

## M. C. A. ENTRANCE TEST

Course	No. of Seats	Department/College
MCA ( 3 years)	120	Department of Computer Science,
	36	Punjabi University Regional Centre for Information Technology and Management, Mohali
	40	Punjabi University Campus, Akali Phula Singh, Dehla Seehan (Sangrur)
	60	Punjabi University Campus, Maur (Bathinda)
	40	Punjabi University Neighbourhood Campus, Dera Baba Jogipir, Village Ralla (Mansa)
	40	Punjabi University Neighbourhood Campus, Jaito (Faridkot)
	60	Yadavindra College of Engineering, Punjabi University, Guru Kashi Campus Talwandi Sabo
	30	Neighbourhood Campus, Rampura Phul
	120	Asra Institute of Advanced Studies, Patiala-Sangrur Highway, Near Channo, Bhawanigarh, Sangrur.
	180	Desh Bhagat Institute of Management and Computer Sciences, Amloh Road, Mandi Gobindgarh.
		Guru Nanak College, Budhlada, Mansa
	60	Malwa College, Goniana Road, Bhatinda
	60	Mata Gujri College, Fatehgarh Sahib (Autonomous Status upto the year of 2016)
	60	Sri Guru Harkishan College of Management and Technology, Raipur , Bahadurgarh, Patiala.
	60	S.S.D Women's Institute of Technology, Amrik Singh Road, Bhatinda
	60	Vidiya Sagar College of Management and Technology, Village Fatehpur, Patiala.
	120	Shaheed Udham Singh Institute of Computer, Tangori, Mohali
60	Akal Group of Technical and Management Institutions, Mastuana Sahib, Sangrur.	
30	Continental College of Higher Studies, Jalwehda , Fatehgarh Sahib.	
60	Patel Institute of Management and Technology, Rajpura	

### General Instructions for Admission to M.C.A.

- Admission to M.C.A. course shall be based on the merit of candidates determined by the result of Entrance Test to be conducted by the Punjabi University, Patiala.
- Candidates whose results of the qualifying examination have not been declared by the last date of submitting the entrance test / admission form may be allowed to appear in the entrance test counseling at their own risk. The results of such candidates must be available before the counseling, failing which their candidature will stand cancelled.
- The use of log tables and calculators is not allowed.
- List of successful candidates in the test shall be available on the University website with URL [www.pupadmissions.ac.in](http://www.pupadmissions.ac.in).
- The candidate has to select one option out of Mathematics/Computer option.
- M.C.A. entrance test will consist of 150 multiple choice questions, each carrying one mark. Its duration will be of 2 Hours 30 minutes. For details see table below.

Papers	No. of Questions	Maximum Marks	Time
1. Mental and Numerical Test (Objective)	30	30	30 min.
2. General Knowledge Objective Test	30	30	30 min.
3. General English Test (Objective)	30	30	30 min.
4. Mathematics/ Computer Science (Optional)	60	60	60 Min.
Total Marks	150	150	2 Hours 30 Min.

- The Candidate seeking admission under particular reserved category should clearly mention his / her category in application form at an appropriate place of the application. He/she must bring claimed category certificate(s) as per the format & authority as available in Punjabi University Handbook of Information at the time of interview otherwise the candidate's claim will be forfeited.

### **IMPORTANT DATES**

Submission of Application for Entrance test	=	07-07-2014
		11.07.2014 with (late fee- Rs. 1500/-)
Date of Entrance Test	=	16-07-2014
Date of Declaration of Result	=	25.07.2014
Interview/Counseling	=	30.07.2014
Entrance Test Centre	=	Multistory Teaching Block, UCoE Punjabi University, Patiala

## **SYLLABUS FOR MCA ENTRANCE TEST–2014**

### **Paper–I: MENTAL AND NUMERICAL ABILITY (OBJECTIVE)**

**Time: 30 minutes**

**Questions: 30**

**Marks: 30**

This paper will have the topic of logical reasoning, graphical analysis, analytical reasoning, quantitative comparisons, series formation, arithmetic calculations such as profit and loss, interest, ratio, proportion, averages, etc.

### **Paper–II: GENERAL KNOWLEDGE (OBJECTIVE)**

**Time: 30 minutes**

**Questions: 30**

**Marks: 30**

This paper will cover the general awareness about international, national and regional events, current affairs related to science & technology, ecology, politics, sports, important personalities, books, and historical, political and geographical facts, etc.

### **Paper–III: GENERAL ENGLISH (OBJECTIVE)**

**Time: 30 minutes**

**Questions: 30**

**Marks: 30**

This paper will have questions from English language and its usage such as choosing correct spellings, completion of sentences with suitable propositions/articles, word meaning, one word substitution, synonym, antonym, meaning of idioms and phrases, choosing correcting grammatical errors in a part of given sentence, filling the blanks with correct form of verb, objectives, adverbs, etc.

### **Paper–IV: (i) MATHEMATICS (OBJECTIVE) – OPTIONAL**

**Time: 60 minutes**

**Questions: 60**

**Marks: 60**

**Number System:** Natural numbers, integers, rational numbers and real numbers, Complex numbers, real and imaginary parts.

**Coordinate Geometry:** Distance and Section formulae, location of line in, a plane, angle between two lines, parallel and perpendicular lines. Location of a circle, conic section, parabola, ellipse and hyperbola.

**Functions:** Algebra of real functions and their graphs, polynomial and rational functions. One-one, onto and inverse functions.

**Trigonometry:** Trigonometric functions, addition formulae, trigonometrically ratios, Solutions of simple trigonometric equation.

**Quadratic Equations and Inequations:** Their solutions, roots of a quadratic equation, relationship between the roots and the co-efficient, nature of roots. Solution of quadratic in equations with their graphic representations.

**Sequence and Series:** AP, GP and their sums.

**Matrices and Determinants:** Types of matrices, rank of a matrix, determinant and its-properties, inverse of matrix, solution of linear equations having a single solution. Cramer's rule.

**Mathematical Operations:** BODMAS

**Algebra:** Set theorem, permutations and combinations, binomial theorem.

**Differential and Integral Calculus:** Differentiation and integration of functions, limits and continuity of a function.

**Statistics and Probability:** Population and sample, measures of central tendency and dispersion, correlation and regression (two variable cases). Probability on a discrete sample space, events, addition and multiplication theorems, conditional probability.

**OR**

(ii) COMPUTER SCIENCE (OBJECTIVE) – OPTIONAL

Time: 60 minutes

Questions: 60

Marks: 60

**Computer Fundamentals:** Simple model of a computer, components and their functions, concepts about bit, byte and words, storage device and input/output devices, machine languages, assembly language, high level language, problem solving, flowcharts, pseudo codes and algorithms, system software, application software, compilers, interpreters, assemblers. Types of computers.

**Date Representation:** Integer and floating point representation, codes (ASCII, EBCDIC, BCD).

**Number System:** Decimal, octal, hexadecimal, Binary arithmetic: Addition, subtraction, multiplication and division.

**Computer Architecture:** Boolean algebra, organization of CPU, registers of CPU, interrupts, software and hardware, CPU bus architecture, data transfer schemes, fundamentals of parallel processing, type of memory.

**Data Structures:** Basic Data Structures: Arrays, stacks, queues, linked lists, graphs and trees traversals searching and sorting.

**Operating System:** Batch processing, on-line processing, multi-programming, time sharing, real time processing, introduction to operating system services, CPU scheduling algorithms, memory management schemes.

**Introduction to Data Processing:** Data types, constants, variables, records and files, data processing cycle.

**Basic Concepts of Programming Languages:** Binding, translators, software simulators, binding times, elementary and structured data types, object oriented programming: objects, classes, instances, abstraction, inheritance and polymorphism.

**Overview of DBMS:** Basic DBMS terminology, architecture of DBMS, distributed databases, data models, integrity, security, recovery and concurrency.

**Computer Networks:** Data communications fundamentals, types of communications, need for communication networks, characteristics of communication channels, computer network hardware and software. Reference models: TCP/IP, OSI and introduction to internet.

**Software Engineering:** Phases of SDLC, SRS, design methodologies (Structured design and object oriented design) testing.

Sample Questions

Paper I : Mental and Numerical Ability (Objective)

- Q1. Locate the missing term of the series  
1, 5, 11, 19, 29, ?, 55  
(A) 39 (B) 41 (C) 43 (D) 45
- Q2. GOLD is written as ALHY, IRON may be written as  
(A) GUKI (B) GUSI (C) GOKI  
(D) GKUI
- Q3. A sum of money on simple interest becomes double in  $12\frac{1}{2}$  years. It becomes 5 times in  
(A)  $62\frac{1}{2}$  (B) 50 years (C)  $31\frac{1}{4}$  years (D) 60 years
- Q4. A is taller than B but shorter than C. D is taller than A but shorter than C and E is taller than B but shorter than A. The tallest person is  
(A) B or E (B) A (C) D (D) C
- Q5. A person is to go up a tree 60 ft. high. In every second he clips 5 ft. but slips 5 ft. After how many seconds he will be able to touch the top of the tree  
(A) 60 (B) 59 (C) 58 (D) 56

Paper II : General Knowledge (Objective)

- Q1. Iodine is used in treatment of ?  
(A) Night blindness (B) Goitre (C) Beri Beri (D) Rickets
- Q2. Super Computer was invented by :  
(A) J.H. Van Tassel (B) J.C. Perier (C) W.L. Judson (D) A.J. Garnerin
- Q3. 'A tale of two cities' is written by :  
(A) Charles Dickens (B) Sir John Hunt (C) Dr. K.C. Khanna (D) None of the above
- Q4. What percentage of the surface of the Earth is covered by water?  
(A) 63% (B) 71 % (C) 75% (D) 80%
- Q5. The country that has the greatest length of the day during summer is :  
(A) Nigeria (B) Norway (C) Mexico (D) Australia

**Paper III : General English (Objective)**

- Q1. 'To be at daggers drawn', the correct meaning of this is :  
(A) Close (B) Annoyance (C) Bitter enmity (D) Tolerance friendship
- Q2. .... of any kind of demoralising  
(A) Addiction (B) Habit (C) Custom (D) Tradition
- Q3. I don't like ..... you told my father last night (Choose correct pronoun)  
(A) that (B) what (C) if (D) when
- Q4. Quinine is an effective antidote ..... Malaria (fill correct proposition)  
(A) to (B) against (C) for (D) from
- Q5. Choose the correct spellings out of the four choices  
(A) Embarrassment (B) Embarrasment (C) Emberesment (D) Embarasment

**Paper IV : Mathematics (Objective) - Optional**

- Q1. If A is a square matrix with three rows, then  $\frac{1}{2}2A\frac{1}{2}$  equals  
(A)  $2\frac{1}{2}A\frac{1}{2}$  (B)  $4\frac{1}{2}A\frac{1}{2}$  (C)  $8\frac{1}{2}A\frac{1}{2}$  (D)  $6\frac{1}{2}A\frac{1}{2}$
- Q2. The number of natural numbers smaller than 104, in the decimal notation, of which all the digits are different, is  
(A) 5274 (B) 5265 (C) 5247 (D) 4536
- Q3. The number of spheres of radius r touching the coordinate axes is  
(A) 4 (B) 8 (C) 6 (D) 12
- Q4. Radius of the director circle of the ellipse  $x^2/16 + y^2/4 = 1$  is  
(A) 6 (B) 20 (C)  $2\sqrt{5}$  (D) 12
- Q5. The mean of the first three terms of the series is 16 and that of the next two terms is 20. The mean of all the five terms is  
(A) 17.6 (B) 17.3 (C) 16.5 (D) None of these

**Paper IV : Computer Science (Objective) - Optional**

- Q1. Minimum error code is :  
(A) Octal (B) BCD (C) Grey code (D) None
- Q2. In an array declaration `int a [2] [3]`, total number of elements that can be stored is  
(A) 5 (B) 2 (C) 6 (D) None
- Q3. Under Multiprogramming, turnaround time for short jobs is usually  
(A) Lengthened (B) Shortened (C) Unchanged (D) None of these
- Q4. Group of specially wrapped copper wires that are able to transmit data at high rate is called  
(A) Microwave system (B) Optical fibre (C) Radio wave (D) Coaxial cables
- Q5. Flat file is one which is in  
(A) 1 - NF (B) 2 - NF (C) 3 - NF (D) None

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