of CMMI
   e) Compare verification and validation
   f) Define risk evaluation.
   g) How the check points are useful in the process
   h) Mention any two guidelines for iterative process planning
   i) Write two management indicators in the process control and instrumentation
   j) Why is process instrumentation is important ,justify your answer

PART-B

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

UNIT-I

2. a) Describe briefly about the activities covered by waterfall model 6M
   b) You have been given the responsibility to elicit requirements from a customer who tells he is too busy to meet with you, what should you do? 6M

(OR)

3. a) illustrate briefly about the activities covered by spiral model 6M
   b) Why it is many software developers don't pay enough attention to requirements engineering? Are there ever circumstances where you can skip it. 6M

UNIT-II

4.	a)	Give an outline of step wise planning activities for a improving quality of a process	6M
	b)	Examine about the transitioning phase to an iterative process.	6M
		(OR)	
5.	a)	Examine the technical perspective in Model based software architectures.	6M
	b)	Elucidate in detail about the sequencing and scheduling activities	6M

UNIT-III

6.	a)	Analyze the Software process and Iteration workflows	6M
	b)	Discuss in detail about the categories of factors in hazard identification	6M
		(OR)	
7.	a)	Identify Checkpoints of the process of Major mile stones	6M
	b)	Mention different Periodic status assessments in software process	6M

UNIT-IV

8.	a)	Explain the planning guidelines in Iterative Process	6M
	b)	Write about evolution of Organizations in Iterative Process	6M
		(OR)	
9.	a)	Discuss briefly about the organizational structure in detail	6M
	b)	Why discounted cash flow techniques provide better criteria for projects election than net profit on return on investment	6M

UNIT-V

10.		Examine different quality indicators and tailoring of process control in detail	12 M
		(OR)	
11.		Write about Software Metrics and why automation is required	12 M

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SUB CODE: 13IT3006 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular & Supplementary Examinations, April, 2018

IMAGE PROCESSING
(ELECTIVE -1)
(Information Technology)

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

PART-A

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

1.
a. Distinguish between Digital Image and Binary Image.
b. Define Image Sampling and Quantization.
c. What is Gray Level Slicing?
d. What are Prewitte and Sobels Operators
e. Draw Homomorphic filtering approach for Image Enhancement.
f. Define Image Restoration.
g. Define Wavelet.
h. What is Thresholding?
i. What is the derivative operators used in Image Segmentation?
j. What is meant by Psycho visual Redundancy?

PART-B

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

UNIT-I

2. a) Explain the components in DIP. [6M]
b) Discuss the applications of Image Processing. [6M]

(OR)

3. a) Discus the basic relationship between pixels. [6M]
b) Discuss briefly about color fundamentals. [6M]

UNIT-II

4. Explain Histogram Specification with derivation & example. [12M]

(OR)

5. a) Explain Sharpening Spatial filters. [6M]

b) Discuss Image Arithmetic/ Logical operations. [6M]

UNIT-III

6. a) Discuss briefly about compression. [6M]
   b) Write short notes on LZW coding. [6M]

(OR)

7. Discuss different compression techniques. [12M]

UNIT-IV

8. a) Discuss about the basic concepts of Set theory used for Image Morphology operation. [6M]
   b) Discuss about
      i) Hit & Miss Transformation [3M]
      ii) Opening & Closing [3M]

(OR)

9. Explain about
   i) Thinning [4M]
   ii) Thickening [4M]
   iii) Skeltons [4M]

UNIT-V

10. Discuss about Thresholding used for Image segmentation [12M]

(OR)

11. a) Explain Briefly about Region growing. [6M]
    b) Discuss Region Splitting & Merging [6M]

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