AR13

CODE: 13CE3020 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Supplementary Examinations July-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 amplitude?
   b) Define resonance?
   c) Define degrees of freedom
   d) Define Mode shape?
   e) Define soft storey
   f) Write the zone factors for various seismic zones?
   g) Define magnitude of earthquake?
   h) Define intensity of earthquake?
   i) Define ductility?
   j) What are the various factors affecting ductility?

PART-B

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

UNIT-I

2. Determine the solution for equation for undamped harmonic excitation of a SDOF system? 12M

(OR)

3. A vibrating system consists of a mass 3kg spring of stiffness 90N/m and a damping coefficient of 3 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 1000, 2000 and 2000kg and the storey height is 3.5m and EI is 3.5 x10^6 for all columns. 12M

UNIT-III

6. Write step by step procedure for designing a building by Response Spectra method? 12M

(OR)

7. A three storied RCC residential building of 10m x8m in plan with a storey height 4 m located in seismic zone IV. The type of soil encountered is loose 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 Plate Tectonic theory 12M

(OR)

9. Explain in detail about the classification of earthquakes? 12M

UNIT-V

10. Explain in detail the codal provisions incorporated in IS 13920-1993 for flexural members 12M

(OR)

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

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AR13

CODE: 13CE3021 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech. II Semester Supplementary Examinations July-2018

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) Define "Biomedical waste".
   b) What is incineration?
   c) What is meant by volume reduction?
   d) Give the advantages in segregation of waste?
   e) Write any two problems causes due to discharge of Industrial waste water into rivers?
   f) What is the permissible limit of TDS in water for industrial use?
   g) What are the major pollutants in tannery industries?
   h) What are the various types of distillation?
   i) How do you manage waste water generated by a steel plant?
   j) Write any two limitations of a CETP?

PART-B

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

UNIT-I

2. a) What are the physical and chemical characteristics of industrial waste? **6 M**
   b) Mention precautions to be taken for collection and on-site storage of hazardous wastes. **6 M**

(OR)

3. a) What are 'hazardous wastes'? Discuss the treatment and disposal of it. **6 M**
   b) What are the various physico-chemical processes that are used for Biomedical waste treatment. **6 M**

UNIT-II

4. a) Explain the necessity of equalization and proportioning for industrial waste water treatment. **6 M**
   b) Describe how strength reduction of waste can be achieved in industries **6 M**

(OR)

5. a) What is the necessity of joint treatment of Industrial waste water management? **6 M**
   b) Define neutralization of industrial waste. Where is it located in treatment process? **6 M**

AR13

CODE: 13CE3021 **SET-1**

UNIT-III

6.	a)	Explain the general process of recirculation of industrial waste.	**6 M**
	b)	What are the advantages and disadvantages of disposal of Industrial waste water to streams?	**6 M**
		(OR)	
7.	a)	Give suggestions on how to control the Industrial waste disposal into lakes.	**6 M**
	b)	Explain the quality of water to be used for industrial processes.	**6 M**

UNIT-IV

8.	a)	Explain the impact of the pharmaceutical waste water on aquatic environment.	**6 M**
	b)	Explain the basic refinery operations with the help of a flow diagram.	**6 M**
		(OR)	
9.	a)	Explain the impact of dairy waste water on aquatic environment if discharged without any treatment.	**6 M**
	b)	Draw a neat manufacturing process of large scale pulp and paper. Indicate the sources and typical characteristics of combined waste water.	**6 M**

UNIT-V

10.	a)	Explain how to you select a site for construction of common effluent treatment plant.	**6 M**
	b)	What are various methods for treatment of CETP sludge?	**6 M**
		(OR)	
11.		Explain the following with reference to common effluent treatment plant	
	a)	Land requirement	**6 M**
	b)	Data needed for design of CETP.	**6 M**

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AR-13

CODE:13CE3023 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech II Semester Supplementary Examinations July-2018

PRESTRESSED CONCRETE

(Civil Engineering)

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

PART-A

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

1. a) Define the term tendon.
   b) What is the difference between Bonded and Non bonded prestressed
   c) Define wobble effect
   d) Write expression for friction
   e) What is the function of anchorage?
   f) What is transmission length?
   g) Explain the term Type-II members
   h) What is meant by grouting?
   i) What is relaxation in steel?
   j) What are the stages of post tension

PART-B

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

UNIT-I

2. a Explain the basic concepts of prestressing .Give advantages of Psc members 6M
   b What is the necessity of high strength concrete & high tensile steel in PSC 6M

(OR)

3. a List out systems of post tensioning and explain any one system 6M
   b Explain hoyer long line system of pre tensioning. 6M

UNIT-II

4. A prestressed concrete beam 250mm wide 360mm deep has a span of 10m.The beam is prestressed by steel wires of area 350mm^2 provide at uniform eccentricity of 60 mm with an initial prestress of 1250N/mm^2.Determine the percentage loss of stress in the wires. 12M

a) If the beam is Pre tensioned beam

b) If the beam is post tensioned beam

Ultimate creep strain=40x10^{-6}mm/mm/N/mm^2 for Pre tensioned beam

Ultimate creep strain=22x10^{-6}mm/mm/N/mm^2 for Pre tensioned beam

Shrinkage of concrete =300x10^{-6} for Pre tensioned beam

Shrinkage of concrete =215x10^{-6}for Post tensioned beam

Relaxation of steel stress=5% of the initial stress

Anchorage slip=1.25mm; Friction coefficient of wave effect=K=.00015m

(OR)

5. a List out types of losses and explain any one loss. 4M

b A concrete beam is prestressed by a cable carrying an initial prestressing force of 300Kn.The cross-sectional are of the wires in the cable is 300mm^2.Calculate the percentage loss of stress in the cable due to shrinkage of concrete using Is:1343 recommendations assuming the beam to be (i) pre tensioned (ii) post tensioned Assume Es=210Kn/m^2 and age of concrete at transfer =8 days. 8M

UNIT-III

6. A prestressed concrete beam of uniform rectangular cross section and span 12m supports a total distributed load of 250 Knexcliuding the weight of the beam. Determine the suitable dimensions of the beam and calculate the area of the tendon and their position ,the permissible stresses are 14.5N/mm^2 for concrete and 1000 N/mm^2.Assume if any necessary data. 12M

(OR)

7. A prestressing force of 250KN is transmitted through a distribution plate 120mm wide and 120mm deep ,the center of which is located at 100mm from the bottom of an end block having a section 120mm wide and 300mm deep .Evaluate the position and magnitude of the maximum tensile stress on horizontal section passing through the centre of the distribution plate using the methods of a) magnel b) Guyon . Design reinforcement for end block 12M

UNIT-IV

8. A pre cast pre tensioned beam of rectangular section has a breadth of 100 mm and depth of 200mm ,the beam with an effective span of 6m,is prestressed by tendons with their centroid coinciding with the bottom kern. The initial force in the tendon is 200KN. The loss of prestress may be assumed to be 15%.The beam is incorporated in composite T-beam by casting atop flange of breadth 420mm and thickness 40mm,if the composite beam support s a live load of 8Kn/m2,calculate the resultant stresses developed in the precast and in situ cast concrete assuming the pre-tensioned beam: a) unpropped and b) propped during casting of the slab assume if any necessary data. 12M

(OR)

9. Explain the design procedure of composite sections 12M

UNIT-V

10. A PSC beam with a cross sectional area of 32000mm^2 and radius of gyration of 70mm is prestressed by a parabolic cable carrying an effective prestress of 900Mpa, the span of the beam is 8m.The cable consists of 6 wires of 7mm diameter wires, has an eccentricity of 50mm at center and zero at support, Estimate the central deflection of the beam. 12M

(OR)

11. A prestressed concrete beam of rectangular section 300mm wide and 500mm deep is prestressed by 2 post-tensioned cables of area 600mm each .Initially stressed to1600N/MM^2.The cables are located at a constant eccentricity of 100mm throughout the length of the beam having a span of 10m.The modulus of elasticity of steel and concrete is 210 and 38 KN/mm^2 . 12M

a) Neglecting all losses, find the deflection at the centre of span when it is supporting its own weight.

b) Allowing for 20% loss in prestress, find the final deflection at the centre of span when it carries an imposed load of 18KN/m

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AR13

CODE: 13ME3025 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech. II Semester Supplementary Examinations July-2018

AUTOMOBILE ENGINEERING
(Mechanical Engineering)

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

PART –A

ANSWER ALL QUESTIONS **[1x10=10M]**

1 a). What is an automobile?
b). What is splash lubrication system?
c). What are the main components of a fuel supply system?
d). Name various types of fuel injection systems for diesel engines?
e). What is the necessity for cooling of an engine?
f). What is the function of an ignition coil?
g). Name various components in battery ignition system
h). What is the need of gear box in automobile?
i). Name any two steering mechanisms used in automobiles
j). What is the objective of vehicle suspension?

PART-B

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

UNIT-I

2. What are the objects of lubricating an engine? Explain different methods of engine lubrication?

(OR)

3. With a neat sketches briefly explain about Rear wheel drive, Front wheel drive and Four wheel drive

UNIT-II

4. With the help of neat sketches explain the construction and working of A.C. Mechanical fuel pump. What are the advantages of it?

(OR)

5. Explain the construction and working of any type of fuel injection pump. Illustrate your answer with suitable sketches?

UNIT-III

6. a) What are the main components of water cooling system for an automotive engine? Describe this in detail?
b) Discuss the pump circulation cooling system thoroughly and compare the same with thermosyphon system?

(OR)

7. Give detailed account of the battery ignition system. Illustrate your answer with neat sketches?

UNIT-IV

8. Where and why do we use multi-plate clutches? Explain the constructional features and working of multi-plate dry clutches with a simple sketch?

(OR)

9. a) Describe the working of a synchromesh gear box with the help of neat sketch?
b). Describe the principle of torque convertor. Discuss its advantages and disadvantages?

UNIT-V

10 Differentiate clearly between the functions of a spring and a shock absorber? Explain the construction and working of a telescopic type of shock absorber with the help of neat diagram?

(OR)

11 a).Explain the requirements of automobile brakes?
b).Describe any type of mechanical brake with the help of neat sketches?

AR13

CODE: 13CS3024 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech. II Semester Supplementary Examinations July-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) List any four project management skills required for software project management
   b) Mention the suggestions to mitigate the size related risks
   c) Provide the relation between product, project and people
   d) What is meant by feasibility study?
   e) Define cash flow forecasting.
   f) How to shorten the project duration
   g) Mention the list of priorities in deciding levels of monitoring
   h) What tasks do you use the system to perform in elicitation of requirements
   i) What are the steps needed in developing the Project Staffing Management Plan?
   j) In what way software metrics are used in project management

PART-B

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

UNIT-I

2. a) Give example s of methods, tools and technologies that you use in Software development activities 7M
   b) Explain in detail about the common causes for Project failures? 5M

(OR)

3. a) Analyze the challenges of gathering software requirements. 6M
   b) Discuss Barry Boehm's Top 10 "Industrial Software Metrics. 6M

UNIT-II

4.	a)	Identify the data that you would collect to ensure the principles of conventional software Engineering, explain it	6M
	b)	Explain why the sizing of software is important as an estimating technique	6M
		(OR)	
5.	a)	Describe briefly about the collecting of the data in a project	6M
	b)	Inspect the Principles of Modern Software Management.	6M

UNIT-III

6.	a)	Explain in detail about the cost benefit evaluation techniques.	6M
	b)	Explain the following i) forward pass ii) backward pass	6M
		(OR)	
7.	a)	Discuss Engineering Work Flows of the process sets of a process.	6M
	b)	Explain the activity levels of the technical Model based software architectures	6M

UNIT-IV

8.	a)	With neat sketch ,list the activities most likely to benefit from project management	6M
	b)	What is software testing? Why should we have an independent test team?	6M
		(OR)	
9.	a)	Describe briefly about the different stages in contract placement.	6M
	b)	What are the responsibilities of Software Management Team?	6M

UNIT-V

10.		Analyze the command Centre Processing and Display system for a Project Control and instrumentation	12M
		(OR)	
11.		Explain seven core Metrics of process control and instrumentation	12M

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AR13

CODE: 13IT3006 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

III B.Tech. II Semester Supplementary Examinations July-2018

IMAGE PROCESSING

(Information Technology)

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

PART-A

[1 x 10=10M]

Answer all questions

1. a) What are the fundamental steps in Image processing?
   b) What are the properties of the optimum mean square quantizer?
   c) Explain Histogram processing.
   d) What are first derivatives for image enhancement? Explain
   e) What is image compression?
   f) What are the operations performed by error free compression?
   g) Give names of basic morphological algorithms?
   h) Explain about dilation and erosion
   i) What is global, Local and dynamic or adaptive threshold?
   j) How the derivatives are obtained in edge detection during formulation?

PART-B

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

UNIT-I

2. a) Explain any four basic relationships between pixels. 6 M
   b) What are the different transforms used in DIP? Explain the most advantageous one in detail. 6 M

(OR)

3. a) Explain K-L transform in detail 6 M
   b) Explain discrete cosine transform and specify its properties 6 M

UNIT-II

4. a) How do you enhance a monochrome image by histogram? (i)Equalization 6 M
   b) (ii)Specification technique how do you assess the qualities of enhancement? 6 M

(OR)

5. Specify the expression for the following filters. 12M
(i)Geometric mean filter
(ii)Harmonic mean filter
(iii)Contra harmonic mean filter

UNIT-III

6. a) What is image compression? Explain any four variable length coding compression schemes. 6 M
   b) Explain about Error free Compression? 6 M

(OR)

7. Differentiate between lossless and lossy compression and explain transform coding system with a neat diagram 12M

AR13

CODE: 13IT3004 **SET-I**

UNIT-IV

8.	a)	Discuss how to construct dams using morphological operations?	6M
	b)	What do you understand by dilation and erosion in morphological operation. Explain in detail.	6M

(OR)

9.	a)	Explain about Hit or Miss Transformation	6 M
	b)	Explain about extraction of connected components	6 M

UNIT-V

10.	a)	Differentiate between optimal and Global thresholding.	6 M
	b)	What are the things included in Region Based segmentation	6 M

(OR)

11.	a)	Discuss how (i) Region growing	5 M
	b)	(ii) Region splitting and merging approaches are used for image segmentation	7 M

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