AR16

CODE: 16CE3017   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April,2019
WATER RESOURCE ENGINEERING
(Civil Engineering)

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

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Explain various methods of determining average Rainfall over a basin and also discuss the suitability of each method.   7M
   b) Explain about hydrological cycle with neat sketch   7M

(OR)

2. a) Define S- curve Hydrograph? How it is derived?   6M
   b) Table below gives ordinates of 3-hr Unit Hydrograph. Derive ordinates of flood Hydrograph if a rainfall of 60 mm produced in three hours duration. Consider initial losses as 5 mm and infiltration rate 5 mm/hr. Assume constant base flow 10 m³/s.   8M

Time(Hrs)	0	3	6	9	12	15	18	21	24
Ordinates of 3 -hr UH (m³/s)	0	10	20	30	40	30	20	10	0

UNIT-II

3. a) Explain various types of Aquifers.   6M
   b) During a recuperation test, the water in open well was depressed by pumping by 2.5 m and it recuperated 1.8 m in 70 minutes. Find i) yield from a well of 5 m diameter under a depression head of 3 m   ii) the diameter of the well to yield 10 litres/second under a depression head of 2m.   8M

(OR)

4. a) Explain the following terms: 8M
   i) Storage coefficient   ii) Coefficient of Transmissibility
   iii) coefficient of permeability   iv) specific yield
   b) A well penetrates fully on 20m thick water bearing stratum of medium sand having coefficient of permeability of 0.001m/s. The radius of influence 300m and the well radius is 10cm and is to be worked under a drawdown of 5m at the well face. Calculate the discharge from the well.   6M

UNIT-III

5. a) Explain the factors to be considered for selecting the site of a reservoir.   6M
   b) Discuss about reservoir sedimentation and write about its control measures.   8M

(OR)

6. a) Describe the classification of storage of a reservoir into various zones. 6M
   b) The following information is available regarding the relationship between 8M
   trap efficiency and capacity-inflow ratio.

C/I	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Trap Efficiency (%)	86	92	93	94	95	96	97	97	97	97.5

   Find the probable life of reservoir with an initial reservoir capacity of 30 MCM, if the average annual flood inflow is 60 MCM and the average annual sediment inflow is 1,50,000 tonnes. Assume specific weight of the sediment equal to 1.2 gm/cc. The useful life of reservoir will terminate when 80% of its initial capacity is filled with sediment.

UNIT-IV

7. a) Explain with neat sketches the different methods of irrigation. 8M
   b) After how many days will you supply water to field in order to get efficient 6M
   irrigation, If field capacity of soil is 25%, permanent wilting point is 15%, density of soil =1.5g/cc, effective depth of root zone is 75cm,and daily consumptive use of water for the crop is 10mm.

(OR)

8. a) Define duty. Discuss various factors effecting duty and illustrate different 7M
   methods to improve duty.
   b) The left branch canal carrying a discharge of 20 cumecs has culturable 7M
   command area of 20,000 Ha. The intensity of Rabi crop is 80 percent, and the base period is 120 days. The right branch canal carrying a discharge of 8 cumecs has culturable command area of 12,000 Ha, intensity of irrigation of Rabi crop is 50 percent, and base period is 120 days. If the duty at right canal is 800 hectors per cumec for rabi season and 700 hectors per cumec at left canal. Determine the discharge required at both the canals.

UNIT-V

9. a) Define water logging. Explain the causes of water logging and note the 6M
   remedial measures.
   b) Design an irrigation canal based on Lacey's theory for the following data: 8M
   Design discharge = Q = 50 m^3/sec
   Silt factor = f = 1.0 , Side slope = ½ : 1

(OR)

10. a) Explain different types of outlets and requirements of good outlet. 6M
    b) Design an irrigation channel to carry a discharge of 45m^3/sec. assume 8M
    N=0.0225, critical velocity ratio (m)=1, and the channel has a bed slope of 0.16m/km.

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Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) With a neat sketch explain the functional units of 8086 µP?   7M
   b) Explain the memory read and memory write performed in   7M
      8086 operation cycle?

(OR)

2. a) Illustrate the structure of interrupt vector table of 8086?   7M
   b) Categorize the instructions based on their flow and explain   7M
      each with examples?

UNIT-II

3. a) Write an ALP for 8086 to find the factorial of a given number   7M
      "n"?
   b) Explain the following instructions of 8086 with suitable   7M
      examples:
      i) LEA   ii) CMP   iii) MOV   iv) XCHG
      v) MUL   vi) RCR   vii) JBE

(OR)

4. a) Explain the following 8086 assembler directives with   7M
      examples.

      i. DW   ii. PROC   iii. EQU   iv. OFFSET
   b) Write an ALP to add two 64-bit numbers. Assume SI and DI   7M
      contains the starting addresses of the numbers. Store the result
      in memory pointed to by [DI].

UNIT-III

5. a) Describe the mechanism which effectively manage the physical memory with multitasking systems? With an example do the physical address calculation?   7M

    b) Draw and discuss the register set of 80386 and explain a typical function of each of the registers in brief.   7M

(OR)

6. a) Explain the architectural features of 80486 processors?   7M

    b) Illustrate the general structure of a segment descriptor of 80386?   7M

UNIT-IV

7. a) Describe the functionality of each block and signal description in 8259A?   7M

    b) With a neat sketch explain interfacing of 8259A to 8086   7M

(OR)

8. a) Draw the block diagram of 8255 PPI and describe the mode0 operation in detail.   7M

    b) Draw and explain the block diagram of 8257 DMA controller   7M

UNIT-V

9.   With a neat sketch explain the architecture of 8051 micro controller   14M

(OR)

10. a) Explain the addressing modes supported by 8051 with examples?   7M

    b) Explain the register set of 8051 micro controller.   7M

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CODE: 16ME3019   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April-2019
MECHANICAL VIBRATIONS
(Mechanical Engineering)

Time: 3 Hours   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Write the advantages and disadvantages of knife edge   4 M
      and roller followers.
   b) The following data related to a cam profile in which   10 M
      the follower moves with uniform acceleration and
      deceleration during ascent and descent.
      Minimum radius of the cam =35 mm, Roller diameter
      =7.5mm, Lift =28 mm, Offset of the follower axis =12
      mm towards right, Angle of ascent =60^0 Angle of
      descent =90^0 Angle of dwell between ascent and
      descent =45^0, the follower remains at rest for the rest
      of the revolution the speed of the cam =200 rpm. Draw
      the profile of the cam

(OR)

2. a) Draw the displacement, velocity and acceleration   4M
      diagrams for a follower when it moves with uniform
      velocity
   b) Draw the profile of a cam to give the following motion   10 M
      to the reciprocating follower with a knife edge:
      i) Follower to move outward through a distance of
          30mm during 90^0 of cam rotation.
      ii) Follower to dwell for the next 60^0 of cam rotation.
      iii) Follower to return to its initial position during 90^0
            of cam rotation.
      iv) Follower to dwell for the remaining 120^0 of cam
           rotation.

The minimum radius of the cam is 30 mm and the knife edge of the follower is at right angle to the line of stroke of the follower. The outward and return strokes of the follower are to take place with Uniform velocity.

UNIT-II

3. a) Explain the method of balancing of different masses revolving in the same plane.   4 M

   b) A, B, C and D are four masses carried by a rotating shaft at radii 100 mm, 150 mm, 150 mm and 200 mm respectively. The planes in which the masses rotate are spaced at 500 mm apart and the magnitude of the masses B, C and D are 9 kg, 5 kg and 4 kg respectively. Find the required mass A and the relative angular settings of the four masses so that the shaft shall be in complete balance.   10 M

(OR)

4. a) Explain the direct and reverse crank method for determining unbalanced forces in radial   engines.   4 M

   b) An air compressor has four vertical cylinders 1,2,3 and 4 in line and the driving cranks at 90° intervals reach their upper most positions in this order. The cranks are of 150 mm radius, the connecting rods 500 mm long and the cylinder centre line 400 mm apart. The mass of the reciprocating parts for each cylinder is 22.5 kg and the speed of rotation is 400 r.p.m. Show that there are no out of balance primary or secondary forces and determine the corresponding couples, indicating the positions of No. 1 crank for maximum values. The central plane of the machine may be taken as reference plane.   10 M

UNIT-III

5. a) Determine the natural frequency of a vertical spring 6 M
   mass vibrating system

   b) The measurements on a mechanical vibrating system 8 M
   show that it has a mass of 8 kg and that the springs can
   be combined to give an equivalent spring of stiffness
   5.4 N/mm. If the vibrating system have a dashpot
   attached which exerts a force of 40 N when the mass
   has a velocity of 1 m/s, find i. critical damping
   coefficient, ii. damping factor, iii. Logarithmic
   decrement

(OR)

6. a) Explain the term 'whirling speed' or critical speed of a 6 M
   shaft. Prove that the whirling speed for a rotating shaft
   is the same as the frequency of natural transverse
   vibration

   b) A shaft 50 mm diameter and 3 metres long is simply 8 M
   supported at the ends and carries three loads of 1000
   N, 1500 N and 750 N at 1 m, 2 m and 2.5 m from the
   left support. The Young's modulus for shaft material is
   200 GN/m^2 . Find the frequency of transverse
   vibration

UNIT-IV

7. a) Distinguish between single and two degrees of 6 M
   freedom vibrating systems with sketches.

   b) Derive the equations of motion and natural frequencies 8 M
   of a typical two degrees of freedom vibrating system.

8. a) Explain the difference between free and forced vibrations with examples 4 M

   b) A 75 kg machine is mounted on springs of stiffness $k=11.76\times10^6$ N/m with a damping factor of 0.2. A 2 kg piston within the machine has a reciprocating motion with a stroke of 0.08 m and a speed of 3000 rpm. Assuming the motion of the piston to be harmonic, determine the amplitude of vibration of machine and the vibratory force transmitted to the foundation 10 M

UNIT-V

9. a) Derive the equation to determine the natural frequency of single rotor system 4 M

   b) Consider a stepped shaft with two discs as shown in Fig. The following shaft dimensions are to be taken: l_1 = 0.5m, l_2 = 0.3m, l_3 = 0.2m, d_1 = 0.015m, d_2 = 0.012m, d_3 = 0.01m. Take the modulus of rigidity of the shaft as 0.8×10^{11} N/m. Discs have polar mass moment of inertia as 0.015 kg-m^2 and 0.01 kg-m^2. Obtain natural frequencies and the location of the node. 10 M
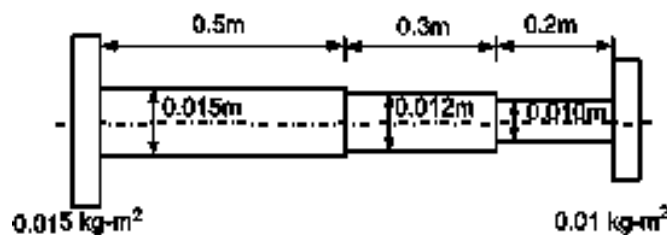
(OR)

10. a) Explain about influence coefficients ? How do you determine influence coefficients . Explain with example 6 M

    b) Briefly explain any two methods used to solve equations of motion for multi degree of freedom systems 8 M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April,2019

MICROPROCESSORS AND MICROCONTROLLERS
(Electronics and Communication Engineering)

Time: 3 Hours   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) With a neat sketch explain the functional units of 8086 µP?   7M
   b) Explain the memory read and memory write performed in 8086 operation cycle?   7M

(OR)

2. a) Illustrate the structure of interrupt vector table of 8086?   7M
   b) Categorize the instructions of 8086 µP and explain one from each category with example?   7M

UNIT-II

3. a) Write an ALP for 8086 to find the factorial of a given number "n"?   7M
   b) Explain the following instructions of 8086 with suitable examples: 7M
      i) LEA   ii) CMP   iii) MOV   iv) ALE
      v) MUL   vi) RCR   vii) JBE

(OR)

4. a) Explain the following 8086 assembler directives with examples.   7M

   i. DW   ii. PROC   iii. EQU   iv. OFFSET
   b) Write an ALP to add two 64-bit numbers. Assume SI and DI contains the starting addresses of the numbers. Store the result in memory pointed to by [DI].   7M

UNIT-III

5. a) Describe the mechanism which effectively manage the physical memory with multitasking systems? With an example do the physical address calculation? 7M
   b) Draw and discuss the register set of 80386 and explain a typical function of each of the registers in brief. 7M

(OR)

6. a) Explain the superscalar organization in Pentium processor? 7M
   b) Illustrate the general structure of a segment descriptor of 80386? 7M

UNIT-IV

7. a) Describe the functionality of each block and signal description in 8259A? 7M
   b) Interface a 12-bit DAC with 8255 and write a program to generate a triangular waveform of period 20ms. 7M

(OR)

8. a) Draw the block diagram of 8255 PPI and describe the mode0 operation in detail. 7M
   b) Describe the functional block diagram of USART (8251) 7M

UNIT-V

9. a) What is memory addressing? Interface external memory and I/O with 8051?
   b) Write a program to convert packed BCD to ASCII numbers and place them in R3 & R5. 7M

(OR)

10. a) Explain the addressing modes supported by 8051 with examples? 7M
    b) Draw and Explain the formats of TCON and TMOD Registers. 7M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, April, 2019
COMPILER DESIGN
(Common to CSE & IT)

Time: 3 Hours   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. Describe various phases of compiler and trace it with the program   14M
    segment:

    Position: =initial + rate*60

    (OR)

2. a) What are pass and phase? Write the differences between a pass and a   5M
        phase in the context of compiler construction.
    b) Define lexeme, token, pattern. Identify the lexemes that make up the   9M
        tokens in the following program fragment. Indicate the corresponding
        token and pattern.

        ```
        void  swap (int i, int  j)
        {
           int t;
           t=i;
           i=j;
           j=t;
        }
        ```

UNIT-II

3. Compute the FIRST and FOLLOW for the following grammar   14M

    $$E \rightarrow T\ E^I$$
    $$E^I \rightarrow +\ T\ E^I\ |\ \varepsilon$$
    $$T \rightarrow F\ T^I$$
    $$T^I \rightarrow *\ F\ T^I\ |\ \varepsilon$$
    $$F \rightarrow (\ E\ )\ |\ id$$

    (OR)

4. a) Discuss about structure of LR parsing table and behaviour of the LR   7M
        parser.
    b) Write an algorithm for LR - parsing   7M

UNIT-III

5. Translate the arithmetic expression a * - (b + c) into syntax tree, postfix notation and three-address code.   14M

(OR)

6. Explain about Block & Non Block structure storage allocation for: 14M
(i) Dynamic scoping
(ii) Parameter passing mechanisms.

UNIT-IV

7. a) Discuss DAG representation of basic blocks.   7M
   b) What are the code optimization techniques? explain with an example   7M

(OR)

8. a) Explain how copy propagation can be done using data flow equation.   7M
   b) What is a flow graph? Explain how a given program can be converted into a flow graph.   7M

UNIT-V

9. What is Peephole Optimization? Explain with an example   14M

(OR)

10. a) Consider the following code sequence   5M

     (i)   MOV B, R0   (ii)   MOV B, A
          ADD C, R0   ADD C, A
          MOV R0, A

Calculate the cost of the above instructions in terms of access time and memory usage.

   b) Explain about register allocation and assignment.   9M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, April-2019

WATER RESOURCES ENGINEERING
(Civil Engineering)

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

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

1. a) What are the different types of rain-gauges?
   b) What is a Theissen polygon?
   c) What is the use of a Hydrograph?
   d) What is flood routing?
   e) Define storage coefficient.
   f) What is Darcy's law?
   g) Define Consumptive use of water.
   h) Distinguish between Gross and Cultural Command areas
   i) What are the drawbacks of Kennedy's silt theory?
   j) What is Lacey's silt factor?

PART-B

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

2. a) What are the different types of precipitation?   (3)
   b) Explain with a neat sketch about Hydrologic cycle.   (9)
   (OR)
3. a) Define i) infiltration index ii) Run-off   (3)
   b) Explain the factors which affect Run-off   (9)

UNIT-II

4. a) Define: i) Standard Project Flood ii) Maximum Probable Flood   (3)
   b) The following are the ordinates of a flood hydrograph resulting from an isolated   (9)
      storm of 6 hours duration. Determine the ordinates of 1 cm- 6hour unit hydrograph,
      if the catchment area is 300 sq.km. Base flow is 5 cumecs

Time (hr)	0	10	20	30	40	50	60	70	80
Ordinate of flood hydrograph (cumec)	5	12	30	45	60	40	25	20	10

(OR)
5. a) Distinguish between Recurrence interval and Return period   (3)
   b) Explain clearly about flood frequency analysis   (9)

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UNIT-III

6. a) What are the different types of aquifers? (3)
   b) Explain briefly about various methods of improving soil fertility (9)

(OR)

7. a) Enumerate different methods of applying Irrigation water to the field (3)
   b) Explain with neat sketches about any three methods of applying water to crops (9)

UNIT-IV

8. a) Define intensity of irrigation (3)
   b) The gross command area for a distributor is 9000 hectares, 80% of which can be irrigated. The intensity of irrigation for Rabi season is 65% and that of Kharif is 35%. If the average duty at the head of the distributor is 2400 hectares per cumec for Rabi season and 1200 hectares for Kharif season, determine the discharge required at the head of distributory from average demand consideration. (9)

(OR)

9. a) Define: i) Consumptive use of water ii) Consumptive use efficiency (3)
   b) Explain the various methods of Direct measurement of Consumptive use and any ONE method of its estimation using equations (9)

UNIT-V

10. a) Define: i) Ridge canal ii) Contour canal (3)
    b) Explain clearly about Lacey's theory. What are its defects? (9)

(OR)

11. a) What are the different types of canal lining? (3)
    b) Using Kennedy's theory, design a channel section for the following data: (9)
       i) Discharge Q = 18 cumecs
       ii) Kutter's N = 0.025
       iii) Critical velocity ratio m = 1
       iv) Side slopes = ½ : 1
       v) Bed slope = 1/ 5000.

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Code:13EE3017   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, April-2019

POWER SYSTEMS – III
(Electrical and Electronics Engineering)

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

PART – A

Answer all Questions   **[1 x 10=10M]**

1. a) Define Recovery Voltage?
   b) What is meant by RRRV?
   c) State the applications of static relays?
   d) What is Time Multiplier setting of a relay?
   e) What are the causes of over voltages in an Alternator?
   f) What are the effects of inrush currents in differential protection of transformer?
   g) What is meant by arcing Grounds?
   h) What are the advantages of Buchholz Relay?
   i) What are the types of faults on a transmission line?
   j) What is meant by time graded protection scheme?

PART – B

Answer one question from each Unit   **[5 x 12=60M]**

UNIT – I

2. a) A 50 Hz 11kV generator is connected to a power system. The system Inductance and Capacitance per
      phase are 10mH and 0.02μF respectively.
      Calculate:
         i)   The Max. Voltage across the contacts of the Circuit Breaker at the
                 instant when it passes through zero
         ii)   Frequency of transient oscillations?   **[6M]**
   b) What is current chopping? How can it be reduced? Explain in detail?   **[6M]**

(OR)

3. a) Explain the construction, working , advantages, disadvantages and applications of SF_6 Circuit
      Breaker   **[6M]**
   b) Describe the operation of Vacuum Circuit Breaker and what are its applications?   **[6M]**

UNIT – II

4. a) Derive Universal relay torque Equation and derive the equations of various relays from it?
                                                                     [6M]
   b) Explain construction and working of directional over current relay with relevant diagrams?
                                                                     [6M]

(OR)

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5. a) Explain static relays their merits, demerits and applications?   [5M]
    b) Explain the operation of admittance relay with circuit diagram?   [7M]

UNIT – III

6. Explain about various types of rotor faults in an alternator and protection against them?   [12M]

(OR)

7. a) Explain the percentage differential protection of star/ delta connected transformer with suitable
    diagrams   [6M]
    b) How does circulating current protection also provide inter turn fault protection in a power
    Transformer?   [6M]

UNIT – IV

8. a) Explain Transley relay with neat sketch   [6M]
    b) Describe the trip circuit diagram of three zone distance relay used for the protection of
    transmission lines   [6M]

(OR)

9. Explain various types of Bus-Bar arrangements indicating the switch gear used and explain its
    operation?   [12M]

UNIT – V

10. a) Explain different types of lightning strokes that affect the electrical equipment? How are
    electrical equipment protected against lightning?   [6M]
    b) What is a surge absorber? How does it work?   [6M]

(OR)

11. a) What are the advantages and disadvantages of ungrounded neutral   [6M]
    b) Explain arc suppression coil grounding with relevant diagrams?   [6M]

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech. II SEMESTER SUPPLEMENTARY EXAMINATIONS, APRIL,2019

INSTRUMENTATION AND CONTROL SYSTEMS
(Mechanical Engineering)

Time: 3 hours   Max.Marks:70

PART-A

Answer all questions   [1 X 10 = 10M]

1.   a) What do you mean by observational error?
        b) In bimetallic thermometer, what is the technique used?
        c) Represent torr in terms of Hg.
        d) Give example of thermal conductivity gauges.
        e) Angular speed measurements are made with a device called as_____.
        f) What is the principle of pneumatic load cell?
        g) What is the purpose of dynamometer?
        h) Give one example of closed loop control system.
        i) What is actuating signal in control system?
        j) Expand PID controller.

PART-B

Answer one question from each unit   [5 X 12 = 60M]

UNIT-I

2.Explain about ionization type pressure gauges
(OR)
3. Explain with neat sketch of measurement system with one example.

UNIT-II

4.Explain the concept of ultrasonic flow meters.
(OR)
5. Explain several techniques of measuring stress and strain in instrumentation.

UNIT-III

6. Explain about resistive and inductive transducers which are used to measure displacement.
(OR)
7. Explain about different types of dynamometers.

UNIT-IV

8. Explain about Routh-Hurwitz criterion to determine stability of control systems.
(OR)
9. Compare and contrast open and closed systems.

UNIT-V

10. a) State Nyquist stability criteria and mention applications of it.
     b) Elaborate about frequency domain characteristics of a second order system
(OR)
11. Find the stability of open loop system gain $G(s)=K/S(S+10)$ using nyquist criteria.

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.TECH II SEM SUPPLEMENTARY EXAMINATIONS, APRIL, 2019

MICROPROCESSORS AND MICROCONTROLLERS
(Electronics & Communication Engineering)

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

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

1. a) List segment registers in 8086 microprocessor.
   b) Write significance of direction flag in 8086 microprocessor.
   c) What is direct addressing mode? Give example
   d) List logical instruction. (Any two)
   e) Define NMI.
   f) Write features of 80386 Microprocessor.
   g) Write difference between microprocessor and microcontroller.
   h) What signal is used to differentiate minimum and maximum mode operation of 8086 microprocessor?
   i) Write features of USART.
   j) List interrupts of 8086 microprocessor.

PART-B

Answer one question from each unit

[5x12=60M]

UNIT-I

2. a) Draw and explain the flag register of 8086 microprocessor.   6
   b) Explain the memory organization of 8086 microprocessor.   6
   (OR)
3. a) What do you mean by addressing modes? What are different   6
      addressing modes supported by8086 microprocessor. Explain
      with example.
   b) Explain the functions of following signals 8086   6
      microprocessor.
         i) ALE   ii)DT/R   iii)HOLD   iv)HLDA

UNIT-II

4. a) Explain any four string manipulation instructions.   6
   b) Draw the timing diagram of memory read cycle in minimum   6
      mode operation of 8086 microprocessor.

(OR)

5. a) Write an Assembly language program for 8086 to find the   6
      largest number for a data of size of N.
   b) Draw and discuss interrupt structure of 8086 microprocessor   6
      in detail.

UNIT-III

6. a) Draw and explain register set of 80386   6
   b) Draw and explain the paging mechanism of 80386   6

(OR)

7. a) List different data types supported by 80386   6
   b) Explain how linear address is converted into physical address.   6

UNIT-IV

8. a) Explain the need of DMA and discuss the block diagram.   6
   b) Explain the operation of 8251 in synchronous mode of   6
      operation.

(OR)

9. a) Explain how 8279 keyboard/display controller can be   6
      interfaced to 8086.
   b) Draw and explain the architecture of 8259   6

UNIT-V

10. a) Illustrate the functions of TCON and TMOD registers.   7
    b) Explain the addressing modes of 8051 microcontroller with   5
       example.

(OR)

11. a) Draw and explain the format of PSW.   5
    b) Draw and explain the architecture of 8051 microcontroller.   7

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, April-2019

UNIX PROGRAMMING
(Computer Science Engineering)

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

PART-A

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

1. a) Explain about umount command?
   b) Explain about mkdir command?
   c) Define shell?
   d) Define pipe?
   e) List three unix system calls?
   f) Differentiate dup and dup2?
   g) Define process?
   h) Give the system call which is used for child process creation?
   i) Define IPC?
   j) Explain the functionality of shared memory?

PART-B

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

2. a) What are the three modes of vi editor? explain   **6M**
   b) How to search for a pattern using grep? What are the options used by grep?   **6M**
   (OR)
3. a) Explain about process utilities?   **6M**
   b) Write a shell script to list all the duplicate files from Existing Directory?   **6M**

UNIT-II

4. Explain about shell control structures with an example?

                                                      12M
                (OR)

5. What is a shell programming? Write a shell program that performs the   **12M** following operations**?**
   - Clear the screen
   - Print the current directory?
   - Display current login users?

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UNIT-III

6. a) Write down the characteristics of UNIX file system?   **6M**
    b) Programmatically explain the fflush, fgetc and fstat system calls?   **6M**

(OR)

7. a) Explain about file system calls?   **6M**
    b) Explain about library functions?   **6M**

UNIT-IV

8. a) What is meant by a process? Explain any four process related system calls   **12M**
       with syntax.

(OR)

9. a) Write in detail about the interrupted system calls.   **6M**
    b) Write about the kill and raise functions   **6M**

UNIT-V

10.   Write a program and explain how to transfer a large amount of data   **12M**
      between two processes using
         (a) Pipes
         (b) Message queues.

(OR)

11. a) List the applications of IPC?   **4M**
    b) Define the following terms?   **8M**
       Semaphore, pipe, Inter process communication, process pipe,
       Message queue and named pipe

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