



MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY (Autonomous Institution – UGC, Govt. of India)

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(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC - „A“ Grade - ISO 9001:2015 Certified) Maisammaguda, Dhulapally (Post Via Hakimpet), Secunderabad – 500100, Telangana State, India.
Contact Number: 040-23792146/64634237, E-Mail ID: mrcet2004@gmail.com, website: www.mrcet.ac.in

DEPARTMENT OF INFORMATION TECHNOLOGY III B.TECH I SEMESTER R15 SUPPLEMENTARY PREVIOUS QUESTION PAPERS



LIST OF SUBJECTS

CODE	NAME OF THE SUBJECT
R15A0512	Compiler Design
R15A0065	Management Science
R15A0513	Operating Systems

Code No: **R15A0512****MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Supplementary Examinations, Dec-21/Jan-22**Compiler Design****(CSE&IT)**

Roll No									
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Time: 3 hours**Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question From each SECTION and each Question carries 10 marks.

PART-A (25 Marks)

- 1). a Why lexical and syntax analyzers are separated? [2M]
 b Eliminate immediate left recursion for the following grammar: [3M]
 $E \rightarrow E+T \mid T$
 $T \rightarrow T*F \mid F$
 $F \rightarrow (E) \mid id$
- c What is recursive decent parsing? [2M]
 d Differentiate between SLR, LALR and CLR parsers [3M]
 e What is the s – attributes and l – attributes? [2M]
 f Write a short note on Flow graph. [3M]
 g What is common sub expression elimination? [2M]
 h Draw the typical structure of an activation record [3M]
 i What is dead code? [2M]
 j How to allocate registers to instruction? [3M]

PART-B (50 MARKS)**SECTION-I**

- 2 Regular expressions are important for lexical analysis? Explain the reason with examples. [10M]

OR

- 3 Explain different phases of a compiler in detail. [10M]

SECTION-II

- 4 Consider the below grammar [10M]
 $S \rightarrow aBDh$; $B \rightarrow cC$; $C \rightarrow bC/\epsilon$; $D \rightarrow EF$; $E \rightarrow g/\epsilon$; $F \rightarrow f/\epsilon$
 Where $\{S,B,C,D,E,F\}$ is the set of non-terminal symbols, S is the start symbol, $\{a,b,c,f,g,h\}$ is the set of terminal symbols. Compute FIRST and FOLLOW sets for each Non-terminal.

OR

- 5 Explain a method how ambiguous grammar's can be parsed with an example. [10M]
- SECTION-III**
- 6 What are the variants of syntax trees? Shows the DAG for the expression $a + a * (b - c) + (b - c) * d$. [10M]
- OR
- 7 Write about different data structures suitable for Symbol Table. [10M]
- SECTION-IV**
- 8 Discuss about the following: [10M]
- a) Copy Propagation
 - b) Dead code Elimination and
 - c) Code motion.
- OR
- 9 Explain various storage allocation strategies with its merits and demerits [10M]
- SECTION-V**
- 10 Explain the different issues in the design of a code generator. [10M]
- OR
- 11 Construct the DAG for the basic block with following code: [10M]
- d := b*c
 - e := a+b
 - b := b*c
 - a := e-d

Code No: **R15A0065****MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY**

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III B.Tech I Semester Supplementary Examinations, Dec-21/Jan-22**Management Science**

(CSE & IT)

Roll No										
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Time: 3 hours**Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question From each SECTION and each Question carries 10 marks.

PART-A (25 Marks)

- 1).
 - a Discuss the Importance of Management in Organization. [2M]
 - b Write System Approach theory of Management. [3M]
 - c List out the Principles of Plant Layout. [2M]
 - d Mention the Functions of Marketing. [3M]
 - e What do you mean by Personnel Management [2M]
 - f What are the functions of HR Manager. [3M]
 - g Write down the rules of drawing network. [2M]
 - h What do you mean by Project Cost Analysis [3M]
 - i Define Mission statement. [2M]
 - j Write down the importance of Strategy [3M]

PART-B (50 MARKS)**SECTION-I**

- 2 Explain Taylor's Scientific Management theory. [10M]
OR
- 3 Describe different styles of Leadership and Point out the merits and Limitations. [10M]

SECTION-II

- 4 Assuming as a Marketing Manager, Explain the significance of Product Life Cycle using any suitable Example. [10M]
OR
- 5 What is Cellular Organization? And explain the salient feature of Line, Line and staff Organization. [10M]

SECTION-III

- 6 Explain Various methods of Performance appraisal and how employee performance is measured in organization. [10M]
OR
- 7 Why manpower planning is important for any organization? What are the factors that influence man power planning? [10M]

SECTION-IV

- 8 Differentiate “Critical Path Method” from ‘Project Evaluation and Review Technique. [10M]

OR

- 9 A project has the Following time Schedule [10M]

Activity	Time in months	Activity	Time in Months
1-2	2	4-6	3
1-3	2	5-8	1
1-4	1	6-9	5
2-5	4	7-8	4
3-6	8	8-9	3
3-7	5		

Construct PERT network and compute critical path and its duration.

SECTION-V

- 10 Define Strategic Management and describe its strategy and objectives. [10M]

OR

- 11 Explain the concept of SWOT analysis by taking an example of your choice. [10M]

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III B.Tech I Semester Supplementary Examinations, Dec-21/Jan-22**Operating Systems****(CSE&IT)**

Roll No									
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Time: 3 hours**Max. Marks: 75****Note:** This question paper contains two parts A and B

Part A is compulsory which carries 25 marks and Answer all questions.

Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question From each SECTION and each Question carries 10 marks.

PART-A (25 Marks)

- 1). a Give any two differences between Parallel and Distributed Systems. [2M]
- b List Various OS Objectives. [3M]
- c Differentiate Micro and Macro Kernel. [2M]
- d Write any two classical problems of synchronization [3M]
- e How to calculate the performance of Demand Paging. [2M]
- f A system with a 32-bit logical address space, if the page size is 4KB, then the page table may consists of how many entries? [3M]
- g List the operations of a Directory. [2M]
- h Differentiate Constant Linear Velocity and Constant Angular Velocity in disks. [3M]
- i Explain thread scheduling [2M]
- j Recall the Principles of Protection [3M]

PART-B (50 MARKS)**SECTION-I**

- 2 What are the main functions of operating system? Explain OS Structure. [10M]
- OR
- 3 Compare the Batch, Multi programmed and time shared. [10M]

SECTION-II

- 4 Consider the following set of processes, with the length of the CPU burst given in milliseconds: [10M]

Process	Burst Time	Priority
P1	10	3
P2	1	1
P3	2	4
P4	1	5
P5	5	2

The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0. Draw Gantt chart that illustrate the execution of these processes using the non preemptive priority (a smaller priority number implies a higher priority) scheduling algorithm. What is the turnaround time and waiting time of each process?

OR

- 5 Write and explain Producer-Consumer classical synchronization problem. [10M]

SECTION-III

- 6 Illustrate the following Page Replacement algorithms with clear examples. [10M]
(a) FIFO (b) Optimal

OR

- 7 Sketch the structure of page table. What is the purpose of paging the page tables [10M]

SECTION-IV

- 8 What is a file? What are the different operations that can be performed on a file? [10M]

OR

- 9 Discuss the Following Disk scheduling Algorithms with suitable examples: [10M]
a)FCFS b)SSTF

SECTION-V

- 10 Illustrate the Principles of Protection. [10M]

OR

- 11 How resource allocation graph is useful in Deadlock detection? Explain? [10M]
