

Code: 13CE2005**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, August- 2015****CONSTRUCTION MATERIALS AND PRACTICE****(CIVIL ENGINEERING)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1 X 10 = 10M]**

1. a) Define metamorphic rock
- b) What is the role of “silica” in brick earth?
- c) Name the important ingredients of cement
- d) Name any three functions of sand in cement mortar
- e) What are the volumetric proportions of ingredients in M20 CONCRETE?
- f) Name any three defects of timber
- g) Name any four uses of Mild steel as a building material
- h) Name any four uses of plastics
- i) Name any four advantages of foundation
- j) Name any four types of brick masonry

PART-B**Answer any one question from each unit****[5 X 12=60M]****UNIT-I**

2. a) Explain in detail about advantages of burning of bricks in kilns
- b) Briefly explain the manufacturing of bricks in Hoffman’s kiln with a neat sketch.

(OR)

3. a) Discuss different tests conducted for good quality of stones
- b) Explain briefly about quarrying of stones

UNIT-II

4. a) What are the characteristics of an ideal paint
- b) Explain in detail about the ingredients of oil borne paint.

(OR)

5. a) Explain in detail about treatment of Glass
- b) Briefly explain any five special varieties of Glass

Code: 13CE2005**UNIT-III**

6. a) Explain the importance of Raft foundation with a neat sketch
b) Explain the following with the help of neat sketches
i) Trapezoidal footing ii) Continuous footing iii) Strip footing

(OR)

7. a) Compare stone masonry with brick masonry
b) Describe English bond and Flemish bond with a neat sketch

UNIT-IV

8. a) Explain with details the cross section of a cross section of Dog legged stair
b) What are the good requirements of a good stair case?

(OR)

9. a) Explain any four types of floorings.
b) Explain three types of roofs based on the shape with sketches

UNIT-V

10. a) Explain in detail about plastering and termite proofing
b) Explain different types of Shoring

(OR)

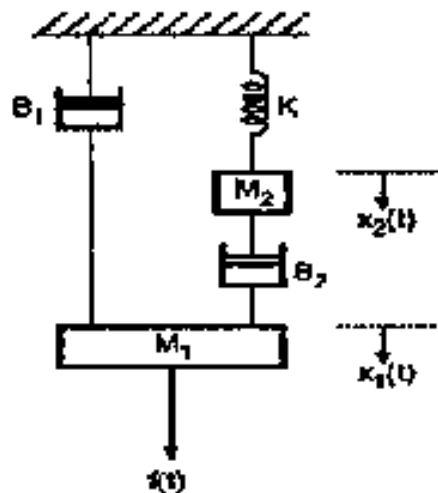
11. a) Explain in detail about under pinning
b) Explain in detail about form work.

Code: 13EE2009**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, August- 2015****CONTROL SYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1 X 10 = 10 M]**

1. a) Define closed loop control system.
- b) Write the difference between block diagram method and signal flow graph
- c) Write the applications of synchros
- d) What is meant by steady state error?
- e) How many branches of the Root Locus terminate at infinity?
- f) Define Relative Stability
- g) What is the principle of argument?
- h) Define All pass transfer function
- i) Is the state model of a system is unique?
- j) Draw the Phase-lead network

PART – B**Answer one question from each unit****[5 X 12=60M]****UNIT-I**

1. a) Write the differential equations governing the mechanical system and draw the Force voltage and Force current analogous circuit [8M]



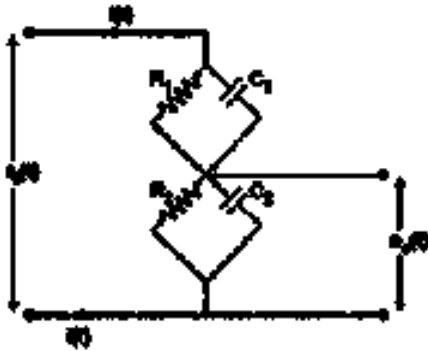
- b) Explain the effect of feedback on the noise and sensitivity of the system

[4M]

Code: 13EE2009**(OR)**

3. a) Determine the transfer function of Armature controlled DC motor. [8M]

3.b) Find the Transfer function of the given electrical network [4M]

**UNIT-II**

4. Derive the expressions for rise time, peak time, settling time for an under damped second order system [12M]

(OR)

5. a) The forward path transfer function of a unity feedback system in $G(S) = \frac{2}{S(S+3)}$. Obtain the expression for unit step response of the system [6M]

b) Explain the salient points of a typical step response of a second order system. [6M]

UNIT-III

6 a) Explain absolute and relative stability [6M]

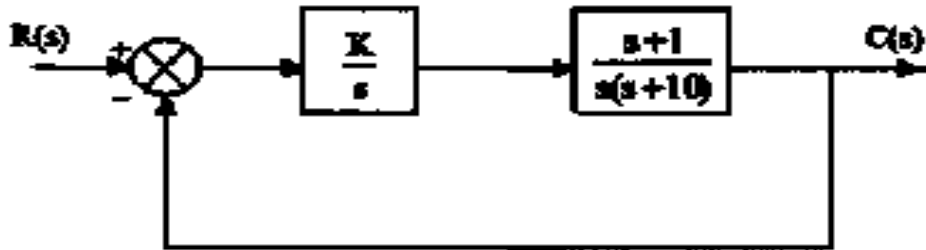
b) Comment on the stability of the system with the following characteristic equation by using R-H criteria $D(S) = S^6 + S^5 + 7S^4 + 6S^3 + 31S^2 + 25S + 25$ [6M]

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(OR)

7) Sketch the Root Locus for the given system

[12M]

UNIT-IV

8. Explain the correlation between time and frequency response and write the advantages of frequency domain analysis [12M]

(OR)

9. Determine the phase margin and gain margin for the system

$$G(S)H(s) = \frac{100}{S(1 + 0.5s)(1 + 0.2s)} \text{ using Bode plot}$$

[12M]

UNIT-V

10.a) Narrate the conditions when a system requires compensation? [4M]

b) Explain how a lag compensation can be obtained using Bode plots [8M]

(OR)

11. a) Define the terms state model and state equation. [6M]

b) Derive the transfer function from the state model [6M]

Code: 13ME2008**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, August- 2015****FLUID MECHANICS AND HYDRAULIC MACHINERY
(MECHANICAL ENGINEERING)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1X10 =10 M]**

1.
 - a) Define the terms mass density, specific weight and specific gravity
 - b) Convert a pressure head of 18m of water into meters of mercury of specific gravity 13.6.
 - c) Differentiate uniform flow and non uniform flow.
 - d) Define streak line
 - e) What is the significance of Reynolds's number?
 - f) Expression for Darch weihbach formula for loss of head in pipes
 - g) Draw the inlet velocity triangle for a Pelton wheel.
 - h) Define the overall efficiency of a turbine
 - i) Define specific speed of a pump
 - j) What is surge tank? What are the purposes served by it

PART-B**Answer one question from each unit****[5X12=60M]****UNIT-I**

2. A body weighing 450N with a flat surface area of 0.033m^2 slides down lubricated inclined plane making a 30° angle with horizontal. For viscosity of 0.2 N-s/m^2 and body speed of 3m/s, determine the lubricant film thickness.

(OR)

3. The left leg of a u tube mercury manometer is connected to pipe line conveying water, the level of mercury in the leg being 0.6 m below the centre of the pipe line, and right leg is open to atmosphere. The level of mercury in the right leg is 0.45 m above that of left leg and the space above the mercury in the right leg contains Benzene (specific gravity 0.88) to a height of 0.3 m. Find the pressure in the pipe.

UNIT-II

4. A stream function in a two dimensional flow is $\psi = 2xy$. show that the flow is irrotational and determine the corresponding velocity potential.

CODE: 13ME2008**(OR)**

5. Water under a pressure of $3.924 \times 10^{-3} \text{ N/m}^2$ is flowing through a 0.3 m pipe at the rate of $0.25 \text{ m}^3/\text{sec}$. if the pipe is bent 135° , find the magnitude and direction of the resultant force on the bend

UNIT-III

6. Define 'Hydraulic gradient line' and 'Total energy line'. The cross section of a pipe carrying a given discharge is suddenly enlarged. What would be the ratio of the two diameters of the pipe if the magnitude of the loss of head at this change of section is same irrespective of the direction of flow? Assume $C_c = 0.64$.

(OR)

7. A venture meter has its axis vertical, the inlet and throat diameters being 150 mm and 75 mm respectively. The throat is 225 mm above inlet and $C_d = 0.96$. Petrol of specific gravity 0.78 flows up through the meter at a rate of $0.029 \text{ m}^3/\text{s}$. Find the pressure difference between the inlet and the throat.

UNIT-IV

8. Differentiate between
- i) Impulse and Reaction turbine
 - ii) Radial and Axial flow Turbines
 - iii) Inward and Outward Radial flow turbines
 - iv) Kaplan and Propeller turbines.

(OR)

9. What are the purposes served by a draft tube? What is efficiency of the draft tube? Derive the expression for the efficiency of the draft tube.

UNIT-V

10. With a neat sketch explain a working of a centrifugal pump.

(OR)

11. A single acting reciprocating pump running at 60rpm delivers 0.53 m^3 of water per minute. The diameter of the piston is 200mm and stroke length 300mm. The suction and delivery heads are 4m and 12m respectively. Determine
- i) Theoretical discharge
 - ii) Coefficient of discharge
 - iii) Percentage slip of the pump
 - iv) Power required to run the pump

Code: 13EC2009**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, August- 2015****ANALOG COMMUNICATIONS
(ELECTRONICS AND COMMUNICATION ENGINEERING)****Time: 3 Hours****Max Marks: 70****PART-A****Answer all questions****[1 X 10 = 10 M]**

1. a) Define Modulation
- b) What is the Efficiency of SSB
- c) Application of VSB
- d) Define Envelope
- e) What is the use of PLL in COSTAS loop
- f) Define Modulation index for FM Signal
- g) Define Selectivity of a Receiver
- h) What is Fidelity of a Receiver
- i) What is the Difference between AGC and AVC
- j) What is the use of Pre-emphasis?

PART-B**Answer One Question From Each Unit****[5 X 12=60M]****UNIT – I**

2. a) Derive the expression for single tone amplitude modulated wave and draw the frequency spectrum of the AM signal [8M]
- b) A broad cast radio transmitter had a 10 KW, When the modulation percentage is 60 how much of this carrier power [4M]

(OR)

3. a) Explain the Square Law diode modulation with mathematical analysis and draw the frequency spectrum for AM Generation [8M]
- b) Explain about Envelope detector [4M]

UNIT – II

- 4 a) Explain the generation of DSBSC using Ring modulator [6M]
- b) Explain about COSTAS receiver detector [6M]

(OR)

- 5 a) Explain the Phase discriminator method for generating an SSB modulated [6M]
- b) Comparisons of AM Techniques at least 5 [6M]

Code: 13EC2009**UNIT – III**

- 6 a) Explain how FM modulation can be obtained using Direct method [6M]
b) Explain FM Demodulation using balanced slope detector [6M]

(OR)

- 7 a) Explain about Narrow band frequency modulation with Block diagram [6M]
b) Comparison of NBFM and WBFM at least five. [6M]

UNIT – IV

- 8 a) Explain the operation of Radio transmitter using high level modulation system [6M]
b) Explain about Armstrong FM transmitter [6M]

(OR)

- 9 a) Explain Super heterodyne receiver briefly using image frequency and tuning or tracking part [8M]
b) What is the difference between Local oscillator and VCO [4M]

UNIT – V

- 10 a) What are the different types of Pulse Modulation [6M]
b) Explain about PWM and PPM with neat sketches [6M]

(OR)

- 11 a) Derive the SNR of DSB SC [8M]
b) Explain about FM Receiver model with block diagram [4M]

Code: 13CS2006**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****II B.Tech II Semester Supplementary Examinations, August- 2015****OBJECT ORIENTED PROGRAMMING
(COMMON TO CSE & IT)****Time: 3 Hours****Max Marks: 70****PART-A****Answers ALL Questions****[10 X 1 = 10M]**

1.
 - a) What are control statements?
 - b) What are built in exceptions?
 - c) Explain about Super Key word?
 - d) Explain finalize method?
 - e) Write difference between throw and throws.
 - f) What do you mean by destructors?
 - g) Write a program to calculate factorial of given number (n) using recursion?
 - h) Define Inheritance?
 - i) How to do multiplication of 2's power with given number without using multiplication operator?
 - j) What are events?

PART-B**Answer one question from each unit****[5 X12=60M]****UNIT-I**

2.
 - a) Explain different type of data types and different ways of array declaration in java? [8M]
 - b) Explain about Scope and Life time of a variable. [4M]
- (OR)
3. Write JAVA code for capturing Encapsulation, inheritance and polymorphism. [12M]

UNIT-II

4. What is a constructor? Write down JAVA programs capturing different types of constructors. [12M]
- (OR)
5. Differentiate between *Method Overloading* and *Method Overriding* with example? Write JAVA code for both of them. [12M]

UNIT-III

6. Write JAVA short notes on: [12M]
 - a) Abstract classes
 - b) Dynamic method dispatch
 - c) Final keyword

Code: 13CS2006**(OR)**

7. a) What is meant by package? Explain with a sample program how to define and access packages. [8M]
b) Write difference between classes and interfaces? [4M]

UNIT-IV

8. What is Exception? How Exception Handling Mechanisms can be performed. Give examples. [12M]

(OR)

9. a) Explain inter thread communication? [4M]
b) Write difference between process and thread? Explain creation of multiple threads using thread class? [8M]

UNIT-V

10. Write a program to design a registration page using swing. [12M]
Entries:
Name, Rollno, email id, gender(using radio button), year (using drop down list), submit and reset button

(OR)

11. a) What are applet and explain difference between applet and application? [6M]
b) Write a program to implement the boarder Layout [6M]