

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", 2<sup>nd</sup> 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. Frougan "Data communication an Networking", TMH.

MCA-520

ARTIFICIAL INTELLEGENGE

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

Turing test, characteristic of AI approach for problem solving, problem representation in AI, State space Representation, Problem reduction, Automated reasoning with propositional logic and predicate logic, refutation, resolution, modus Ponens, modus Tollens, WFF.

#### SECTION B

AI searching techniques : Breadth first, Depth first search, Hill climbing, Problem of Hill climbing, Best first search , A\*, AO\*, Beam Search, Constraint Satisfaction.

Knowledge Representation :- Frames, scripts, Semantic nets, production systems , procedural representation.

#### SECTION C

Natural language processing :- Need, Problem of NLP, Keyword analysis, syntactic Driver, RTN, ATN, Game playing : AI and Game playing generator, minimal, adding a-b cutoffs, Roles of a, Role of b Horizon effect, Optimal mere equation.

#### SECTION D

Expert system :- Representation and using domain knowledge, characteristic of Expert system, Architecture of ES, Knowledge Base, Inference Engine ( Forward & Backward chaining)

Production system, User interface, Knowledge acquisition facility, External Interface, Pattern

Recognition :- Concepts, Recognition & classification process, Learning classification patterns, recognizing & understanding speech.

Reference:

1. E. Rich & Knight, "Artificial Intelligence", Tata McGraw Hill.
2. Dan W. Peterson, "Introduction to Artificial Intelligence and expert system", AddisonWesley Publishing Company.
3. E. Charniak and D. McDermott, "Introduction to artificial Intelligence", AddisonWesley Publishing Company.
4. Nils J. Nilson "Principles of Artificial Intelligence", Narosa Publishing Co.

MCA-530

JAVA ENTERPRISE

Maximum Time : 3 Hrs.  
Total Marks : 100  
Minimum Pass Marks : 40%

University Examination : 70 Marks  
Continuous Internal Assessment : 30 Marks

(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 Java Enterprise, Java enterprise, API, JDBC, Architecture, basics, drivers, connecting to databases, statements, results, errors, prepared statements, metadata, transaction, stored procedures, escape requires.

#### SECTION B

RMI, Defining remote objects, accessing remote objects as clients, dynamically loaded classes, remote object activation, RMI and native method calls.

#### SECTION C

Java servlets, servlet life cycle, JSP, JSP life cycle, basics, chaining, Initialization, thread safety, server-side, includes, cookies, session tracking, databases and Non-HTML contents.

JNDI, Architecture, Introducing context, looking up objects in a context, Naming shell application, listing the children of a context, binding objects, accessing and modifying directory entries.

#### SECTION D

Enterprise Javabeans, JB Doles, Transaction management implementing basic EJB objects implementing sessions beams, implementing entity beams, deploying objects.

Modelling components with COBRA, COBRA overview, The OTB, GIOP & IIOP, services facilities and business objects, ID, objects by values, COBRA communication.

Reference:-

1. David flangan, Jim Farley, W. Crawford and kris Magnusson, "Java Enterprise in a nutshell", Shroff Publishers, Calcutta, 2000
2. P.J. Perrone and V.S.R.R. Chaganti, "Building Java Enterprise systems with J2EE", SAMS, BPB Publications, 2000.
3. E. Balaguru Swami, "Programming in Java", TMH.
4. Patrick Naughton and Herbert Schildt, "The complete Reference Java 2", TMH, 1999.

MCA-540 P                      PROGRAMMING LAB- V (With Java Enterprise)

Maximum Time : 3 Hrs.  
Total Marks : 100  
Minimum Pass Marks : 40%

University Examination                      : 70 Marks  
Continuous Internal Assessment : 30 Marks

This laboratory course will mainly comprise of exercises on what is learnt under paper :  
MCA-530 Java Enterprise.

SIXTH SEMEMSTER

MCA-610 P

PROJECT

Maximum Time                      : 3 Hrs.  
Total Marks                            : 100  
Minimum Pass Marks                : 40%

University Examination                      : 70 Marks  
Continuous Internal Assessment : 30 Marks

1. Student are supposed to spend 45-55 hours on the project. The internal teacher must monitor progress of the project. Student can arrange the project at their own level, however, institute can also assist in getting the project and can issue necessary letters etc.
2. The external examiner will distribute marks allocated for University examination for viva/project report and for any other activity, which the external examiner thinks to be proper.

Maximum Marks for Project Application      60%  
Max Marks for Viva                                40%

3. Joint projects will be allowed and joint project reports will also be accepted. The students should highlight their contributions in a joint project report.
4. The student have to submit tow copies of Project reports. The examiners will evaluate these reports on the spot at the time of examination and will conduct the viva.