FIFTH SEMESTER

BCA- 510 COMPUTER NETWORKS

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Computer Networks: Uses of Computer Network, Network Hardware, Network Software, Goals and Applications of Computer networks, Computer Network Structure and Architecture.
Reference Models: OSI Reference Model, TCP/IP reference Model, Comparison of OSI and TCP Reference Model, Introduction of Novell Netware, ARPANET.

SECTION B
Local Area Network: IEEE standards 802 for LAN's and MAN's (802.2, 802.3, 802.4, 802.5, 802.6). Bridge-bridges from 802.x to 802.y, transparent bridges, source routing bridges, remote bridges, comparison of 802 bridges, High speed LANs – FDDI, Fast Ethernet, HIPPI, Fibre channel, Satellite network Polling, ALOHA, FDM, TDM, CDM.

SECTION C
The Internet Protocol - Introduction to Internetworking, The IP protocol, IP Addresses, Subnets, Internet Control Protocol, Interior and Exterior gateway routing protocol., internet multicasting mobile IP, CIDR, IPv6.
The Transport Protocol – Elements of transport protocol, A simple transport protocol, TCP-Service model, TCP protocol, Segment header, Connection management, Transmission policy, Congestion control, timer management, UDP.

SECTION D
Internet Applications: Domain Name System, Electronic mail, The World Wide Web, Multimedia - Audio, Video, Data compression, File Transfer Protocol, TFTP, Simple Mail Transfer Protocol, Telnet, HTTP.

References:

1. A.S. Tannenbaum, "Computer Networks", Third Edition, PHI Publications, 1999.
2. D.E. Corner, "Computer Networks and Internets', 2nd Edition, Addison-Wesley Publication, 2000.
3. D.E. Corner and D.L. Stevens, "Inter-networking with TCP_IP : Design, Implementation and Internals", Vol. II, Prentice Hall, 1990.

4. D. Bertsellas and R. Gallager, “Data Networks”, 2nd Edition, Prentice Hall, 1992.
5. Stevens W.R. “UNIX Network Programming,” Prentice Hall,1990.

BCA-520 SOFTWARE ENGINEERING

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Introduction to Software Engineering: Origin, Definitions and Goals of software engineering, Comparison with traditional Engineering disciplines.
Software development: Phases, Error distribution, Effort distribution, S/W development life cycle: Waterfall and prototype models.

SECTION B
Planning a software project: Team structure (Democratic, Chief programmers and Hierarchical). Software requirement specification: Characteristics & Components of a SRS.
Problem Analysis: Structuring Information, DFD’s & Data dictionary.

SECTION C
Software Design: Design objectives and principles, Design concepts - Abstraction, Information hiding, Concurrency, Structure: Module level concepts: Coupling, Cohesion. Structured design methodology.

SECTION D
Coding: Programming practices-Top down and Bottom up, Structured programming, Programming style, Internal documentation .
Testing and Testing Fundamentals: Error, Fault, Failure, Reliability, Levels of testing, Test case & Testing criteria, Top down and Bottom up approaches.

References:
1. R.E. Fairley, "Software Engineering Concepts", McGraw-Hill, 1985.
2. P. Jalota, "An Integrated Approach to Software Engineering", Narosa Publishing House, 1992
3. M. Shooman, "Software Engineering", McGraw-Hill, 1983.
4. Boris Beizer, “Software Testing Techniques”, Second Edition, Van Nostrand Reinhold, 1990.
5. Roger. S. Pressman, “Software Engineering - A Practitioner’s Approach”, Third Edition, McGraw Hill, 1992
6. Rajib Mal, “Software Engineering’.

BCA-530 INTERNET & WEB TECHNOLOGY

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
1. Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.
2. Use of non-programmable scientific calculator is allowed.

SECTION A
Definition of Internet, Internet organisation and committees, Internet, Growth of Internet, Internet- 3, Anatomy of Internet, Internet Application, Portals, Introduction about WWW, Definition of DNS (Domain Name System), IP Addressing.

SECTION B
Types of Network, Topologies, PSTN, PSDN,VAN, ISDN, PDNs, Wide Area Network, Introduction about search engines (Google, Lycos, Gopher etc), Email, Introduction about mail protocol (SMTP, MME)

SECTION C
OSI Reference method, TCP/IP model, FTP, HHTP, HTTPS, Addressing in Internet (Class A,B,C,D,E) Definition of Ethernet, Intranet, Telnet, Wireless communication, Virtual Circuits.

SECTION D
Introduction about HTML, Tag, Types of Tags, Forms, Tables, Images usertion in web page, Introduction about DMTL, CGI.

Reference:-

1. A.S. Tanenbaum, “Computer Networking”(3rd Edition), PHI, 1999
2. D. Betsekas, “Computer Networks”, (2nd Edition), PHI, 1992.
3. Prougun, “Data and Communicatio Networks”, TMH.

BCA-540 . NETFRAMEWORK AND C#

Maximum Time : 3 Hrs. University Examination : 70 Marks
Total Marks : 100 Continuous Internal Assessment : 30 Marks
Minimum Pass Marks : 40%

(A) Instructions for the Paper setter:
The question paper will consist of five sections: A, B, C, D and E. Sections A, B, C and D will have two questions from the respective sections of the syllabus and will carry 15% of the total marks (12 marks) each. Section E will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40% of the total marks (32 marks) in all.

(B) Instructions for the Candidates:
Candidates are required to attempt one question each from the section A, B, C and D of the question paper and the entire section E.

SECTION A
. Net framework, Common language runtime, Framework Base classes, User and Program Interfaces, Visual Studio. NET, NET languages, Benefits of . NET Application C# and . NET.

SECTION B
Name Spaces, Main Returning a value , Passing string objects write line method. Command line arguments, using mathematics functions, Literals, Variables, Operators, Expressions. Decision making (if, if…..else, Nested if, else…. If ladder, Switch , ? : Operator) Looping (While, do , for , for each Jumps in loops)

SECTION C
Methods, Parameters, Pass by value, Pass by reference, Methods overloading, Arrays, Strings, Structures, Enumerations, Difference between class & structure.
Classes, access modifiers, accessing class members, constructors, overloaded constructors, copy constructors, destructors.

SECTION D
Classical Inheritance, Containment inheritance, Subclasses constructors, Multilevel, Hierarchical Inheritance, Abstract classes, Defining and Implementation of Interfaces, Interfaces and Inheritances, Overloading unary and binary operators.
Delegates and events, exceptions, multiple caches, finally statement, throwing and own exception.

Reference:-

1. Shibi Panikkar and Kumar Sanjeev, “Magic of C# with .NET FrameWork”, Laxmi Publication
2. P. Jalota, “An Intergrated Approach to software Engineering”, Narosa Publishing House.