



PM

POLYTECHNIC

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to State Board of Technical Education, Panchkula, Haryana

SCHEME FOR SIXTH SEMESTER (COMPUTER ENGINEERING)

Sr. No.	Subject	Study Scheme			EVALUATION SCHEME						Total Marks
					INTERNAL ASSESSMENT		EXTERNAL ASSESMENT (EXAMINATION)				
					Theory	Practical	Written Paper		Practical		
					Max. Marks	Max. Marks	Max. Marks	Hrs.	Max. Marks	Hrs.	
6.1	Network Security	3	-	3	25	25	100	3	50	3	200
6.2	Distributed Computing	3	-	-	25	-	100	3	-	-	125
6.3	Programming in Java	3	-	3	25	25	100	3	50	3	200
6.4*	Employability Skills – II	-	-	2	-	25	-	-	50	3	75
6.5*	Entrepreneurship Development and Management	3	-	-	25	-	100	3	-	-	125
6.6	Project Work	-	-	15	-	100	-	-	100	3	200
# Student Centred Activities		-	-	5	-	25	-	-	-	-	25
Total		12	-	28	100	200	400	-	250	-	950

* Common with other diploma programmes

Student Centred Activities will comprise of co-curricular activities like extension lectures, library studies, games, hobby clubs e.g. photography, painting, singing, seminars, declamation contests, educational field visits, N.C.C., NSS, Cultural Activities, Civil Defence/Disaster Management activities etc.



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SYLLABUS: Polytechnic (CSE)

Department: Computer Science & Engineering – 6th Semester

Subject: Network Security (Theory)

Subject Code: 120862

Detailed Contents

Unit No.1 Introduction

- Topic No.1: Need for securing a network
- Topic No.2: Principles of Security
- Topic No.3: Type of attacks
- Topic No.4: Introduction to cyber crime
- Topic No.5: Cyber law-Indian Perspective
- Topic No.6: Cyber ethics
- Topic No.7: Ethical hacking
- Topic No.8: What is hacking? Attacker, preacher etc.

Unit No.2 Securing Data over Internet

- Topic No.9: Introduction to basic encryption and decryption
- Topic No.10: Symmetric and asymmetric key cryptography
- Topic No.11: Overview of DES, RSA and PGP
- Topic No.12: Introduction to Hashing: MD5, SSL, SSH, HTTPS
- Topic No.13: Digital Signatures
- Topic No.14: Digital certification
- Topic No.15: IPSec

Unit No.3 Virus, Worms and Trojans

- Topic No.16: Definitions,
- Topic No.17: Preventive measures – access central
- Topic No.18: Checksum verification
- Topic No.19: Process configuration, virus scanners
- Topic No.20: Heuristic scanners
- Topic No.21: Application level virus scanners
- Topic No.22: Deploying virus protection

Unit No.4 Firewalls

- Topic No.23: Definition and types of firewalls
- Topic No.24: firewall configuration
- Topic No.25: Limitations of Firewall.

Unit No.5 Intrusion Detection System (IDS)

- Topic No.26: Introduction; IDS limitations
- Topic No.27: Teardrop attacks
- Topic No.28: Counters measures
- Topic No.29: Host based IDS set up

Unit No.6 Handling Cyber Assets

- Topic No.30: Configuration policy as per standards Disposable
- Topic No.31: Disposable policy

Unit No.7 Virtual Private Network (VPN)

- Topic No.31: Basics, setting of VPN
- Topic No.32: VPN diagram
- Topic No.33: Configuration of required objects
- Topic No.34: Exchanging keys
- Topic No.35: Modifying security policy



Unit No.8 Disaster and Recovery

- Topic No.36: Disaster categories
- Topic No.37: Network disasters
 - Topic No.37.1: cabling, topology
 - Topic No.37.2: single point of failure
 - Topic No.37.3: saves configuration files
- Topic No.38: server disasters
 - Topic No.38.1: UPS, RAID
 - Topic No.38.2: Clustering, Backups, server recovery

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment			External Assessment (Examination)			
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
3	-	-	25	-	100	3	-	-	125

TEXT BOOKS:

1. Computer System Architecture by M. Mano, Prentice-Hall.
2. Structured Computer Organisation by A.S. Tanenbaum, 6th edition, Prentice-Hall of India, Eastern Economic Edition

REFERENCE BOOKS:

1. Computer Organization, 5th Edi, by Carl Hamacher, Zvonko Vranesic, 2002, SafwatZaky.
2. Computer Organization and Design, 2nd Ed., by David A. Patterson and John L. Hennessy, Morgan 1997, Kauffmann.
3. Computer Architecture and Organization, 3rd Edi, by John P. Hayes, 1998, TMH

INSTRUCTIONAL STRATEGY

Since the facilities are not available in the polytechnic, students need exposure to various security systems and software available in some organisations, universities and engineering colleges. For this, visits may be organized for students. The teachers should also be exposed in this area. Some practicals can be conducted in the laboratory.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	6	10
2	12	20
3	8	20
4	4	10
5	3	10
6	4	10
6	6	10
7	6	10
Total	48	100



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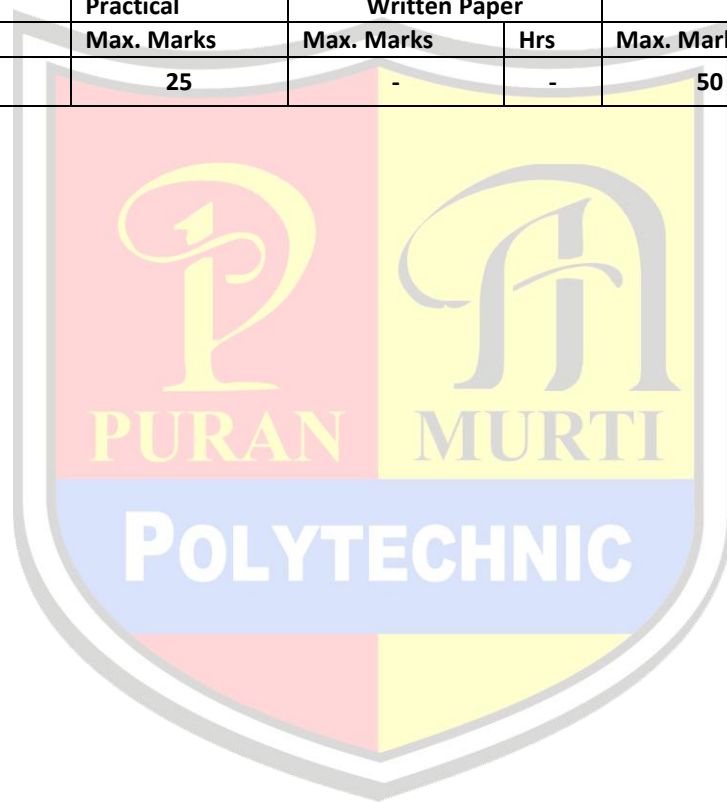
Subject: Network Security (Practical)

Subject Code: 120862(P)

LIST OF PRACTICALS

1. Installation and comparison of various antivirus software
2. Installation and study of various parameters of firewall.
3. Writing program in C to Encrypt/Decrypt using XOR key.
4. Study of VPN.
5. Study of various hacking tools.
6. Practical applications of digital signature

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	2		25	-	-	50	3	75





Detailed Contents

Unit No.1 Cloud Computing

- Topic No.1: Overview of Cloud Computing
- Topic No.2: Characteristics of Cloud Computing
- Topic No.3: Advantages of Cloud Computing
- Topic No.4: Challenges of Cloud Computing
- Topic No.5: Applications of Cloud Computing

Unit No.2 Cloud Computing Service and deployment Models

- Topic No.6: Service Model- Sas, Pas, Ias
- Topic No.7: Deployment Model
- Topic No.7.1: Private Cloud, Public Cloud
- Topic No.7.2: Hybrid Cloud, Community Cloud

Unit No.3 Grid Computing

- Topic No.8: Overview
- Topic No.9: Advantages
- Topic No.10: Virtual Organizations
- Topic No.11: Application

Unit No.4 Other Technologies

- Topic No.12: Cluster Computing
- Topic No.13: Peer to Peer Networks
- Topic No.14: Utility Computing
- Topic No.15: Ubiquitous Computing
- Topic No.16: Comparison of Grid
- Topic No.17: Cluster and Cloud Computing

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment			External Assessment (Examination)			
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
3	-	-	25	-	100	3	-	-	125

TEXT BOOKS:

- Cloud Computing Bible by Berrie Sorinby
- Cloud Computing, A Practical Approach by Toby Velte, Anthony Velte

REFERENCE BOOKS:

- Introduction to Grid Computing by Bart Jacob and Michael Brown

INSTRUCTIONAL STRATEGY

The subject contents are designed keeping in view the future trends. Although this is theoretical subject, sufficient time is given in which the students can be taken to the laboratory and some practical hand on experience be given to the students using free ware Cloud Platforms available to give students better understands of the topic.



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SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	12	25
2	12	25
3	12	25
4	12	25
Total	48	100





Detailed Contents

Unit No.1 Introduction to Java

- Topic No.1: A brief history, how J
- Topic No.2: Java Virtual Machine (JVM), Java In Time (JIT) Compiler
- Topic No.3: Java features, Java application types
- Topic No.4: comparison with C and C++

Unit No.2

- Topic No.5: Working with data types
- Topic No.6: control flow statements
- Topic No.7: Arrays
- Topic No.8: casting, command line arguments

Unit No.3 Java Classes and Memory Management

- Topic No.9: Introduction to Classes
- Topic No.10: inheritance
- Topic No.11: encapsulation and polymorphism
- Topic No.12: constructors and finalizers
- Topic No.13: garbage collection, access specifier

Unit No.4 Interfaces and Packages

- Topic No.14 Using Java interface
- Topic No.15 using Java packages

Unit No. 5 Exception Handling and Stream Files

- Topic No.16 Over view of exception handling, method to use exception handling
- Topic No.17 method available to exceptions
- Topic No.18 creating your own exception classes

Unit No. 6 Threads and Multi-threading

- Topic No.19: Overview, thread basics – creating and running a thread
- Topic No.20: The thread control methods
- Topic No.21: Thread life cycle and synchronization

Unit No. 7 Introduction to Applet, Application and JDK

- Topic No.22: Java applets Vs Java applications
- Topic No.23: building application with JDK, building applets with JDK
- Topic No. 24: HTML for Java applets, managing input-output stream

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
3	-	-	25	-	100	3	-	-	125

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INSTRUCTIONAL STRATEGY

The subject deals with object oriented concept. As the subject has both theory and practicals, more stress should be given to practical work.



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SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	8	18
2	10	20
3	8	18
4	4	8
5	6	12
6	6	12
7	6	12
Total	48	100





LIST OF PRACTICALS

1. A) Write a program which tells whether a number is even or odd. Take a range from 1 – 50
b) Display the output which is given below:
*
* *
* * *
- c) Write a program which sorts an array of type integer
- d) Write a programme to determine the sum of the following harmonic series for a given value of n: $1+1/2+1/3+.....+1/n$ the value of n should be given interactively through the keyboard
2. Write a programme to convert the given temperature in Fahrenheit to Celsius using the following conversion formula $C = F.32/1.8$ and display the value in a tabular form
3. Write a programme to find all the numbers and sum of all integers greater than 100 less than 200 that are divisible by 7
4. Given a list of marks ranging from 0 to 100, write a programme to compute and print the number of student should have obtained marks (a) in the range 81 to 100 (ii) in the range 61 to 80 (c) in the range 41 to 60 (d) in the range 0 to 40. The programme should use a minimum number of if statement
5. Admission to a professional course is subject to the following conditions:
 - a) Marks in mathematics ≥ 60
 - b) Marks in physics ≥ 50
 - c) Marks in chemistry ≥ 40
 - d) Total in all 3 subjects ≥ 200 (OR)

Total in mathematics and physics ≥ 150 given the marks in the 3 subjects. Write the programme to process the application to list the eligible candidates
6. The number in the sequence 1 1 2 3 5 8 13 21 Are called Fibonacci numbers. Write programme using a do while loop to calculate and print the first m fibonacci numbers (Hint: after the first 2 numbers in the series, each number is the sum of the 2 preceding the numbers)
7. Write a programme to evaluate the following investment equation $V=P(1+r)^n$ and print the tables which would give the value of V for various combination of the following values of P, r and n.
8. Write a program which will store the students roll no. names and total marks in the database
9. Write a program which will display all those records whose marks are above 75%
10. Write a programme to draw the following using Applet:
11. Exercises on implementing Java Classes.
12. Exercises on exceptional handling
13. Exercises on creating and running threads

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	3	-	25	-	-	50	3	75



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Subject: EDM (Theory)

Subject Code: 120254

Detailed Contents

Unit No.1 Introduction

- Topic No.1: Concept /Meaning and its need
- Topic No.2: Qualities and functions of entrepreneur and barriers in Entrepreneurship
- Topic No.3: Sole proprietorship and partnership forms of business Organizations
- Topic No.4: Schemes of assistance by entrepreneurial support Agencies at National, State, District level NSIC, NRDC
- Topic No.5: DC: MSME
- Topic No.6: SIDBI, NABARD, Commercial Banks,
- Topic No.7: SFC's TCOs, KVIB, DIC,
- Topic No.8: Technology Business Incubator (TBI)
- Topic No.9: Science and Technology Entrepreneur Parks (STEP).

Unit No.2 Market Survey and Opportunity Identification

- Topic No.10: Scanning of business environment
- Topic No.11: Salient features of National and State industrial policies and resultant business opportunities
- Topic No.12: Types and conduct of market survey
- Topic No.13: Assessment of demand and supply in potential areas of Growth
- Topic No.14: Identifying business opportunity
- Topic No.15: Considerations in product selection

Unit No.3 Project report Preparation

- Topic No.16 Preliminary project report
- Topic No.17 Detailed project report including technical, economic and market feasibility
- Topic No.18 Common errors in project report preparations
- Topic No.19 Exercises on preparation of project report

SECTION –B MANAGEMENT

Unit No.4 Introduction to Management

- Topic No.20: Definitions and importance of management
- Topic No.21: Functions of management: Importance and Process of Planning, organizing, staffing, directing and controlling
- Topic No.22: Principles of management (Henri Fayola, F.W. Taylor)
- Topic No.23: Concept and structure of an organization
- Topic No.24: Types of industrial organizations: Line organization, Line and staff organisation, Functional Organisation

Unit No.5 Leadership and Motivation

- Topic No.25: Leadership: Definition and Need, Qualities and functions of a leader, Manager Vs leader, Types of leadership
- Topic No.26: Motivation: Definitions and characteristics, Factors affecting motivation, Theories of motivation (Maslow, Herzberg, McGregor)

Unit No.6 Management Scope in Different Areas

- Topic No.:27 Human Resource Management: Introduction and objective, Introduction to Man power planning, recruitment And selection, Introduction to performance appraisal methods
- Topic No.28: Material and Store Management: Introduction functions, and objectives, ABC Analysis and EOQ
- Topic No.29: Marketing and sales: Introduction, importance, and its functions, Physical distribution, Introduction to Promotion mix, Sales promotion
- Topic No.30: Financial Management: Introductions, importance and its functions, Elementary knowledge of income tax, sales tax, excise duty, custom duty and VAT

Unit No.7 Miscellaneous Topics

- Topic No.31: Customer Relation Management (CRM): Definition and need, Types of CRM
- Topic No.32: Total Quality Management (TQM): Statistical process control, Total employees Involvement, Just in time (JIT)
- Topic No.33: Intellectual Property Right (IPR): Introductions, definition and its importance, Infringement related to patents, Copy right, trade Mark



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Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
3	-	-	25	-	100	3	-	-	125

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INSTRUCTIONAL STRATEGY

Some of the topics may be taught using question/answer, assignment or seminar method. The teacher will discuss stories and case studies with students, which in turn will develop appropriate managerial and entrepreneurial qualities in the students. In addition, expert lecturers may also be arranged from outside experts and students may be taken to nearby industrial organisations on visit. Approach extracted reading and handouts may be provided.

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (hrs)	Marks Allotted (%)
1	14	28
2	10	20
3	8	16
4	4	10
5	3	6
6	6	14
7	3	6
Total	48	100



Detailed Contents

Project work aims at developing skills in the students whereby they apply the totality of knowledge and skills gained through the course in the solution of particular problem or undertaking a project. The students have various aptitudes and strengths. Project work, therefore, should match the strengths of students. For this purpose, students should be asked to identify the type of project work, they would like to execute. It is also essential that the faculty of the respective department may have a brainstorming session to identify suitable project assignments. The project assignment can be individual assignment or a group assignment. The students should identify the project at least two to three months in advance. The project work identified in collaboration with industry may be preferred.

Each teacher is expected to guide the project work of 5-6 students.

- Projects related to increasing productivity
- Projects related to quality assurance
- Projects related to estimation and economics of production
- Projects connected with repair and maintenance of plant and equipment
- Projects related to identification of raw material thereby reducing the wastage
- Any other related problems of interest of host industry

A suggestive criteria for assessing student performance by the external (personnel from industry) and internal (teacher) examiner is given in table below:

Sr. No.	Performance criteria	Max. marks	Rating Scale				
			Excellent	Very good	Good	Satisfactory	Poor
1.	Selection of project assignment	10	10	8	6	4	2
2.	Planning and execution of considerations	10	10	8	6	4	2
3.	Quality of performance	20	20	16	12	8	4
4.	Providing solution of the problems or production of final product	20	20	16	12	8	4
5.	Sense of responsibility	10	10	8	6	4	2
6.	Self expression/ communication skills	5	5	4	3	2	1
7.	Interpersonal skills/human relations	5	5	4	3	2	1
8.	Report writing skills	10	10	8	6	4	2
9.	Viva voce	10	10	8	6	4	2
Total marks		100	100	80	60	40	20

The overall grading of the practical training shall be made as per following table

	Range of maximum marks	Overall grade
i)	More than 80	<i>Excellent</i>
ii)	65-80	<i>Very good</i>
iii)	50-64	<i>Good</i>
iv)	41-49	<i>Fair</i>
v)	Less than 40	<i>Poor</i>



In order to qualify for the diploma, students must get “Overall Good grade” failing which the students may be given one more chance of undergoing 8 -10 weeks of project oriented professional training in the same industry and re-evaluated before being disqualified and declared “not eligible to receive diploma”. It is also important to note that the students must get more than six “goods” or above “good” grade in different performance criteria items in order to get “Overall Good” grade.

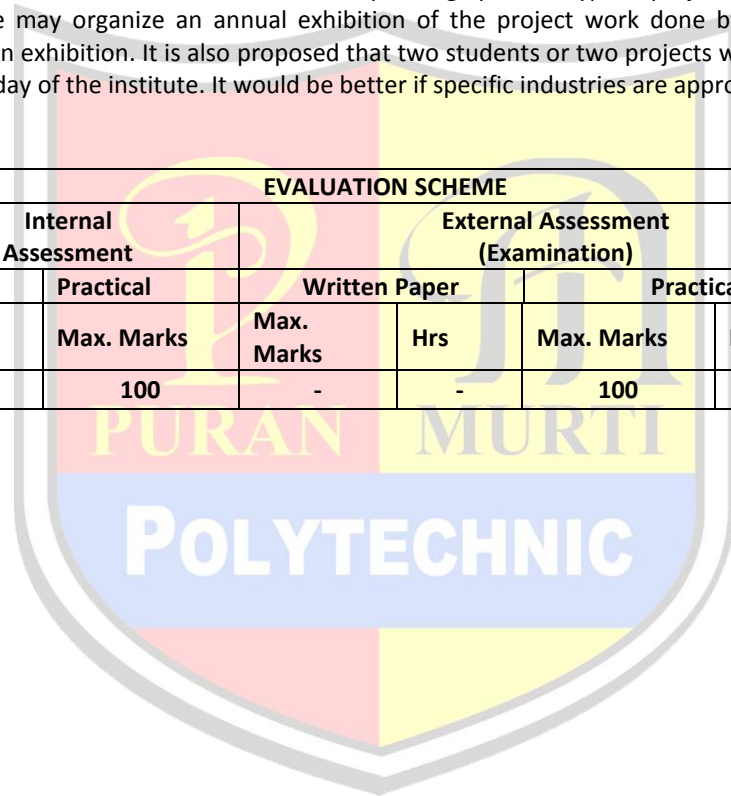
Important Notes

1. This criterion must be followed by the internal and external examiner and they should see the daily, weekly and monthly reports while awarding marks as per the above criteria.
2. The criteria for evaluation of the students have been worked out for 100 maximum marks. The internal and external examiners will evaluate students separately and give marks as per the study and evaluation scheme of examination.
3. The external examiner, preferably, a person from industry/organization, who has been associated with the project-oriented professional training of the students, should evaluate the students performance as per the above criteria.
4. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific nearby industries are approached for instituting such awards.

The teachers are free to evolve another criterion of assessment, depending upon the type of project work.

It is proposed that the institute may organize an annual exhibition of the project work done by the students and invite leading Industrial organizations in such an exhibition. It is also proposed that two students or two projects which are rated best be given merit certificate at the time of annual day of the institute. It would be better if specific industries are approached for instituting such awards.

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	15	-	100	-	-	100	3	200





Detailed Contents

Topic No.1. Oral Practice

- i) Mock interview
- ii) Preparing for meeting
- iii) Group discussion
- iv) Seminar presentation
- v) Making a presentation
 - a) Elements of good presentation
 - b) Structure and tools of presentation
 - c) Paper reading
 - d) Power point presentation

STUDY SCHEME			EVALUATION SCHEME						Total Marks
			Internal Assessment		External Assessment (Examination)				
Hrs/week			Theory	Practical	Written Paper		Practical		
L	T	P	Max. Marks	Max. Marks	Max. Marks	Hrs	Max. Marks	Hrs	
-	-	3	-	25	-	-	50	3	75

