

नेपाल चार्टर्ड एकाउन्टेन्ट्स संस्था
प्राविधिक सेवा, सूचना प्रविधि समूह, ०८ तह, सहायक निर्देशक पदको खुला र आन्तरिक प्रतियोगितात्मक
परीक्षाको लागि पाठ्यक्रम

पाठ्यक्रम योजनालाई निम्नानुसारका दुई चरणमा विभाजन गरिएको छ :

| | | |
|----------------|---------------|------------------|
| प्रथम चरण :- | लिखित परीक्षा | पूर्णाङ्क :- २०० |
| द्वितीय चरण :- | अन्तर्वार्ता | पूर्णाङ्क :- ३० |

परीक्षा योजना (Examination Scheme)

१. प्रथम चरण : लिखित परीक्षा (Written Examination)

पूर्णाङ्क :- २००

| पत्र | विषय | पूर्णाङ्क | उत्तीर्णाङ्क | परीक्षा प्रणाली | प्रश्नसंख्या × अङ्क | समय |
|---------|-----------------------------|-----------|--------------|-----------------|---------------------|---------|
| प्रथम | शासकीय प्रबन्ध र व्यवस्थापन | १०० | ४० | विषयगत | १० प्रश्न × १० अङ्क | ३ घण्टा |
| द्वितीय | सेवा सम्बन्धी | १०० | ४० | विषयगत | १० प्रश्न × १० अङ्क | ३ घण्टा |

२. द्वितीय चरण : अन्तर्वार्ता (Interview)

पूर्णाङ्क :- ३०

| विषय | पूर्णाङ्क | परीक्षा प्रणाली |
|--------------------------|-----------|-----------------|
| अन्तर्वार्ता (Interview) | ३० | मौखिक |

द्रष्टव्य :

१. लिखित परीक्षाको माध्यम भाषा नेपाली वा अंग्रेजी अथवा नेपाली र अंग्रेजी दुवै हुन सक्नेछ ।
२. प्रथम र द्वितीय पत्रको लिखित परीक्षा छुट्टाछुट्टै हुनेछ ।
३. लिखित परीक्षामा सोधिने प्रश्नसंख्या र अङ्कभार यथासम्भव सम्बन्धित पत्र/विषयमा दिईए अनुसार हुनेछ ।
४. विषयगत प्रश्नको हकमा एउटा लामो प्रश्न वा एउटै प्रश्नका दुई वा दुई भन्दा बढी भाग (Two or more parts of a single question) वा एउटा प्रश्न अन्तर्गत दुई वा बढी टिप्पणीहरू (Short notes) सोध्न सकिने छ ।
५. प्रत्येक खण्डका लागि छुट्टाछुट्टै उत्तरपुस्तिकाहरू हुनेछन् । परीक्षार्थीले प्रत्येक खण्डका प्रश्नको उत्तर छुट्टाछुट्टै उत्तरपुस्तिकामा लेख्नुपर्नेछ ।
६. यस पाठ्यक्रम योजना अन्तर्गतका पत्र/विषयका विषयवस्तुमा जसुकै लेखिएको भए तापनि पाठ्यक्रममा परेका कानून, ऐन, नियम, विनियम तथा नीतिहरूपरीक्षाको मिति भन्दा ३ महिना अगाडि (संशोधन भएका वा संशोधन भई हटाईएका वा थप गरी संशोधन भई) कायम रहेकालाई यस पाठ्यक्रममा परेको सम्भन्नु पर्दछ ।
७. प्रथम चरणको लिखित परीक्षाबाट छनौट भएका उम्मेदवारहरूलाई मात्र द्वितीय चरणको परीक्षामा सम्मिलित गराइनेछ ।
८. पाठ्यक्रम स्वीकृत मिति : २०८०/०३/२५

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प्रथम पत्र : शासकीय प्रबन्ध र व्यवस्थापन

Section (A): 50 Marks

1. Governance and Management

- 1.1 Concept and principles of governance system
- 1.2 Auditing and Budgeting-principles of auditing and its practices, Capital Planning and Budgeting: Budget Preparation, Implementation, Monitoring and Evaluation
- 1.3 Governance of Banking and insurance
- 1.4 Public accountability, transparency
- 1.5 The foundational values for public service - integrity, impartiality, dedication, empathy, tolerance and compassion
- 1.6 Applications of public management for developing professionalism - Change management, Performance Management, Grievance management, Conflict management and Risk management.
- 1.7 Negotiation skills, method and significance of dispute settlement.
- 1.8 Leadership and communication
- 1.9 Supervision, Monitoring and Quality Control
- 1.10 Project Planning and Scheduling: Network models, CPM/PERT, Project preparation for implementation and justification
- 1.11 Financial analysis: Methods of financial analysis - benefit cost ratio, internal rate of return, net present value, and payback period
- 1.12 Logical Framework analysis and Project Proposal Writing
- 1.13 Need and importance of Research and Development.
- 1.14 Data Analysis – Preparing and presenting data; Summarizing data – graphs and charts; Statistical analysis – descriptive and inferential, parametric and non-parametric; Analysis of qualitative data
- 1.15 Organizational set up of Institute of Chartered Accountants of Nepal (ICAN)
- 1.16 General administration in public sector
- 1.17 Financial administration of ICAN
- 1.18 Accounting profession and general socio-economy

Section (B): (50 Marks)

2. Policies, Acts and Regulations related to IT

- 2.1 ICT Policy, 2072
- 2.2 Broadband Policy, 2014
- 2.3 Electronic Transaction Act, 2063 and Rules, 2064
- 2.4 Copyright Act, 2059
- 2.5 Guidelines related to website construction and management of government offices 2078
- 2.6 Information Technology System (Management and Operation) Directives, 2071
- 2.7 Standards of Mobile Apps of Government Agencies, 2075

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- 3. Roles of Institutions related to IT**
 - 3.1 Ministry of Communication and IT
 - 3.2 Ministry of Education, Science and Technology
 - 3.3 Department of Information Technology
 - 3.4 National Information Technology Center / Government Integrated Data Center
 - 3.5 Office of the Controller of Certification
 - 3.6 Nepal Telecommunication Authority

- 4. Structure, Roles and Regulations of ICAN**
 - 4.1 Formation of ICAN Council and its functions
 - 4.2 Standing and non-standing committees of ICAN
 - 4.3 Disciplinary Committees and its role
 - 4.4 Members profile and services
 - 4.5 Monitoring of members' performance
 - 4.6 Nepal Accounting Standards Board and Nepal Auditing Standards Board
 - 4.7 International good practices in accounting profession regulation
 - 4.8 The ICAN Employee Byelaws, 2066
 - 4.9 The ICAN Financial Administration Byelaws, 2066
 - 4.10 Nepal Chartered Accountants Act, 2053 and Regulation, 2061
 - 4.11 ICAN Procurement Byelaws, 2079

द्वितीय पत्र : सेवा सम्बन्धी

Section (A): (50 Marks)

- 1. Computer Architecture**
 - 1.1 Basic Structures : sequential circuits, design procedure, state table and state diagram, Von Neumann/Harvard architecture, RISC/CISC architecture
 - 1.2 Addressing Methods and Programs, representation of data, arithmetic operations, basic operational concepts, bus structures, instruction cycle
 - 1.3 Processing Unit: instruction formats, arithmetic and logical instruction
 - 1.4 Addressing modes
 - 1.5 Input Output Organization: I/O programming, memory mapped I/O, basic interrupt system, Direct Memory Access (DMA)
 - 1.6 Arithmetic Operations
 - 1.7 Memory Systems

- 2. Operating System**
 - 2.1 Processes and Threads: Symmetric Multiprocessing, Micro-kernels, Concurrency, Mutual Exclusion and Synchronization, Deadlock
 - 2.2 Scheduling: Concept and algorithms
 - 2.3 Memory Management
 - 2.4 Input Output and Files: I/O devices and its organization, Principles of I/O software and hardware, Disks, Files and directories organization, File System Im

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plementation

- 2.5 Distributed Systems: Distributed Message passing, RPC, Client /Server Computing, Clusters
- 2.6 Security : Authentication and Access Authorization, System Flaws and Attacks, Trusted system

3. Computer Networks

- 3.1 Protocol stack, OSI and TCP/IP models
- 3.2 Link Layer: services, error detection and correction, multiple access protocols, LAN addressing and ARP (Address Resolution Protocol), Ethernet, CSMA/CD multiple access protocol, Hubs, Bridges, and Switches, Wireless LANs, PPP (Point to Point Protocol), Wide area protocols
- 3.3 Network Layer :services, datagram and virtual circuits, routing principles and algorithms, Internet Protocol(IP),IP addressing, IP transport, fragmentation and assembly, ICMP (Internet Control Message Protocol),routing on the internet, RIP (Routing Information Protocol), OSPF (Open Shortest Path First), IPv6
- 3.4 Transport Layer: principles, multiplexing and de-multiplexing, UDP, TCP, flow control, principles of congestion control, TCP congestion control
- 3.5 Application Layer : Web and Web caching, FTP (File Transfer Protocol), Electronic mail, DNS (Domain Name Service), socket programming

4. Database Management System

- 4.1 The relational model, ER model
- 4.2 Structured Query Language (SQL)
- 4.3 Functional dependency, normalization and relational database design,
- 4.4 Transaction Management and Concurrency Control: Concurrent execution of the user programs, transactions, Concurrency control techniques
- 4.5 Crash Recovery: types of failure, Recovery techniques
- 4.6 Query Processing and Optimization
- 4.7 Indexing: Hash based indexing, Tree based indexing
- 4.8 Distributed Database Systems and Object oriented database system
- 4.9 Data Mining and Data Warehousing
- 4.10 Database Security

5. Software Engineering

- 5.1 Software process: The software life cycle models, risk-driven approaches
- 5.2 Software project management: Relationship to lifecycle, project planning, project control, project organization, risk management, cost models, configuration management, version control, quality assurance, metrics
- 5.3 Software requirements: Requirements analysis, requirements solicitation, analysis tools, requirements definition, requirements specification, static and dynamic specifications, requirements review, feasibility analysis
- 5.4 Software design: Design for reuse and with reuse, design for change, design

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notations, design evaluation and validation

- 5.5 Implementation: Programming standards and procedures, modularity, data abstraction, static analysis, unit testing, integration testing, regression testing, tools for testing, fault tolerance
- 5.6 Maintenance: The maintenance problem, the nature of maintenance, planning for maintenance
- 5.7 SE issues: Formal methods, tools and environments for software engineering, role of programming paradigm, process maturity and Improvement, ISO standards, SEI-CMM, CASE tools

Section (B): (50 Marks)

6. Information Systems

- 6.1 Information Systems (IS) fundamentals
- 6.2 Information system development
- 6.3 Decision support system
- 6.4 Enterprise Resource Planning
- 6.5 Customer Relationship Management and Supplier Relationship Management
- 6.6 Management Information System (MIS)
 - 6.6.1 MIS & its importance in organization
 - 6.6.2 Information technology infrastructure
 - 6.6.3 Application of MIS
 - 6.6.4 Ethical & social impact of IS

7. E-Commerce Technology

- 7.1 Introduction to E-Commerce
- 7.2 Business models of E-Commerce
- 7.3 Electronic data interchange
- 7.4 Mobile commerce
- 7.5 Technology for online business
- 7.6 Business applications of E-Commerce
- 7.7 Electronic payment system
- 7.8 Security issues of E-Commerce
- 7.9 PKI and digital signature
- 7.10 Encryption and decryption methods

8. Data warehouse & data mining

- 8.1 Data warehousing
 - 8.1.1 Need for data warehousing, trends in data warehousing
 - 8.1.2 Planning and requirement
 - 8.1.3 Architecture, infrastructure and metadata
 - 8.1.4 Data design and representation (principals of dimensional modeling, data extraction, transformation and loading, data quality)
 - 8.1.5 Information access and delivery (matching information to classes of

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users, OLAP in data warehousing, DW and web)

8.1.6 Implementation and maintenance (Physical design process, DW development, growth and maintenance)

8.2 Data mining

8.2.1 Data mining algorithms: Classification, clustering, association rules

8.2.2 Knowledge discovery: KDD process

8.2.3 Web mining: Web content mining, web structure mining, web using mining

8.2.4 Spatial and temporal mining; Visualization

9. IT Strategy

9.1 Strategic use of IT

9.2 Porter 5 Forces model

9.3 Formulating long-term objectives

9.3.1 Long-term objectives

9.3.2 Generic strategies

9.3.3 Grand strategies

9.3.4 The value disciplines

9.4 Strategic analysis and choices

9.5 Value chain analysis

9.6 SWOT analysis

9.7 Core competencies

9.8 Strategy control and continuous improvement

9.9 Strategy implementation

10. IT Project Management

10.1 Requirement engineering

10.2 PERT / CPM network

10.3 Investment analysis and breakeven analysis

10.4 Time value of money

10.5 Financial analysis

10.6 Software Configuration Management (SCM)

10.7 Team building approach

10.8 Issue tracking and management