K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.Tech. IV Semester (CSE) (R18) Degree Examinations
(1805403) COMPUTER ORGANIZATION
Model Question Paper

Max.Time: 3Hrs   **Max.Marks:70**
Note: Answer One Question from Each Unit
          All Questions Carry Equal Marks

UNIT-I

1. a) Explain about various functional units of a computer with its block diagram. (7M)
   b) Write short notes on the following
        i) Basic performance equation   (3M)   ii)   Computer Types (4M)

(OR)

2. a) Explain about Fixed point representation in detail.   (7M)
   b) Discuss about Floating point addition and subtraction with suitable example.(7M)

UNIT-II

3. a) Design a 4-bit adder/subtractor using full adder and explain its function. (7M)
   b) Discuss about shift micro operations.   (7M)
(OR)
4. Explain in detail about arithmetic logic shift unit with its neat diagram.   (14M)

UNIT-III

5. a)   Discuss various Memory Reference Instructions.   (7M)
   b)   What is addressing mode? Briefly explain various addressing modes.   (7M)

(OR)
6. a) Explain the design of Hardwired control unit.   (7M)
   b) Draw the flowchart for Restoring division algorithm and explain with example.
                                                                               (7M)
UNIT-IV

7. a)   Discuss about parallel processing.   (7M)
   b)   What is pipelining? Discuss about arithmetic pipeline.   (7M)
(OR)
8. What is "Cache Memory"? Explain about various mapping procedures.   (14M)

UNIT-V

9. Discuss the following.
        i)   Handshaking (6M)   ii) DMA Transfer (8M)
(OR)
10. Discuss about various interconnection structures in detail.   (14M)

K.S.R.M.COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA

B.Tech. IV Semester (CSE) (R18) Degree Examinations

(1805404) OPERATING SYSTEMS

Max. Time: 3Hrs   **Max.Marks: 30**

Note: Answer any **FIVE** questions choosing ONE question from each unit.
All questions carry **Equal** marks.

UNIT I

1. a) Define operating system. Explain the various functions of operating systems.
(7M)
    b) What is system program? List and explain the various categories of system programs. (7M)

(OR)

2. a) List and explain the various services of operating system. (7M)
    b) Describe any two structures of operating systems. (7M)

UNIT II

3. a) What is process? Explain the various states associated with process and explain the process state diagram. (7M)
    b) What is critical section? Write Peterson's solution for critical section problem.

(OR)

4. Explain FCFS and Round Robin scheduling algorithms. (14M)
Find the average waiting time and average turn around time for a process, if the following processes are scheduling using FCFS and round robin scheduling algorithms. Time quantum is 1 msec.

Process	burst time
P1	10
P2	1
P3	2
P4	1
P5	5

UNIT III

5. Explain the following contiguous memory allocation methods with examples
(14 M)
    (i)   Multiprogramming with Fixed Partitions (MFT)
    (ii)   Multiprogramming with variable sized partitions. (MVT)

(OR)

6. Explain FIFO, OPR and LRU page replacement algorithms. (14M)
Consider page reference string
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

and 3 frames in main memory. Find the number of page faults for the page replacement algorithms FIFO, OPR and LRU.

UNIT IV

7. (a) Define deadlock. List and explain the four conditions for occurring a deadlock in the system. (4M)
    (b) Explain the deadlock avoidance with the help of Banker's algorithm. (10M)
(OR)
8. (a) Explain different file accessing methods. (7M)
    (b) What is a directory? Explain different directory structures. (7M)

UNIT V

9. (a) Explain about access matrix. (7M)
    (b) Explain any two techniques for implementing access matrix. (7M)
(OR)
What is user authentication? Explain the various approaches for user authentication.
(14M)

K.S.R.M.COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA
B.TECH IV SEM (CSE) (R18) EXAMINATION
(1805406) JAVA PROGRAMMING
Model Question Paper

Time: 3 Hrs   **Marks: 70**

Note: Answer any FIVE questions choosing one question from each unit
       All questions carry Equal Marks

UNIT -I

1. a) Write briefly about OOP concepts.   10 M
    b) Write about access control in java.   4 M

OR

2. a) Explain Overloading methods in Java with example program.   7 M
    b) Write briefly about Java buzzwords.   7 M

UNIT -II

3. Explain different types of inheritance in Java with one example each   14 M

OR

4. a) Explain the differences between classes and interfaces with examples.   7 M
    b) Explain about creating and accessing a package with one example.   7 M

UNIT- III

5. a) Explain the process of Exception Handling in java.   7 M
    b) Explain user-defined exceptions with example program.   7 M

OR

6. a) Explain Thread Life cycle.   7 M
    b) Explain about multithreading concept in java with example program.   7 M

UNIT -IV

7. a) Write about Mouse and Keyboard events in java.   7 M
    b) Explain button and text components in java.   7 M

OR

8. Write about Layout manager types in java.   14 M

UNIT- V

9. a) What is an applet? Explain in detail about applet life cycle with suitable diagram. 10 M
    b) Write an applet program draw circle and rectangle filled with red color.   4 M

OR

10. a) Write about JFrames and JComponents in swings.   7 M
    b) Explain Checkboxes and Radio button in swings with example program.   7 M

Max.Time: 3Hrs   Max.Marks:70

Note: Answer One Question from Each Unit
         All Questions Carry Equal Marks

UNIT-I

1. a) Define NFA ? Give state diagram of NFA with specified number of states recognizing the given language {w/w ends with 00} with three states over the input {0,1}.

   (7M)

   b) Explain the procedure of minimization of Finite state machine with example.

   (7M)

(OR)

2. a) Elaborate the procedure to convert NFA to DFA with suitable example.   (7M)
   b) What are the differences   between   NFA and DFA?   (7M)

UNIT-II

3. a) Explain the procedure for converting   Regular Expression to Finite Automata with suitable example.   (7M)
   b) Construct NFA for the regular expression (a+b)*aa(b+a)*.   (7M)

(OR)

4. a) State and Prove Arden's theorem.   (7M)
   b) Construct NFA for regular expression (11+0)*(00+1)*   (7M)

UNIT-III

5. Define the following
    a) I) Left most derivation   ii)Right most derivation
        iii) Derivation tree   iv) Ambiguous grammar   (8M)

    b) Write the procedure for Eliminating Unit productions in the given grammar. (6M)

(OR)

6. Explain the procedure of converting the given CFG to Greibach Norma l Form(GNF) with suitable example.   (10M)

UNIT-IV

7. a) Define PDA. Design a PDA for equal number of a's and b's.   (7M)
   b) Convert the following CFG to a PDA.
       S →aAA , S→aS/bS/a   (7M)

(OR)

8. a) Design a Pushdown Automata which accepts L={wcw^r/wE(0+1)*.   (7M)
   b) Explain about Two Stack PDA.   (7M)

UNIT-V

9. a) Give the formal definition of TM? What are the different types of TM's? Explain. (7M)

   b) Explain about undecidable problem.   (7M)

(OR)

10. a) Design a Turing Machine to find whether the given number is prime or not. (7M)

    b) Explain Church's Hypothesis with suitable example.   (7M)

K.S.R.M. COLLEGE OF ENGINEERING (Autonomous), KADAPA.
Model Question paper
B.Tech IV Sem (R18)
Mathematics – III
(EEE Branch)

Time: 3 Hrs.   Max Marks : 70

Note :   Answer any **FIVE** questions by choosing one from each unit.
        All questions carry equal marks.

UNIT - I

1   Prove that   (i) $J_n(x) = \frac{x}{2n}\left[J_{n-1}(x) + J_{n+1}(x)\right]$ (7M)

   (ii) $J_n^1(x) = \frac{n}{x}J_n(x) - J_{n+1}(x)$ (7M)

(OR)

2   State and prove Rodrigue's formula.   (14M)

UNIT – II

3   Prove that the function $f(z)$ defined by $f(z) = \frac{x^3(1+i)-y^3(1-i)}{x^2+y^2}$, $z \neq 0$ and $f(0) = 0$ is continuous
   and Cauchy – Riemann equations are satisfied at the origin, yet $f'(0)$ does not exist.   (14M)

(OR)

4   Determine the analytic function $f(z) = u + iv$, if $u - v = \frac{\cos x + \sin x - e^{-y}}{2(\cos x - \cos hy)}$ and $f\left(\frac{\pi}{2}\right) = 0$. (14M)

UNIT – III

5.   Find the bilinear transformation which maps the points z=1, i, -1 onto the points w= i, 0, -i.
    Hence find the invariant points of this transformation.   (14M)

(OR)

6.   Discuss the transformation $w = e^z$.

UNIT – IV

7   a) Evaluate $\int_0^{2+i}(\bar{z})^2\,dz$, along the line $y = \frac{x}{2}$.   (7M)

   b) Evaluate , using Cauchy's Integral Formula $\oint_c \frac{\sin\pi z^2 + \cos\pi z^2}{(z-1)(z-2)}\,dz$ where c is the circle $|z| = 3$.

(OR)

8   Evaluate $\oint_c \frac{e^z}{(z^2+\pi^2)^2}\,dz$, where c is the circle $|z| = 4$ (14M)

UNIT – V

9. a) State and prove Cauchy's residue theorem   (7M)

   b) Evaluate $\oint_c \tan z\,dz$ where 'c' is the circle $|z| = 2$ (7M)

(OR)

10. Show that $\int_0^{2\pi} \frac{\cos 2\theta\,d\theta}{1-2a\cos\theta+a^2} = \frac{2\pi a^2}{1-a^2}$, $a^2 < 1$ (14M)

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

Note: Answer any **FIVE** questions by choosing **ONE** from each unit.
      All questions carry equal marks.

Unit-I

1. A random variable X has the following probability function

$X = x$	0	1	2	3	4	5	6	7
$P(X = x)$	0	k	2k	2k	3k	k^2	$2k^2$	$7k^2+k$

   Determine $(i)\ k\ (ii)\ P(X < 6)\ (iii)\ P(X \geq 6)\ (iv)\ P(0 < X < 5)\ (v) If\ P(X \leq k) > \frac{1}{2}$,
   find the minimum of k (vi) mean (vii) variance.   (14M)

(OR)

2. (a) If X is a continuous random variable and k is a constant then prove that
       var (X+k) = var (X).   (7M)
   (b) Probability density function of a random variable X is
   $f(x) = \begin{cases} \frac{1}{2}sinx, for\ 0 \leq x \leq \pi \\ 0, otherwise \end{cases}$. Find the mean and median of the distribution.   (7M)

Unit-II

3. (a) Assume that 50% of all engineering students are good in Mathematics. Determine the
       probabilities that among 18 engineering students (i) atleast 10 (ii) atmost 8 (iii) atleast 2 and
       atmost 9 are good in Mathematics.   (7M)
   (b) Fit a Poisson distribution for the following distribution:

x	0	1	2	3	4
f	122	60	15	2	1

(7M)

(OR)

4. (a) 4 buses arrive at a specified stop at 15 minute intervals starting at 7 a.m. That is, they
       arrive at 7.00, 7.15, 7.30, 7.45 a.m. and so on. If a passenger arrives at the stop at a time
       that is uniformly distributed between 7.00 and 7.30 a.m., find the probability that he waits
       (i) less than 5 minutes for a bus (ii) more than 10 minutes for a bus.   (7M)
   (b) In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find the
       mean and standard deviation of the distribution.   (7M)

Unit-III

5. (a) The mean breaking strength of the cables supplied by a manufacturer is 1800 with a S.D
       of 100. By a new technique in the manufacturing process, it is claimed that the breaking
       strength of the cables have increased. In order to test this claim, a sample of 50 cables is
       tested. It is found that the mean breaking strength is 1850.Can we support that the claim at 1%
       level of significance.   (7M)
   (b) Random samples of 400 men and 600 women were asked whether they would like to
       have   a fly over near their residence. 200 men and 325 women were in favour of the
       proposal. Test the hypothesis that proportions of men and women in favour of the
       proposal are same at 5% level. (7M)

(OR)

6. (a) The average marks scored by 32 boys are 72 with a standard deviation of 8, while that for 36 girls is 70 with a standard deviation of 6. Test at 1% LOS whether the boys perform better than girls.   (7M)

   (b) In a sample of 1000 people in Karnataka 540 are rice eaters and the rest are wheat eaters. Can we assume that both rice and wheat are equally popular in this state at 1% level of significance.   (7M)

Unit-IV

7. From the following data, find whether there is any significant liking in the habit of taking soft drinks among the categories of employees.   (14M)

Employees / Soft Drinks	Clerks	Teachers	Officers
Pepsi	10	25	65
Thumsup	15	30	65
Fanta	50	60	30

(OR)

8. (a) Two random samples drawn from two normal populations are given below:

x	19	17	26	28	22	23	19	24	26			
y	28	32	40	37	30	35	40	28	41	45	30	36

Obtain the estimates of variance of the population and test whether the two populations have the same variance.   (7M)

   (b) The following data represent the biological values of protein from cow's milk and buffalo's milk at a certain level.

Cow's milk	1.82	2.02	1.88	1.61	1.81	1.54
Buffalo's milk	2.00	1.83	1.86	2.03	2.19	1.88

Examine if the average values of protein in the two samples significantly differ. (7M)

Unit-V

9. Each telephone call is consider a product and the time to answer the call indicates the quality of service. Five calls chosen at random and times recorded at a busy hour. Results for the last 10 hours shown below (in seconds).

Sample No	1	2	3	4	5	6	7	8	9	10
Mean	20	34	45	39	26	29	13	34	37	23
Range	13	9	15	5	20	17	21	11	10	10

Construct $\bar{X}$ and R charts and determine whether the product is under control.   (14M)

(OR)

10. (a) An inspection of 10 samples of size 400 each from 10 lots revealed the following defective units.

Sample no	1	2	3	4	5	6	7	8	9	10
No of defective units	17	15	14	26	9	4	19	12	9	15

Calculate the control limits for the number of defective units. Plot the control limits and the observations and state whether the process is under control or not.   (7M)

(b) 15 tape-recorders were examined for quality control test. The number of defects in each tape-recorder is recorded below. Draw the appropriate control chart and comment on the state of control. (7M)

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No .of defects	2	4	3	1	1	2	5	3	6	7	3	1	4	2	1

Q.P. Code: 1823401

K.S.R.M. COLLEGE OF ENGINEERING(AUTONOMOUS) :: KADAPA

B.TECH – IV SEMESTER(R-18) REGULAR EXAMINATION OF APRIL/MAY 2020
SUB: BIOLOGY FOR ENGINEERS
(Common to CSE & ECE)

<u>Time: 3:00 Hours</u>   Max.Marks:70

ANSWER ONE QUESTION FROM EACH UNIT
ALL QUESTIONS CARRY EQUAL MARKS

			Marks	CO	BL
		UNIT –I			
1	a.	Discuss the structure of a cell in detail	7	CO2	L2
	b.	Illustrate the different types of plant tissues	7	CO3	L3
		(OR)			
2	a.	Describe the process of cell cycle	7	CO2	L2
	b.	What are the parts and functions of animal cell? Explain.	7	CO3	L3
		UNIT –II			
3	a.	What are carbohydrates? Discuss its broad classification.	7	CO4	L4
	b.	Explain the double helix structure of DNA with a neat diagram.	7	CO4	L4
		(OR)			
4	a.	State the structure of proteins.	7	CO4	L2
	b.	Define enzymes and state its applications in industry.	7	CO4	L2
		UNIT –III			
5	a.	Elaborate the different classes of nutrients and their deficiency diseases.	7	CO5	L3
	b.	Distinguish between aerobic and anaerobic respiration.	7	CO2	L2
		(OR)			
6	a.	Discuss about the human physiology of excretory system.	7	CO3	L3
	b.	Examine the steps involved in physiology of human digestive system.	7	CO2	L5
		UNIT –IV			
7	a.	Describe the structure of prokaryotic gene.	7	CO3	L3
	b.	Outline the recombinant DNA technology.	7	CO4	L4
		(OR)			
8	a.	Explain the process of replication of DNA	7	CO4	L4
	b.	Describe the steps involved in the process of transcription in eukaryotes	7	CO3	L3
		UNIT –V			
9	a.	What are the different types of antibodies? Discuss its role in immunity.	7	CO4	L4
	b.	State the advantages and disadvantages of transgenic plants and animals.	7	CO4	L5
		(OR)			
10	a.	'Cloning in plants, animals and microbes is a boon or curse?' Comment on this statement.	7	CO4	L4
	b.	Explain the basic principles and applications of biosensors.	7	CO4	L3

Time : 3Hrs.   Max.Marks : 70

*Answer any **Five** Questions choosing one question from each unit.

* All Questions carry Equal marks.

UNIT – I

1) Define Managerial economics. Explain its Nature and Scope ?   14M

(or)

2) a) Measurement of Elasticity of demand   7M

   b) Explain statistical methods in demand fore costing   7M

UNIT – II

3) a) What are ISOQUANTS and ISOCOST ?   7M

   b) What are the Internal economics of scale ?   7M

(or)

4) What is cost Analysis ? Explain in detail about fixed, variable and Marginal cost. 14M

UNIT – III

5) What is perfect competition ? How the price determined under condition of perfect competition ?

                                                                                                                    14M

(or)

6) Write about pricing and method of pricing.   14M

UNIT – IV

7) What are the merits and demerits of sole proprietor ship ?   14M

(or)

8) a) What are the Capital budgeting methods ?   4M

   b) A CO. is considering to invest into a project that cost of 50,000/-. The project is likely to
   generate the following expected CFs.   10M

Years.	1	2	3	4	5
CF's(.000)	10,000	10,000	15,000	15,000	20,000

UNIT – V

9) a) Define Double entry bookkeeping ? write detail advantages   4M

   b) Enter the following transactions in the journal of kumar swamy.   10M

Year/ days.	Particulars	Rs,,
2009 March 1.	Commenced business with cash	28,000
2.	Brought goods for cash	18,000
3.	Paid wages	200
5.	Paid for stationary	100
8.	Purchase goods from Rama	16,000
9.	Goods returned to Rama	1,500
11.	Goods sold to Bhaskar	4,000
16.	Received cash from Bhanu	4,000

(or)

10)   What are important Ratios ? Explain any five of them with examples.   14M