

(OLD COURSE)

QP Code :14321

(3 Hours)

[Total Marks : 100

- N.B.:** (1) Question No. 1 is compulsory.
(2) Attempt any four from remaining.
(3) Use of statistical table is permitted.

1. (a) Find all basic feasible solution of the following system of equation 5

$$\begin{aligned} \text{Maximise } z &= x_1 - 2x_2 + 4x_3 \\ \text{Subject to } x_1 + 2x_2 + 3x_3 &= 7 \\ 3x_1 + 4x_2 + 6x_3 &= 15 \end{aligned}$$

- (b) Find a root $2x^3 - 3x + 4 = 0$ by Newton's Raphson's method correct to four decimal places. 5

- (c) With usual notation find p of Binomial distribution if $n = 6$, $9P(x = 4) = P(x = 2)$ 5

- (d) A distribution has unknown mean μ and variance 1.5, using central limit theorem find the size of the sample such that the probability that difference between sample mean and the population mean will be less than 0.5 is 0.95. 5

- 2 (a) Evaluate $\int_0^{\pi/2} \sqrt{\sin x + \cos x} dx$ by simpson's $(\frac{3}{8})^{\text{th}}$ rule by dividing the interval 6

into six intervals.

- (b) A discrete random variable has p.d.f. given below. 6

X	-2	-1	0	1	2	3
P(X = x)	0.2	k	0.1	2k	0.1	2k

Find k, mean, variance.

- (c) Solve the L.P.P. by Simplex Method 8

$$\begin{aligned} \text{Maximise } z &= 5x_1 + 4x_2 \\ \text{Subject to } 6x_1 + 4x_2 &\leq 24 \\ x_1 + 2x_2 &\leq 6 \\ -x_1 + x_2 &\leq 1 \\ x_2 &\leq 2 \\ x_1, x_2 &\geq 0 \end{aligned}$$

3. (a) By Gauss Jordan method

6

$$\text{Solve } x+2y+6z = 22$$

$$3x+4y+z = 26$$

$$6x-y-z = 19$$

(b) If $f(1) = 4$, $f(2) = 4$, $f(7) = 5$ and $f(8) = 4$. Find $f(5)$ using Lagranges Interpolation formula.

6

(c) Investigate the association between the darkness of eye colour in father and son from the following data.

8

Colour of father's eyes

	Dark	Not dark	Total
Dark	48	90	138
Not dark	80	782	862
Total	128	872	1000

4. (a) Find the probability that atmost 4 defective bulbs will be found in a box of 200 bulbs if it is known that 2 percent of the bulbs are defective.

6

(Given $e^{-4} = 0.0183$).

(b) Find the missing terms

6

x	1	2	3	4	5	6	7	8
y	2	4	8	-	32	-	128	256

(c) Find r and R from the following table -

8

x	10	12	18	18	15	40
y	12	18	25	25	50	25

5. (a) In a distribution exactly 7% of items are under 35 and 89% of the items are under 63. Find the probability that an item selected at random lies between 45 and 56.

6

(b) Using Gauss Seidal Iteration Method

6

$$\text{Solve } 27x + 6y - z = 85$$

$$6x + 15y + 2z = 72$$

$$x + y + 54z = 110$$

(c) The regression lines of a sample are $x + by = 6$ and $3x + 2y = 10$

8

Find (i) Sample means \bar{x} and \bar{y}

(ii) Co-efficient of correlation between x and y. Also estimate y when $x=12$.

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6. (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 1% level of significance whether the boys perform better than the girls. 6
- (b) A certain injection administered to 12 patients resulted in the following change of blood pressure 5, 2, 8, -1, 3, 0, 6, -2, 1, 5, 0, 4 can it be conducted that injection will be general accompanied by an increase in blood pressure. 6
- (c) Fit a parabola. Also estimate profit for 1973 8

Year(x)	1965	1966	1967	1968	1969	1970	1971	1972
Profit y	125	140	165	195	200	215	220	230

7. (a) Fit a binomial distribution 6

x	0	1	2	3	4	5	6
f	5	18	28	12	7	6	4

- (b) Samples of two types of electric bulbs were tested for length of life and the following data were obtained. 6

	Type I	Type II
No. of samples	8	7
Mean of samples (in hours)	1134	1024
Standard deviation	35	40

Test 5% level of significance whether difference in the sample means is significant.

- (c) A continuous random variable x has probability distribution 8

$$f(x) = \frac{4}{81} x(9-x^2) \text{ when } 0 \leq x \leq 3$$

$$\text{and } f(x) = 0 \text{ otherwise}$$

Find First four moments about origin and the mean.

S. E. IT. Sem IV (old)

UP- MPMC

27/11/14

(OLD COURSE)

QP Code : 14360

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is compulsory
(2) Solve any **four** of the remaining Questions
(3) Assume suitable **data** and address if **necessary**
(4) **Figures** to the **right** indicate **full marks**

1. Explain in detail the architecture of 8086 microprocessor along with its maximum and minimum mode of operation 20
 2. (A) Explain TIMER/COUNTERs of IC 8051 10
(B) Explain the interrupt structure of IC 8051 10
 3. (A) Explain Harvard architecture and pipelining 10
(B) Write a detail note along with examples on Mixed Language Programming 10
 4. (A) Explain the register file structure of stack of PIC Microcontroller 10
(B) Explain in detail Segmented Memory; describe its Advantages & Disadvantages 10
 5. Write a short note on following :-
 - (A) Assembly Directives 7
 - (B) Methods of passing parameters 7
 - (C) Differentiate between 6
 - (a) Procedures and Macros

OR

 - (b) Compare- RISC vs. CISC
 6. Write a brief note along with the relevant diagram and program on following-
 - (A) Interface 4 X 4 key pad with IC 8051 10
 - (B) Interface DAC with IC 8051 to generate triangular wave 10
 7. Write a short note on following :-
 - (A) Clock Generator IC 8284 6
 - (B) Modes of 8255 PPI 6
 - (C) Timer mode register 8
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(OLD COURSE)

QP Code : 14406

(3 Hours)

[Total Marks : 100

N. B. : (1) Question No.1 is **compulsory**.
(2) Attempt any **four** questions from remaining **six** questions.

1. (a) How to close a browser window with HTML code? 4
(b) How does user include images in web page? 4
(c) List down the ways of including style information in a document. 4
(d) List down the font characteristics permitted in style sheets. 4
(e) What are the advantages of Client and Server Side Scripting. 4

2. (a) Write a Program to illustrate any one of the objects in the DOM. 10
(b) Write an HTML program for the registration of new customer to the Online Banking System 10

3. (a) How XML used in Web 2.0 5
(b) Differentiate between Web site and the Web Services 5
(c) Differentiate between HTTP GET and HTTP POST method. 5
(d) Explain Three tier Architecture 5

4. (a) Explain different ASP objects 10
(b) Write a note on a) Servlet interface b) ServletCoding Interface c) HTTP Servlet Interface 10

5. (a) What is Session Tracking? Why it is essential for E-commerce web site? Explain in detail about the role of cookies with a example. 10
(b) Write a note on URL and working of DNS 10

6. (a) How is a JSP request processed by the web browser? Explain with the diagram. 10
(b) Explain JDBC API and JDBC drivers in detail 10

7. (a) Write a short note on :- 20
(a) CSS
(b) HTML Request and HTML Response
(c) HTTP 1.0 vs HTTP 1.1
(d) SET

N.B. (1) Question No .1 is compulsory.

(2) Attempt any **four** questions out of the remaining **six** questions.

(3) **Figures** to the **right** indicate **full** marks.

(4) Assume suitable data if **necessary**.

1. Answer the following questions: – 20
 - (a) Compare Amplitude Modulation and Frequency Modulation.
 - (b) Prove Time convolution Property of Fourier transform.
 - (c) Explain pre-emphasis and de-emphasis in Frequency modulation.
 - (d) Draw and explain the basic block diagram of communication system.

2. (a) State and prove sampling theorem for low pass signals. 10
 (b) Derive Mathematical expression for Frequency Modulated Wave and its modulation index. 10

3. (a) Draw and explain block diagram of Adaptive Delta modulation. 10
 (b) What is Multiplexing in Communication System ? Draw the block diagram of TDM-PCM system and explain each block. 10

4. (a) Draw the block diagram of AM super heterodyne receiver and explain each block with suitable waveforms. 10
 (b) Compare ASK, FSK and PSK digital transmission methods. 10

5. (a) Explain the side band generations in SSB using phase Shift method. 10
 (b) Explain the following with reference to Radio receivers. 10
 - (i) Sensitivity
 - (ii) Selectivity
 - (iii) Fidelity
 - (iv) Dynamic range.

6. (a) Draw and explain the block diagram of Pulse Code Modulation (PCM). 10
 (b) A FM signal is given by- 10

$$V_{FM} = 10 \sin [5 \times 10^8 t + 4 \sin 1250 t]$$
 Find :
 - (i) Carrier and modulating frequencies
 - (ii) Modulation index and maximum deviation.
 - (iii) The Power dissipated by this FM wave in a 5Ω resistor.

7. Write short notes on the following : 20
 - (a) Noise figure and Noise factor
 - (b) Optical fiber communication systems.
 - (c) Balanced Modulator.
 - (d) FM noise triangle.

QP Code : 14480

(OLD COURSE)

(3 Hours)

[Total Marks : 100]

- N.B. : (1) Questions No. 1 is compulsory.
(2) Attempt any four questions out of remaining six questions.

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|---|----|
| 1. (a) What is CORBA? Explain life cycle of CORBA. | 10 |
| (b) Draw and explain IPv4 format. | 10 |
| 2. (a) Explain Token bus and token ring protocol. | 10 |
| (b) What is routing in network? Explain shortest path routing protocol. | 10 |
| 3. (a) Explain the different classes of IP addresses and need of subnetting with the help of example. | 10 |
| (b) Explain the TCP congestion control with the help of example. | 10 |
| 4. (a) A. Explain the SNMPv1 | 10 |
| (b) Explain the types of services in ATM. | 10 |
| 5. (a) Explain narrowband ISDN | 10 |
| (b) Compare OSI reference model and TCP/IP reference model. | 10 |
| 6. (a) Explain in different distributed computing system models. | 10 |
| (b) Explain the different transmission media in networking. | 10 |
| 7. Write short notes on the following :- | 20 |
| (a) Network management. | |
| (b) DNS | |
| (c) QPSK | |
| (d) Hub, Switches and Bridges. | |
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SE (17) sem IV (old)

19/12/2017

19/12/2017

QP Code : **14517**

(OLD COURSE)

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is compulsory.
(2) Attempt any **four** questions out of remaining **six** questions.
(3) Assume suitable **data** wherever **required**.

1. (a) Explain the following in brief :— 10
 - (i) Creative accounting
 - (ii) Annual Report.
- (b) (i) Explain double entry book keeping with suitable examples. 10
(ii) Explain how new product development is managed.
2. Discuss the following :— 20
 - (a) Budgeting as planning measure
 - (b) Types of accounts
 - (c) Opening and closing balance
 - (d) Entrepreneurship and innovation.
3. (a) Explain impact of technology on National Economy. 20
(b) Define and explain the features of profit and loss account, balance sheet and cashflow statement.
4. (a) Discuss Frogg's process of implementing innovation strategy. 20
(b) Describe Standard Cost Sheet.
5. (a) Explain S curve model in technology improvement and state its limitations. 20
(b) Discuss effects of technology in growth and development of business organisation.
6. (a) Explain the following :— 10
 - (i) Entrepreneur
 - (ii) Intellectual property
 - (iii) Creation
 - (iv) Ledger
 - (v) Innovation.
- (b) Explain Always Better Control (ABC) and Economic Ordering Quantity (EOQ) techniques of Inventory Control. 10
7. Write short notes on :— 20
 - (a) Partnership and Limited companies
 - (b) Role of technology in wealth creation
 - (c) Discuss "Long waves in Economic Life"
 - (d) Importance of management accounting in competitive environment.