Reg. No. : ....

D 3152

Q.P. Code : [DT 107/
DT 1 C 07]

(For the candidates admitted from 2007 onwards)

U.G. DEGREE EXAMINATION, JUNE 2008.

First Year

பகுதி I — தமிழ்

தாள் — I — செய்யுள் மற்றும் உரைநடை

Time : Three hours

Maximum : 100 marks

எவையேனும் ஐந்து வினாக்களுக்குக் கட்டுரை வடிவில் விடை
தருக.

(5 × 20 = 100)

1.   பாரதியின் கனவு பாரததேசம் கவிதை வழி புலப்படுவதை
விவரி.

2.   பாரதிதாசன் கவிதை உணர்த்தும் நம் நாட்டு நிலை யாது?

3.   ஒப்பிலா சமுதாயத்தின் மாண்புகள் யாவை?

4.   ஆள்வினையுடைமை அதிகாரச் செய்திகளை எழுதுக.

5.   ஆசைகளைச் சீரமைக்க வேண்டியதன் அவசியத்தினை ஆராய்க.

6.   பெரியாரின் சமதர்மக் கொள்கை குறித்து எழுதுக.

7.   சோ.ந. கந்தசாமி கூறும் தமிழர் பண்பாட்டினை விளக்குக.

8.   தியாகமற்ற வழிபாடு - விளக்குக.

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D 3152

Reg. No. : ....

D 3153

Q.P. Code : [DE 107/ DE 1 C 07]

(For the candidates admitted from 2007 onwards)

U.G. DEGREE EXAMINATION, JUNE 2008.

First Year

Part II — English

ENGLISH – I

Time : Three hours   Maximum : 100 marks

Answer any FIVE of the following.

Choose any FIVE out of the eight questions given.

All questions carry equal marks.

$(5 \times 20 = 100)$

Answer the following each in about 400 words.

1.   How did the selfish giant find his way to heaven?

2.   What impressions do you form of Lalajee and Jim Corbett from Corbett's account?

3. How does Mansfield bring out his belief that happiness is the essence of life?

4. Attempt a critical appreciation of Wordsworth's Lucy Gray.

5. Sketch the character of Shylock from your reading of the trial scene.

6. Examine the appropriateness of the title, The Eyes Are not There.

7. Answer any FOUR in about 100 words each.

   (a) Why did the model for Judas Iscariot become increasingly agitated as the portrait developed?

   (b) Describe Midas' second meeting with the stranger.

   (c) How did Matilda fall a victim to her infirmity of telling dreadful lies?

   (d) 'He knelt him at that word'. Account for Peter Gilligan's gesture.

   (e) What is the central theme of The Informer?

   (f) Account for the fear of death of Schatz.

8. Rewrite as directed

(a) We believe him

(Change into (i) Negative and (ii) Question)

(b) She hasn't spoken to me.....

(Complete the sentence with (i) more than two years (ii) last week)

(c) We _____ (walk) to the station when it _____ (begin) to rain

(Fill in the blanks with suitable forms of the verb given in the bracket)

(d) (i) He is a best friend of mine.

(ii) I shall call on him when he will come

(Correct the sentences, if necessary)

(e) (i) They have made my brother the captain.

(ii) Poverty drove him to desperation.

(Change into passive voice)

(f)   "Who has dared to wound you", cried the giant, "tell me, that I may take my big sword and slay him"

(Change into reported speech)

(g)   My   wife   never   agrees _____ me _____ anything

(Fill in the blanks with suitable prepositions)

(h)   He is _____ honourable man

He is _____ one-eyed beggar I told you about

(Fill in the blanks with suitable articles, if necessary)

(i)   Give the verb forms from which the following nouns have been derived :

Foundation, Service, Reception, Success.

(j)   Give the adjectival forms of the following :

Marvel, Wonder, Spectacle, Sorrow.

_____

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√

Reg. No. : ....

D 3012 Q.P. Code : [07 DIT 01]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Information Technology (SDE)

Allied I — MATHEMATICAL FOUNDATIONS FOR
COMPUTER SCIENCE

Time : Three hours Maximum : 100 marks

Answer any FIVE questions.

1. (a) Evaluate :

$$\begin{vmatrix} 1+a_1 & a_2 & a_3 & a_4 \\ a_1 & 1+a_2 & a_3 & a_4 \\ a_1 & a_2 & 1+a_3 & a_4 \\ a_1 & a_2 & a_3 & 1+a_4 \end{vmatrix}$$
(10)

(b) Solve the equation

$$\begin{vmatrix} x-4 & x+1 & x-2 \\ x+1 & x-5 & x-1 \\ x-2 & x+3 & x-6 \end{vmatrix} = 0$$
(10)

2. (a) Define the rank of a matrix. (2)

    (b) Find the rank of the matrix. (8)

$$\begin{bmatrix} 1 & 1 & -1 & 1 \\ 1 & -1 & 2 & -1 \\ 3 & 1 & 0 & 1 \end{bmatrix}$$

    (c) Show that

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix}$$ (10)

    satisfies the equation $A^3 - 23A - 40I = 0$.

    Hence find A^{-1}

3. (a) Prove that union of sets and intersection of sets are associative. (10)

    (b) Write De Morgan's laws. (2)

    (c) Prove De Morgan's laws using Venn diagram. (8)

4. (a) What is tautology? Contradiction? (4)

    (b) Construct the truth table for each of the following formulae. Which of the formulae are tautologies? (16)

    (i) $(p \to q) \to (\neg q \to \neg p)$
    (ii) $(p \to q) \to (q \to p)$
    (iii) $(p \land (p \leftrightarrow q)) \to q$
    (iv) $p \to (p \lor q)$.

2

D 3012

5. (a) Show that

$$(\forall x)(P(x) \lor Q(x)) \Rightarrow (\forall x) P(x) \lor (\exists x) Q(x)$$

(10)

(b) Is the following conclusion validly derivable from the premises given?

If $(\forall x)(P(x) \to Q(x)); (\exists y) P(y),$ then $(\exists z) Q(z)$

(10)

6. (a) Write the definitions of

(i) one-to-one

(ii) onto

(iii) many-to-one

(iv) identify functions. (8)

(b) Write all possible functions from $X = \{1, 2\}$ to $y = \{a, b, c\}$ and classify them into one-to-one, onto, neither one-to-one nor onto types of functions. (12)

7. (a) Let G be an undirected graph. Then prove that G is bipartite iff it contains no odd cycle. (10)

(b) Show that a simple digraph is strongly connected iff there is a closed directed walk in G which includes each node atleast once and no isolated node.

(10)

3

D 3012

2. (a) Define the rank of a matrix. (2)

   (b) Find the rank of the matrix. (8)

$$\begin{bmatrix} 1 & 1 & -1 & 1 \\ 1 & -1 & 2 & -1 \\ 3 & 1 & 0 & 1 \end{bmatrix}$$

   (c) Show that

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{bmatrix} \qquad (10)$$

   satisfies the equation $A^3 - 23A - 40I = 0$.

   Hence find A^{-1}

3. (a) Prove that union of sets and intersection of sets are associative. (10)

   (b) Write De Morgan's laws. (2)

   (c) Prove De Morgan's laws using Venn diagram. (8)

4. (a) What is tautology? Contradiction? (4)

   (b) Construct the truth table for each of the following formulae. Which of the formulae are tautologies? (16)

   (i) $(p \rightarrow q) \rightarrow (\neg q \rightarrow \neg p)$

   (ii) $(p \rightarrow q) \rightarrow (q \rightarrow p)$

   (iii) $(p \wedge (p \leftrightarrow q)) \rightarrow q$

   (iv) $p \rightarrow (p \vee q)$.

2 D 3012

5. (a) Show that

$$(\forall x)(P(x) \vee Q(x)) \Rightarrow (\forall x)P(x) \vee (\exists x)Q(x)$$

(10)

(b) Is the following conclusion validly derivable from the premises given?

If $(\forall x)(P(x) \rightarrow Q(x)); (\exists y)P(y)$, then $(\exists z)Q(z)$

(10)

6. (a) Write the definitions of

(i) one-to-one

(ii) onto

(iii) many-to-one

(iv) identify functions. (8)

(b) Write all possible functions from $X = \{1, 2\}$ to $y = \{a, b, c\}$ and classify them into one-to-one, onto, neither one-to-one nor onto types of functions. (12)

7. (a) Let G be an undirected graph. Then prove that G is bipartite iff it contains no odd cycle. (10)

(b) Show that a simple digraph is strongly connected iff there is a closed directed walk in G which includes each node atleast once and no isolated node.

(10)

3 D 3012

8. Prove that the following statements are equivalent for a graph G with n vertices $(n \geq 2)$.

    (a) G is a tree

    (b)   Any two distinct vertices of G are joined by a unique path

    (c) G is minimally connected

    (d) G is connected and has $n - 1$ edges

    (e) G is acyclic and has $n - 1$ edges.

$$(4 + 4 + 4 + 4 + 4 = 20)$$

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Reg. No. : ....

D 3013   Q.P. Code : [07 DIT 02]

(For the candidates admitted from 2007–2008 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

PART III — Information Technology

DIGITAL FUNDAMENTALS AND ARCHITECTURE

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1.   (a)   Convert the decimal number $(512.5)_{10}$ into equivalent binary, octal and hexadecimal numbers.   (9)

(b)   Explain about parallel binary adder with neat diagram.   (6)

(c)   Prove Demorgan's theorem.   (5)

2.   (a)   Explain BCD adder with diagram.   (10)

(b)   Implement the following Boolean expression using NAND gates only. $Y = A + \bar{B}C + AC$.   (10)

3. (a) Using Karnaugh map simplify the following : (10)

$$f(A, B, C, D) = \Sigma(2, 3, 5, 6, 7, 9, 11, 13).$$

(b) Write about synchronous counters. (10)

4. (a) Explain JK master-slave flip-flop. (10)

(b) Write about multiplexers. (10)

5. (a) With neat diagram write about the architecture of 8085. (10)

(b) Write the addressing modes of 8085. (10)

6. (a) Explain Daisy-Chaining priority. (10)

(b) Explain DMA controller. (10)

7. Illustrate the Virtual Memory Concept. (20)

8. Write a note on Main memory. (20)

D 3013

Reg. No. : ....

D 3014   Q.P. Code : [07 DIT 03]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Information Technology

DATA STRUCTURES AND C PROGRAMMING

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1.   Discuss about problem solving techniques.

2.   Explain – Loop control statements.

3.   Write about functions. Write a program to find the factorial a number using recursive functions.

4.   What is meant by FILE? Discuss in detail about it.

5.   (a)   Differentiate structure and union with example.

      (b)   Explain about command line arguments.

6. Write about stack.

7. Short notes on :

    (a) Doubly linked list.

    (b) Insertion sort.

8. Explain different methods of Searching.

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D 3014

Reg. No. : ....

D 3004   Q.P. Code : [07 DSC 01]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Computer Science

DIGITAL FUNDAMENTALS AND ARCHITECTURE

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each questions carries 20 marks.

$(5 \times 20 = 100)$

1.   (a)   Convert $(10767)_{10}$ to hexadecimal $(2\frac{1}{2})$

(b)   Multiply $(1A3)_{16}$ by $(89)_{16}$. $(2\frac{1}{2})$

(c)   Explain in brief the functioning of parallel binary adder with its block diagram.   (10)

(d)   Why NAND gate is called as an universal gate? Explain.   (5)

2. (a) Reduce the following using mapping method in SOP form. (10)

$$L = \pi M(0, 1, 2, 3, 4, 6, 10, 11, 13)$$

(b) With its block diagram explain the functioning of a multiplexer. (10)

3. (a) Explain in brief the various addressing modes of 8085. (8)

(b) With the block diagram of Intel 8085, explain the functioning of various registers in it. (12)

4. Discuss in brief about asynchronous data transfer between independent units. (20)

5. (a) Explain in brief the three types of mapping procedures when considering the organization of cache memory. (15)

(b) Write in short about main memory. (5)

6. (a) Simplify the following :

(i) $A + \overline{B}C(A + \overline{\overline{B}C})$ (5)

(ii) $A[B + C(\overline{AB + AC})]$. (5)

(b) Explain the functioning of a shift counter with its block diagram. (10)

7. (a) With the block diagram of DMA controller, explain the functioning of it.   (10)

    (b) Discuss briefly about Daisy chaining priority and parallel priority Interrupt.   (10)

8. Explain the following :

    (a) Memory hierarchy   (7)

    (b) R-S flip-flop   (7)

    (c) I/O schemes in 8085.   (6)

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Reg. No. : ....

D 3005   Q.P. Code : [07 DSC 02]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Computer Science

DATA STRUCTURES AND C PROGRAMMING

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

All questions carry equal marks.

$(5 \times 20 = 100)$

1.   (a)   Explain structure of a 'C' program.   (10)

     (b)   Explain various operators available in 'C'.

                                                        (10)

2.   Write short notes about :

     (a)   Arrays   (10)

     (b)   Macros   (10)

3. Write 'C' language program for

    (a)   Printing of multiplication table. (10)

    (b)   Fibonacci series. (10)

4.   (a)   Discuss various preprocessor directives. (10)

    (b)   Explain various string functions available in 'C'. (10)

5. Write short notes about :

    (a)   Enumerated data types. (10)

    (b)   Array of structure. (10)

6. Explain various operations on queue. (20)

7. Write procedure and sort the following data using Heap sort :

    44, 55, 12, 42, 94, 18, 06, 62. (20)

8.   (a)   Discuss about Linear search and Binary search. (10)

    (b)   Quick sort algorithm. (10)

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2

Reg. No. : ....

D 3513

Q.P. Code : [07 DBM 01/
07 DBBA 01]

(For the candidates admitted from 2007 onwards)

B.B.M./B.B.A. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Business Management/Business
Administration

MANAGEMENT PROCESS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries equal marks.

$(5 \times 20 = 100)$

1. Define 'organization'. Explain the factors to be considered in the establishment of an organization.

2. Describe the Elton mayo's contributions to human relations approach.

3. Examine the merits and demerits of various types of planning.

4. What is functional organization? Give a detailed account of the merit and demerits of such an organization.

5. Briefly discuss about the recent trends and new perspectives in management.

6. What are the devices of control? Discuss about the special techniques of control.

7. Explain management and state its functions.

8. 'Decision making is the primary task of the management'. Discuss this statement and explain the process of decision making.

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Reg. No. : ....

D 3514

Q.P. Code : [07 DBM 02/
07 DBBA 02]

(For the candidates admitted from 2007 onwards)

B.B.M/B.B.A. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III – Business Management/Business
Administration

ACCOUNTING FOR MANAGERS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1. Explain the rules of the double entry system with example. Explain the advantages and disadvantages.

2. Prepare Ledger Accounts for the following transactions in the books of x :

		Rs.
June 1	Started business with cash	45,000
June 1	Paid into bank	25,000

June 2	Goods purchased for cash	15,000
June 3	Purchase of furniture and payment by Cheque	5,000
June 5	Sold goods to Y	4,000
June 10	Goods purchased form Z	7,000
June 18	Goods returned by Y	200
June 21	Paid telephone rent for 1 year	1,000
June 30	Paid for :	
	Stationary	200
	Rent	1,000
	Salaries for staff	5,000

3. From the following Trail balance of Mr. X, prepare a Trading and Profit and Loss Account for the year ended on 31.12.2000 and balance sheet as on that date, after giving effect to the adjustments.

	Dr. Rs.	Cr. Rs.
Capital		1,80,000
Drawing	32,500	
Stock (on 1.1.2000)	1,74,450	
Return Inwards	5,540	
Carriage Inwards	12,400	

Deposits with Mr. Y (Interest free)	13,750	
Carriage Outward	7,250	
Loan to Z @ 5% given on 1.1.2000	10,000	
Return outward		8,400
Interest on the above loan		250
Rent	8,200	
Rent outstanding		1,300
Purchases	11,29,700	
Debtors	40,000	
Good will	17,300	
Creditors		30,000
Advertisement Expense	9,540	
Provision for doubtful debts		12,000
Bad debts	4,000	
Patents and trade marks	5,000	
Cash in hand	620	
Sales		12,79,140
Discount allowed	3,300	
Wages	7,540	
Plant and Machinery (purchased on 1.1.2000)	30,000	
	15,11,090	15,11,090

3

D 3514

Adjustments :

(a)   Increase bad debts by Rs. 6,000. Make provision for Doubtful Debts @ 10% and Provision for Discount on Debtors @ 5%.

(b)   The value of the closing stock is Rs. 1,87,920

(c)   Wages include Rs. 2,000 paid for the erection of Machinery on 1.1.2000

(d)   Provide   depreciation   on   machinery @ 10% p.a.

4.   Explain in detail the distinction between Cost Accounting and Management Accounting.

5.   Explain the various classifications of cost with example.

6.   Two materials, X and Y , are used as follows :

Minimum usage : 50 units per week each,

Maximum usage : 150 units per week each,

Normal usage : 100 units per week each,

Ordering quantities : X-600 units, and Y-1000 units

Delivery period : X-4 to 6 weeks, Y-2 to 4 weeks

Calculate for each material

(a)   Minimum level

(b)   Maximum level

(c)   Ordering level

7.   Standard time allotted for a job is 20 hours and rate per hour is Rs. 2 plus a dearness allowance @ 50 paise per hour worked.

The actual time taken by a worker is 15 hours. Calculate the earnings under (a) Time system (b) Piece wage system (c) Halsey Plan (d) Rowan Scheme

8.   Prepare a flexible budget for the overheads on the basis of the following data. Ascertain the overhead rates at 50%, 60% and 70% capacity.

	At 60% Capacity
	Rs.
Variable overheads :	
Indirect material	6,000
Indirect labour	18,000
Semi-variable overheads :	
Electricity (40% fixed 60% variable)	30,000
Repairs (80% fixed 20% variable)	3,000

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Fixed overheads:

Depreciation	16,500
Insurance	4,500
Salaries	15,000
Total overheads	93,000
Estimated direct labour hours	1,86,000

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Reg. No. : ....

D 3515

Q.P. Code : [07 DBM 03/
07 DBBA 03]

(For the candidates admitted from 2007 onwards)

B.B.M./B.B.A. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Business Management /
Business Administration

Allied — MATHEMATICS FOR MANAGEMENT

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1.   A salesman visits 274 housewives in a town to find out their views about three products A, B and C. He finds that 157 use A, 98 use only A, 22 use all the three, 14 use A and C but not B, 39 use B and C, 48 use only B.

(a)   Which product is most popular to his inquiry?

(b)   How many use product C only?

(c)   What fraction use atleast two products?

(d)   What percent use only one of the products?

2. Find the inverse of

$$\begin{bmatrix} 2 & 3 & 4 \\ 3 & 2 & 1 \\ 1 & 1 & -2 \end{bmatrix}$$

3. A man repays a loan of Rs. 3,250 by paying Rs. 20 in the first month and then increases the payment by Rs. 15 every month. How long will it take to clear his loan?

4. Discuss the various types of classifications of data with example.

5. Define AM, GM, HM. Explain its merits and demerits.

6. Calculate the Mean, Median and Mode of the following :

Class	Frequency
1-10	3
11-20	7
21-30	13
31-40	17
41-50	12

D 3515

Class	Frequency
51-60	10
61-70	8
71-80	8
81-90	6
91-100	6

7. Ten competitors in a beauty contest are ranked by three judges in the following order :

Judge 1 :	1	4	6	3	2	9	7	8	10	5
Judge 2 :	2	6	5	4	7	10	9	3	8	1
Judge 3 :	3	7	4	5	10	8	9	2	6	1

Use Rank correlation coefficient to determine which pair of Judges have the nearest approach to common taste in beauty.

8. Explain any four methods of finding trend in a time series.

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3

D 3515

Reg. No. : ....

D 3299

Q.P. Code : [07 DMA 02]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Mathematics

TRIGONOMETRY, VECTOR CALCULUS AND ANALYTICAL GEOMETRY

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1.   (a)   Prove that

$32 \cos^6 \theta = \cos 6\theta + 6 \cos 4\theta + 15 \cos 2\theta + 10$.

(b)   If $\sin (\theta + i \phi) = \tan \alpha + i \sec \alpha$, then prove that $\cos 2\theta \cosh 2\phi = 3$.

(அ) $32 \cos^6 \theta = \cos 6\theta + 6 \cos 4\theta + 15 \cos 2\theta + 10$ என நிறுவுக.

(ஆ) $\sin (\theta + i \phi) = \tan \alpha + i \sec \alpha$,   எனில் $\cos 2\theta \cosh 2\phi = 3$ என நிறுவுக.

2. (a) Prove that :

$$\log \tan \left(\frac{\pi}{4} + \frac{ix}{2} \right) = i \tan^{-1} (\sinh x).$$

(b) Find the sum of the series :

$$\sin \alpha + \sin (\alpha + \beta) + \sin (\alpha + 2\beta) + \cdots$$

(அ) நிறுவுக :

$$\log \tan \left(\frac{\pi}{4} + \frac{ix}{2} \right) = i \tan^{-1} (\sinh x).$$

(ஆ) தொடரின் கூடுதல் காண்க.

$$\log \tan \left(\frac{\pi}{4} + \frac{ix}{2} \right) = i \tan^{-1} (\sinh x).$$

3. (a) Prove that

(i) $\nabla \times (\overline{u} \times \overline{v}) = (\overline{v} \cdot \nabla) \overline{u} - (\nabla \cdot \overline{u}) \overline{v}$

$$- \left[(\overline{u} \cdot \nabla) \overline{v} - (\nabla \cdot \overline{v}) \overline{u} \right].$$

(ii) $div \; curl \; \overline{F} = 0$.

(b) Prove that :

$$\nabla \cdot \left(\frac{f(r) \overline{r}}{r} \right) = \frac{1}{r^2} \frac{d}{dr} (r^2 f).$$

2

D 3299

(அ) நிறுவுக :

(i) $\quad \nabla \times (\overline{u} \times \overline{v}) = (\overline{v} \cdot \nabla) \overline{u} - (\nabla \cdot \overline{u}) \overline{v}$

$$- [(\overline{u} \cdot \nabla) \overline{v} - (\nabla \cdot \overline{v}) \overline{u}].$$

(ii) $\quad div \ curl \ \overline{F} = 0.$

(ஆ) நிறுவுக :

$$\nabla \cdot \left(\frac{f(r)\overline{r}}{r} \right) = \frac{1}{r^2} \frac{d}{dr} (r^2 f).$$

4. (a) Verify divergence theorem for $\overline{F} = x\,\overline{i} + y\,\overline{j} + z\,\overline{k}$ over the region bounded by $x = 0$, $x = a$, $y = 0$, $y = a$, $z = 0$, $z = a$.

(b) Verify Stoke's theorem for $\overline{F} = y\,\overline{i} + z\,\overline{j} + x\,\overline{k}$ over the surface of the hemisphere $x^2 + y^2 + z^2 = 1$ above the $x \circ y$ plane.

(அ) $\overline{F} = x\,\overline{i} + y\,\overline{j} + z\,\overline{k}$ -க்கு $x = 0$, $x = a$, $y = 0$, $y = a$, $z = 0$, $z = a$ ஆகிய எல்லைக்குட்பட்ட பகுதியில் விரிதல் தேற்றத்தினை சரிபார்க்கவும்.

(ஆ) $\overline{F} = y\,\overline{i} + z\,\overline{j} + x\,\overline{k}$ -க்கு $x \circ y$ தளத்தின் மீதுள்ள $x^2 + y^2 + z^2 = 1$ என்ற அரை கோளத்தின் புறபரப்பின் மீது ஸ்டோக்கின் தேற்றத்தினை சரிபார்க்கவும்.

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5. (a) Obtain the Fourier series for the function $f(x) = x$, $-\pi < x < \pi$.

(b) Find half-range Fourier sine series for $f(x) = x(\pi - x)$, $0 < x < \pi$.

(அ) $f(x) = x$, $-\pi < x < \pi$ என்ற சார்புக்கான பூரியர் தொடரினைத் தருவி.

(ஆ) $f(x) = x(\pi - x)$, $0 < x < \pi$ -க்கு அரைவீச்சு பூரியர் சைன் தொடரைக் காண்க.

6. (a) Derive the polar equation of a conic.

(b) Find the equation of the chord joining the points whose vectorial angles are $\alpha - \beta$ and $\alpha + \beta$ on the conic.

(அ) ஒரு கூம்பு வெட்டியின் துருவ சமன்பாட்டினைத் தருவி.

(ஆ) கூம்பு வெட்டியின் மீதுள்ள $\alpha - \beta$ மற்றும் $\alpha + \beta$ ஆகியவை உச்சிக் கோணங்களாக கொண்ட புள்ளிகளை இணைக்கும் நாணின் சமன்பாடு காண்க.

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7. (a) Find the shortest distance between the lines
$\dfrac{x-3}{3} = \dfrac{y-8}{-1} = \dfrac{z-3}{1}$ and $\dfrac{x+3}{-3} = \dfrac{y+7}{2} = \dfrac{z-6}{4}$.

(b) Find the equation of the spheres which pass through the circle $x^2 + y^2 + z^2 = 5$, $x + 2y + 3z = 3$ and touch the plane $4x + 3y = 15$.

(அ) $\dfrac{x-3}{3} = \dfrac{y-8}{-1} = \dfrac{z-3}{1}$ மற்றும் $\dfrac{x+3}{-3} = \dfrac{y+7}{2} = \dfrac{z-6}{4}$ ஆகிய கோடுகளுக்கு இடையேயான மீச்சிறு தூரத்தினைக் காண்க.

(ஆ) $x^2 + y^2 + z^2 = 5$, $x + 2y + 3z = 3$ என்ற வட்டத்தின் வழியாக செல்வதாகவும் மற்றும் $4x + 3y = 15$ என்ற தளத்தினை தொடுவதாகவும் உள்ள கோளங்களின் சமன்பாட்டினைக் காண்க.

8. (a) Find the equation of the cone whose vertex is $(1, -2, 3)$ and the guiding curve is $x^2 + y^2 + z^2 = 25$, $z = 2$.

(b) Find the equation of the right circular cylinder whose axis is $x = 2y = -z$ and radius 4.

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(இ) $(1, -2, 3)$ என்பதை முனையாகவும் மற்றும் $x^2 + y^2 + z^2 = 25$, $z = 2$ என்பதை வழிகாட்டு வளைவரையாகவும் கொண்ட கூம்பின் சமன்பாடு காண்க.

(ஆ) $x = 2y = -z$ என்பதை அச்சாகவும் மற்றும் ஆரம் 4 ஆகவும் கொண்ட நேர் வட்ட உருளையின் சமன்பாடு காண்க.

Reg. No. : ....

D 3136   Q.P. Code : [07 DMA 03]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Mathematics

Allied : STATISTICS FOR MATHEMATICS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1. (a) A random variable X has the following probability function :

x :	0	1	2	3	4	5	6	7
$p(x)$:	0	K	$2K$	$2K$	$3K$	K^2	$2K^2$	$7K^2+K$

Find K and $P(0 < X < 5)$.

(b) Find the mean and variance of the distribution whose probability density function is $f(x) = y_0 \ x(2 - x), \ 0 \le x \le 2$.

(c) State and prove addition theorem on expectation.

(அ) பின்வரும் நிகழ்தகவு சார்பிற்கு K, $P(0 < X < 5)$ ஆகியவற்றை காண்க :

$x:$	0	1	2	3	4	5	6	7
$p(x):$	0	K	$2K$	$2K$	$3K$	K^2	$2K^2$	$7K^2+K$

(ஆ) ஒரு பரவலின் நிகழ்தகவு அடர்த்திச் சார்பு $f(x) = y_0\, x(2 - x),\ 0 \le x \le 2$ எனில் அதன் சராசரியையும் பரவற்படியையும் காண்க.

(இ) எதிர்பாத்தலின் கூட்டு தேற்றத்தை கூறி நிறுவுக.

2. (a) If $x_1, x_2, \cdots, x_n$ are independent random variables, show that

$$M_{x_1+x_2+\cdots+x_n}(t) = M_{x_1}(t) \cdot M_{x_2}(t) \cdots M_{x_n}(t).$$

(b) If $f(x,y) = \begin{cases} 2-x-y, & 0 \le x \le 1, 0 \le y \le 1 \\ 0, & \text{therwise} \end{cases}$

find $Var(X)$ and $Var(Y)$.

(c) State and prove Chebychev's inequality.

(அ) $x_1, x_2, \cdots, x_n$ என்பவை சார்பில்லா சமவாய்ப்பு மாறிகள் எனில்

$$M_{x_1+x_2+\cdots+x_n}(t) = M_{x_1}(t) \cdot M_{x_2}(t) \cdots M_{x_n}(t)$$ எனக்

காட்டுக.

(ஆ) $f(x, y) = \begin{cases} 2 - x - y, & 0 \le x \le 1, 0 \le y \le 1 \\ 0, & \text{மற்றபடி} \end{cases}$, எனில்

$Var(X)$ மற்றும் $Var(Y)$ ஐ காண்க.

(இ) செபிசேவின் சமனின்மையை கூறி நிறுவுக.

3. (a) Find the density function $f(x)$ corresponding to the characteristic function

$\phi(t) = \begin{cases} 1 - |t|, & |t| \le 1 \\ 0, & |t| > 1. \end{cases}$

(b) Find the M.G.F. of X and mean from the following distribution :

$$P(X = r) = q^{r-1}p, r = 1, 2, \cdots$$

(c) State and prove weak law of large numbers.

(அ) $\phi(t) = \begin{cases} 1 - |t|, & |t| \le 1 \\ 0, & |t| > 1. \end{cases}$ என்பது பண்பளவை

சார்பு எனில் இதற்கு தொடர்புடைய நிகழ்தகவு சார்பினை காண்க.

(ஆ) X -ன் பெருக்குத் தொகை உருவாக்கும் சார்பு மற்றும் சராசரியை பின்வரும் பரவலுக்கு காண்க :

$$P(X = r) = q^{r-1}p, r = 1, 2, \cdots$$

(இ) பெரிய (large) எண்களுக்கான உறுதியற்ற விதியை கூறி நிறுவுக.

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4. (a) If the mean and variance of binomial distribution are 4 and $\frac{4}{3}$, find $P(X \geq 1)$.

(b) Find the M.G.F. of a binomial distribution and hence find the variance.

(c) Show that for a normal distribution

$$\mu_{2n} = 1 \cdot 3 \cdot 5 \cdots (2n-1) \sigma^{2n}.$$

(அ) ஈருறுப்பு பரவலின் சராசரி மற்றும் பரவற்படி முறையே 4 மற்றும் $\frac{4}{3}$, எனில் $P(X \geq 1)$ ஐ காண்க.

(ஆ) ஈருறுப்பு பரவலின் பெருக்குத்தொகை உருவாக்கும் சார்பை காண்க. அதன் வழியாக பரவற்படியை காண்க.

(இ) இயல்நிலை பரவலுக்கு
$$\mu_{2n} = 1 \cdot 3 \cdot 5 \cdots (2n-1) \sigma^{2n}$$ எனக்காட்டுக.

5. (a) Seven coins are tossed and number of heads noted as below. Fit a binomial distribution if the nature of the coin is unknown.

No. of heads :	0	1	2	3	4	5	6	7
Frequencies :	7	6	19	35	30	23	7	1

(b) Show that $\mu_{r+1} = r\lambda\mu_{r-1} + \lambda \dfrac{d\mu_r}{d\lambda}$ for a Poisson distribution.

(c) Show that $\mu_{2n+1} = 0$ for a normal distribution.

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(அ) ஏழு நாணயங்கள் வீசப்பட்டு தலைகள் எண்ணப்படுகிறது. நாணயத்தின் தன்மை தெரியாதபோது பின்வரும் விபரங்களுக்கு ஈருறுப்பு பரவலை பொருத்துக :

தலைகள் எண்ணிக்கை : 0 1 2 3 4 5 6 7

அலைவெண்கள் : 7 6 19 35 30 23 7 1

(ஆ) பாய்ஸான் பரவலுக்கு $\mu_{r+1} = r\lambda\mu_{r-1} + \lambda\frac{d\mu_r}{d\lambda}$ எனக்காட்டுக.

(இ) இயல்நிலை பரவலுக்கு $\mu_{2n+1} = 0$ எனக்காட்டுக.

6. (a) State and prove additive property of χ^2 distribution.

(b) Derive the probability density function of F-distribution.

(c) Write the four applications of t-distribution.

(அ) χ^2 - பரவலின் கூட்டுப்பண்பை கூறி நிறுவுக.

(ஆ) F - பரவலின் நிகழ்தகவு அடர்த்திச் சார்பை தருவிக்க.

(இ) t - பரவலின் பயன்பாடுகள் நான்கினை எழுதுக.

7. (a) Derive the probability density function of χ^2 distribution.

(b) Find μ_{2r} for t-distribution and hence find β_2.

(அ) χ^2 - பரவலின் நிகழ்தகவு அடர்த்திச் சார்பை தருவிக்க

(ஆ) t-பரவலுக்கு μ_{2r} ஐ காண்க. இவ்வழியாக β_2 ஐ காண்க.

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8.   (a)   Fit a curve of the form $y = ab^x$ for the following data :

x:	1	2	3	4	5	6	7	8
y:	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

(b)   If $V(X) = 9$ and the lines of regression are $4x - 5y + 33 = 0$, $20x - 9y - 107 = 0$, find

(i)   the means of x and y.

(ii)   correlation coefficient between x and y.

(iii)   standard deviation of y.

(அ) பின்வரும் விபரங்களுக்கு $y = ab^x$ என்ற வளைவரையை பொருத்துக :

x:	1	2	3	4	5	6	7	8
y:	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

(ஆ) $V(X) = 9$ மற்றும் $4x - 5y + 33 = 0$, $20x - 9y - 107 = 0$ என்பவை உடன் தொடர்பு கோடுகள் எனில் பின்வருபனவற்றை காண்க :

(i) x மற்றும் y - ன் சராசரி.

(ii) x மற்றும் yக்கு இடையே உள்ள ஒட்டுறவு கெழு.

(iii) y-ன் திட்ட விலக்கம்.

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Reg. No. : ....

D 3149 Q.P. Code : [07 DCT 01]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Catering Science and Hotel Management

FOOD PRODUCTION AND PATISSERIE — I

Time : Three hours　　　　　　　　Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks each.

$(5 \times 20 = 100)$

1.　Explain the aims and objects of cooking food.

2.　What are the various methods of preparing ingredients before cooking?

3.　List out the various staff of the kitchen and explain their duties and responsibilities.

4.　Classify soup and explain each with two examples each.

5. Classify vegetables and gives suitable uses of each.

6. Explain the role of raising agents in cookery.

7. With the help of a diagram explain the cuts of chicken and its uses.

8. List the various equipments used in the kitchen mention their uses and maintenance.

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D 3149

Reg. No. : ....

D 3150

Q.P. Code : [07 DCT 02]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Catering Science and Hotel Management

FOOD AND BEVERAGE SERVICE — I

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

$(5 \times 20 = 100)$

1. List out the various catering establishment and write a note on each.

2. Draw the organisation chart of the restaurant and explain the duties of each staff.

3. Write notes on the following :

   (a) Pantry

   (b) Misen place

   (c) Dummy waiter

   (d) Coffee shop.

4. Explain the French classical men with courses and examples.

5. What is a beverage? Classify with examples.

6. Write an elaborate note on ice-creams.

7. Explain the order taking procedure in (a) restaurant (b) room service.

8. Explain the qualities of a good waiter.

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Reg. No. : ....

D 3151   Q.P. Code : [07 DST 03]

(For the candidates admitted from 2007 onwards)

B.Sc. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Catering Science and Hotel Management

ACCOMMODATION OPERATIONS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

Each question carries 20 marks.

(5 × 20 =100)

1.   Explain the importance of housekeeping department in a hotel.

2.   What are cleaning agents and cleaning equipments. Explain them in detail.

3.   Draw the layout of a linen room and explain the activities in a linen room.

4. Draw the hierarchy chart of the house keeping department and explain the duties of each staff.

5. Define Hotel. Classify hotels and explain.

6. List the various Front office staff in a large hotels and mention their duties.

7. With a flow chart explain the process from reservation unit check in and check out.

8. Explain the accounting system in a large hotel.

D 3151

Reg. No. : ....

D 3216

Q.P. Code : [07 OPT 02]

(For the candidates admitted from 2007 onwards)

B Sc

P.G. DIPLOMA EXAMINATION, JUNE 2008.

First Year

Part III — Optometrics

GENERAL PHYSIOLOGY

Time : Three hours   Maximum : 100 marks

SECTION A — (20 × 1 = 20 marks)

Answer ALL questions.

Select the most appropriate answer from the answers given.

1.   Memolytic aneamia may result from

   (a)   Transfusion reaction

   (b)   Sickle cell

   (c)   Abnormal heart valve

   (d)   Iron deficiency.

2. The ribosome free endoplasmic reticulum plays a role in each of the following Except

  (a) Synthesis of lipid

  (b) Synthesis of protein

  (c) Detoxification

  (d) Glycogenolysis.

3. Mitochondria

  (a) Contain DNA and ribosomes

  (b) Contain enzyme associated with kreb's cycle

  (c) Are capable of self–replication

  (d) Derive energy from fatty acid.

4. Injury to motor nerve supplying skeletal muscles causes, muscle

  (a) Paralysis   (b) Atrophy

  (c) Fibrillation   (d) Fasciculation.

5. Following are the plasma proteins Except

  (a) Fibrinogen   (b) Albumin

  (c) Globulin   (d) Myosin.

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6. Pacemaker of heart is present in

   (a) Aorta   (b) Right atrium

   (c) Left atrium   (d) Left ventricle.

7. Smooth muscle does not contain

   (a) Actin   (b) Myosin

   (c) Troponin   (d) Tropomyosin.

8. Aldosterone excess produce

   (a) Hypernatriuria (b) Hypokalemia

   (c) Tetany   (d) All of the above.

9. Climacteric is

   (a) Female menopause

   (b) Male menopause

   (c) Emotional disturbance

   (d) Loss of Libido.

10. Ovulation to occur, which hormone is essential?

   (a) FSH   (b) LH

   (c) Oestrogen   (d) Progesterone.

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11. Organ of corti is located on

    (a) Basilar membrane

    (b) Reissner's membrane

    (c) Tectorial membrane

    (d) Reticular Lamina.

12. Diabetes Melitus is due to the deficiency of

    (a) ADH   (b) Insulin

    (c) Cortisol   (d) Glucagen.

13. Pancreatic juice contain all of the following Except

    (a) Enzymes   (b) Water

    (c) Hormones   (d) Bicarbonates.

14. The major contribution of semon is

    (a) Testes   (b) Epididymus

    (c) Prostate   (d) Seminal vesicle.

15. The normal heart rate is

    (a) 60 beats/min   (b) 70 beats/min

    (c) 100 beats/min   (d) 150 beats/min

16. Respiratory centers are present in

    (a) Brain stem   (b) Cortex

    (c) Cerebellum   (d) Spinal cord.

17. Tactile sensibility includes each of the following Except

    (a) Tactile discrimination

    (b) Tactile localisation

    (c) Appreciation of Temperature

    (d) Appreciation of pressure.

18. Virus causing AIDS resides within

    (a) T–lymphocytes   (b) Plasma cells

    (c) B– lymphocytes   (d) Monocytes.

19. Injury in the primary auditory cortex may cause disability in

    (a) Detecting loud sound

    (b) Localyzing sound in space

    (c) Discriminating pitch

    (d) Detecting sound pattern.

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20. Gustation involves each of the following Except

    (a) Foliate papillae

    (b) Circum vallate papillae

    (c) Fungiform papillae

    (d) Filiform papillae.

SECTION B — $(5 \times 6 = 30$ marks)

Answer short questions.

21. (a) Homeostasis.

Or

    (b) Kreb's cycle.

22. (a) Composition of blood.

Or

    (b) Rh factor.

23. (a) Excitation contraction coupling.

Or

    (b) Mechanism of inspiration.

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24. (a) Factors affecting GFR.

Or

(b) Functions of Limbic system.

25. (a) Taste buds.

Or

(b) Puberty.

SECTION C — $(5 \times 10 = 50$ marks)

Answer Essay on.

26. (a) Classify leukocytes and explain the characteristic features of lymphocytes.

Or

(b) Explain the functions of plasma proteins.

27. (a) Describe the events occuring in one cardiac cycle.

Or

(b) Describe the composition and functions of

28. (a) Enumerate the functions of Liver.

Or

(b) Explain the transport of oxygen from lungs to tissue.

29. (a) Explain the mechanism of reabsorption of glucose.

Or

(b) Name the hormones of adrenal cortex and explain the actions of cortisol.

30. (a) With neat diagram explain the visual pathway.

Or

(b) Describe the stages of spermatogenesis.

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D 3216

Reg. No. : ....

D 3294　　　　　　　　Q.P. Code : [07 OPT 03]

(For the candidates admitted from 2007 onwards)

B.Sc.

U.G. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Optometrics

OPTICS AND REFRACTION

Time : Three hours　　　　　　　Maximum : 100 marks

Answer ALL questions.

SECTION A — (20 × 1 = 20 marks)

Objective type :

1.　Blurring of vision for near work occurs in

　　(a)　hypermetropia　　(b)　presbyopia

　　(c)　both of the above　　(d)　none of the above.

2.　Optical conditions of Aphakia include all EXCEPT

　　(a)　loss of accommodation

　　(b)　astigmatism against rule

　　(c)　enlargement of retinal image

　　(d)　myopia.

3. Unilateral Aphakia can be treated by

   (a) contact lens

   (b) intraocular lens implant

   (c) both

   (d) none.

4. A newborn is invariably

   (a) hypermetropic   (b) myopic

   (c) astigmatic   (d) aphakic.

5. Astigmatism is a type of

   (a) axial ametropia

   (b) index ametropia

   (c) curvature ametropia

   (d) spherical aberration.

6. Hypermetropia causes

   (a) divergent squint

   (b) convergent squint

   (c) both of the above

   (d) none of the above

7. In Retinoscopy using a plane mirror, when the mirror is tilted to the right the shadow in the pupil moves to the left in

    (a)   Hypermetropia

    (b)   Myopia more than -1 D

    (c)   Emmetropia

    (d)   Myopia less than -1 D.

8. Optical condition of the eye in which refraction of the two eyes differs is

    (a)   Mixed astigmatism

    (b)   Irregular astigmatism

    (c)   Anisometropia

    (d)   Compound astigmatism.

9. Latent hypermetropia is detected when following mydriatic is used

    (a)   Adrenaline

    (b)   Phenylephrine

    (c)   Cyclopentolate

    (d)   Atropine.

10. Radial keratotomy is useful in

   (a) Myopia   (b) Hypermetropia

   (c) Presbyopia   (d) Aphakia.

11. Incident parallel rays come to a focus posterior to the light sensitive layer of retina in

   (a) Aphakia

   (b) Hypermetropia

   (c) Both of the above

   (d) None of the above.

12. The complications of myopia include all EXCEPT

   (a) vitreous degeneration

   (b) retinal detachment

   (c) cataract

   (d) closed angle glaucoma.

13. Indistinct distant vision is seen in

   (a) Presbyopia

   (b) Myopia

   (c) Hypermetropia

   (d) None of the above.

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14. Contact lenses may be useful in treatment of all EXCEPT

   (a) Keratoconus

   (b) Refractive anisometropia

   (c) Fuch's endothelial dystrophy

   (d) Severe keratoconjunctivitis sicca.

15. Hard contact lens is made up of

   (a) HEMA   (b) PMMA

   (c) PVP   (d) PVC.

16. Biconvex lens is used in all EXCEPT

   (a) Aphakia

   (b) Presbyopia

   (c) Astigmatism

   (d) Hypermetropia.

17. Determination of the refraction is done by all EXCEPT

   (a) Retinoscopy

   (b) Refractometer

   (c) Keratometer

   (d) Perimeter.

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18. Drug of choice-for pupillary dilatation in children is

    (a) Atropine

    (b) Homatropine

    (c) Scopolamine

    (d) Cyclopentolate.

19. Frequent change of presbyopic glasses is an early symptom of

    (a) Closed angle glaucoma

    (b) Open angle glaucoma

    (c) Senile cataract

    (d) After cataract.

20. Accommodation is maximum in

    (a) Childhood

    (b) Adulthood

    (c) Middle-age

    (d) Old-age.

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SECTION B — $(5 \times 6 = 30$ marks)

Short Questions :

21. Describe refraction by prisms and uses of prisms.

22. Refraction in pseudophakia.

23. Donder's reduced eye.

24. Subjective verification of refraction.

25. Best form lenses.

SECTION C — $(5 \times 10 = 50$ marks)

Long Questions :

26. Describe in detail optics of cylindrical lenses.

27. Physiological optical defects of the eye.

28. What is astigmatism, describe sturm's conoid and correction of astigmatism.

29. Objective methods of refraction.

30. Describe the various forms of contact lenses and fitting of contact lenses in keratoconus.

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Reg. No. : ....

D 3002   Q.P. Code : [07 DSCA 02]

(For the candidates admitted from 2007–2008 onwards)

B.C.A. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Computer Applications

DIGITAL FUNDAMENTAL AND ARCHITECTURE

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

$(5 \times 20 = 100)$

1.   (a)   Convert the following :

     (i) $(63718)_{10}$ to binary and hexadecimal.
                                                                (5)

     (ii)   Prove De Morgan's theorem.   (5)

     (b)   Explain the working of BCD adder with a
     neat diagram.   (10)

2. (a) Explain the following :

      (i)   Full Adder.   (6)

      (ii) XOR Gate.   (4)

   (b) Sketch the working of Shift Right register.
                                                    (10)

3. (a) Simplify the Boolean function.

      $f(A, B, C, D) = \Sigma(0, 2, 3, 5, 6, 7, 8, 9)$ and

10, 11, 12, 13, 14, 15 as don't cares.   (6)

   (b) Prove $(A + B\overline{C} + C)\overline{C} = AB\overline{C} + A\overline{B}\,\overline{C} + \overline{A}B\overline{C}$

using Boolean Algebra.   (4)

   (c) Discuss the concept of multiplexer in detail.
                                                      (10)

4. (a) Explain the architecture of microprocessor in
detail.   (10)

   (b) Write a note on input/output schemes.   (10)

5. Explain the concept of priority interrupt.   (20)

6. Discuss the working of asynchronous data transfer
in detail.   (20)

7. Explain the following :

    (a)   Programmable Peripheral Interface.   (10)

    (b)   Programmable Interrupt Controller.   (10)

8. Explain the concept of Associative Memory in detail.

    (20)

Reg. No. : ....

D 3003   Q.P. Code : [07 DSCA 03]

('or the candidates admitted from 2007–2008 onwards)

B.C.A. DEGREE EXAMINATION, JUNE 2008.

First Year

Part III — Computer Applications

Allied I — COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS

Time : Three hours   Maximum : 100 marks

Answer any FIVE questions.

1.   (a)   Find the root of $x^3 - 3x - 5 = 0$ by Regula Falsi method.   (10)

     (b)   Solve the following system by Gauss Elimination Method.   (10)

$$x_1 - x_2 + x_3 = 1$$
$$-3x_1 + 2x_2 - 3x_3 = -6$$
$$2x_1 - 5x_2 + 4x_3 = 5$$

2. Find the values of $\sin 18°$ and $\sin 45°$ from the following table : (20)

$x°$:	0	10	20	30	40
$y = \cos x°$:	1.000	0.9848	0.9397	0.8660	0.7660

3. (a) Given the table :

x :	0	0.1	0.2	0.3	0.4
e^x :	1	1.1052	1.2214	1.3499	1.4918

Find the value of $y = e^x$ when $x = 0.38$. (10)

(b) Using Lagrange's interpolation formula, find the equation of the cubic curve that passes through the points $(-1, -8), (0, 3) (2, 1)$ and $(3, 2)$. (10)

4. Compute the mode from the following series : (20)

Size of item :	0-5	5-10	10-15	15-20	20-25
Frequency :	20	24	32	28	20

Size of item :	25-30	30-35	35-40	40-45
Frequency :	16	34	10	8

5. From the prices of shares X and Y given below, state which share is more stable in value : (20)

X: 55 54 52 53 56 58 52 50 51 49

Y: 108 107 105 105 106 107 104 103 104 101

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6. Calculate correlation coefficient and regression coefficient for the following data : (20)

$$X: 2\ 4\ 6\ 8\ 10\ 12\ 14$$

$$Y: 4\ 2\ 5\ 10\ 4\ 11\ 12$$

Find the estimate of y when $x = 13$.

7. (a) Evaluate $\sqrt{12}$ to four decimal places by Newton-Raphson method. (10)

(b) Solve the system of equations :

$$8x - y + z - 18 = 0, \qquad 2x + 5y - 2z - 3 = 0 \qquad ;$$
$$x + y - 3z + 6 = 0.$$ (10)

8. Find $y(0.1)$, $y(0.2)$ given $y' = x - 2y$ $y(0) = 1$ taking $h = 0.1$ by fourth order R.K. method. (20)

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