SE - IT - OLD 23/5/14
Sem - IV - MPMC

(OLD COURSE) **QP Code : MV-18852**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No.**1** is **compulsory.**
(2) **Solve** any **four** questions of the remaining.

1. Design an 8086 based up system with specifications - **20**
   8086 working with 8 MHz
   64K RAM using 62256 dip
   64 K EPROM using 27256 dip
   2 - 16 bit 1/0 port in handshake mode.
   Draw -
   (i) Memory map and 1/0
   (ii) Interfacing design
   (iii) Explain the concept of absolute decoding and the system design.

2. (a) Explain the various parameter instructions passing techniques to a procedure using examples. **10**
   (b) Explain JUMP and CALL instructions of 8051 micro controller with examples. Also explain the different types of CALLS with an example. **10**

3. (a) Explain timer counter of 8051. **10**
   (b) Explain hardware and software interrupts of 8051 μC in detail. **10**

4. (a) Write an assembly language program for 8086 μp to check whether the given alplanumeric string is an PALINDROME. **10**
   (b) Explain what is meant by segmentation and hence explain the logical and physical address of 8086. **10**

5. (a) Explain the addressing modes of 8086 μp with examples. **10**
   (b) Explain the instructions of 8086 with examples - DAA, INTO, JS, DAS. **10**

6. (a) Explain 8051 register banks and stack. **10**
   (b) Explain the interfacing of 8051 with 8255 PPI. **10**

7. Write short notes on (any **two**) :– **20**
   (a) Mixed language programming with example.
   (b) Comparison between minimum and maximum mode of 8086.
   (c) Assembles directives.

S.E. IT sem IV (old) M-14
Sub:— CM 19/5/14

(OLD COURSE) QP Code : **MV-18813**

(3 Hours) **[Total Marks : 100**

N.B. (1) Question no. **1** is **compulsory.**
(2) Attempt any **four** questions out of remaining **six** questions.
(3) **Use** of statistical table is **permitted.**

1. (a) Find a root $xe^x - 2 = 0$ by Newton's Ramphson's method correct to three decimal places. **5**
(b) A box contains n ticket 1, 2, ... n if m ticket are drawn at random from box what is expectation of sum of number on ticket drawn. **5**
(c) The life time of a certain brand of electric bulb may be considered a random variable with mean 1200 hrs and standard deviation 250 hrs. Using central limit theorem find probability that average lifetime of 60 bulbs exceeds 1250 hrs. **5**
(d) Find all basic feasible solution of following system of equation **5**

$$\text{Max} \quad Z = x_1 + 3x_2 + 3x_3$$
$$\text{Subject to} \quad x_1 + 2x_2 + 3x_3 = 4$$
$$2x_1 + 3x_2 + 5x_3 = 7$$

2. (a) Calculate value of $\int_{0.2}^{1.4} \left(\sin x - \log_e^x + e^x\right)$ by Simpson's $\frac{3}{8}$ th rule. **6**
(b) In a sampling of lagre number of parts produced by a machine the mean number of defectives in a sample of 20 is 2. Out of 1000 such sample, how many sample would you except to contain at least 3 defectives. **6**
(c) Solve the following LPP by simplex method. **8**

$$\min \quad z = x_1 - 3x_2 + 3x_3$$
$$\text{subject to} \quad 3x_1 - x_2 + 2x_3 \leq 7$$
$$2x_1 + 4x_2 \geq -12$$
$$-4x_1 + 3x_2 + 8x_3 \leq 10$$
$$x_1, x_2, x_3 \geq 0$$

3. (a) Apply Gauss Jordon method to solve equations : **6**

$$x + y + z = 9$$
$$2x - 3y + 4z = 13$$
$$3x + 4y + 5z = 40.$$

(b) Find f (9) from : **6**

x :	5	7	11	13	17
y :	150	392	1452	2366	5202

(c) Find r and R from following table : **8**

x :	12	17	22	27	32
y :	113	119	117	115	121

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4. (a) If mean of following distribution is 16. Find m and n and variance. 6

X :	8	12	16	20	24
p (x) :	$\frac{1}{8}$	m	n	$\frac{1}{4}$	$\frac{1}{12}$

(b) Fit a poisson distribution of following data. 6

No. of deaths :	0	1	2	3	4
frequencies :	123	59	14	3	1

(c) Based on following data determine if there is relation between literacy and smoking. 8

	Smokers	Non Smokers
Literates	83	57
Illitrates	45	68

5. (a) In a distribution exactly normal 7 % of items are under 35 and 89 % under 63. What are mean and standard deviation ? 6

(b) Find f (4.4) from following table : 6

X :	0	2	4	6	8	10	12
f (x) :	12	7	6	7	13	32	77

(c) Given the following distribution : 8

X :	-3	-2	-1	0	1	2
p (x) :	0.01	0.1	0.2	0.3	0.2	0.15

Find (i) P ($x \geq 1$) (ii) P ($x < o$) (iii) E (x) (iv) V (x).

6. (a) If a random variable x follows Poisson distrubution such that 6
$P(x = 2) = 9\,P(x = 4) + 90\,P(x = 6)$. Find mean and variance of x.

(b) A certain injection administered to 12 patients resulted in following change of 6
blood pressure.

5, 2, 8, -1, 3, 0, 6, -2, 1, 5, 0, 4

Can it be conducted that injection will be general accompained by an increase in blood pressure.

(c) A continuous random variable has P.D.F. 8

$f(x) = 6(x - x^2) \quad 0 \leq x \leq 1$

Find (i) mean (ii) variance (iii) $P(|x - m| < \sigma)$ (iv) $P(\mu - 2\sigma < x < \mu + 2\sigma)$.

7. (a) The average of marks scored by 32 boys is 72 with standard deviation 8 while that of 36 girls is 70 with standard deviation 6. Test at 5 % LOS whether boys perform better than girls. 6

(b) The regression lines of smaple $x + 6y = 6$ and $3x + 2y = 10$ find 6
(i) Sample mean $\overline{X}$ and $\overline{Y}$ (ii) Coefficient of correlation between x and y also estimate y when x = 12.

(c) Fit a second degree parabolic curve of the following data and estimate production in 1982. 8

Year X :	1974	1975	1976	1977	1978	1979	1980	1981
Production Y :	12	14	26	42	40	50	52	53