

NEHRU COLLEGE OF ENGINEERING AND RESEARCH CENTRE

(Accredited by NAAC, ISO 9001-2015 certified, Approved by

AICTE New Delhi, Affiliated to APJKTU) Pampady,

Thiruvilwamala(PO), Thrissur(DT), Kerala 680 588

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY QUESTION PAPERS

VISION OF THE INSTITUTION

To mould true citizens who are millennium leaders and catalysts of change through excellence in education.

MISSION OF THE INSTITUTION

NCERC is committed to transform itself into a center of excellence in Learning and Research in Engineering and Frontier Technology and to impart quality education to mould technically competent citizens with moral integrity, social commitment and ethical values.

We intend to facilitate our students to assimilate the latest technological know-how and to imbibe discipline, culture and spiritually, and to mould them in to technological giants, dedicated research scientists and intellectual leaders of the country who can spread the beams of light and happiness among the poor and the underprivileged.

ABOUT DEPARTMENT

- ◆ Established in: 2002
- ◆ Courses offered : B.Tech in Computer Science and Engineering
M.Tech in Computer Science and Engineering
M.Tech in Cyber Security
- ◆ Approved by AICTE New Delhi and Accredited by NAAC
- ◆ Certified by ISO 9001-2015.
- ◆ Affiliated to the A P J Abdul Kalam Technological University.

DEPARTMENT VISION

Producing Highly Competent, Innovative and Ethical Computer Science and Engineering Professionals to facilitate continuous technological advancement.

DEPARTMENT MISSION

1. To Impart Quality Education by creative Teaching Learning Process
2. To Promote cutting-edge Research and Development Process to solve real world problems with emerging technologies.
3. To Inculcate Entrepreneurship Skills among Students.
4. To cultivate Moral and Ethical Values in their Profession.

**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER**

Q. P. Code : 2A181

(Pages: 4)

Name

Reg. No:

SECOND SEMESTER M.TECH. DEGREE EXAMINATION, APRIL 2018

Branch: CSE

Specialization: Computer Science and Engineering

08 CS 6012 ADVANCED COMPILER DESIGN

Time:3 hours

Max. Marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
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1.a	Obtain an annotated parse tree for the following syntax directed definition with synthesised and inherited attributes for the grammar for type declarations.	3
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Production	Semantic rule
$D \rightarrow T L$	$L.in := T.type$
$T \rightarrow int$	$T.type := integer$
$T \rightarrow real$	$T.type := real$
$L \rightarrow L_1, id$	$L_1.id := L.in; addtype(id.entry, L.in)$
$L \rightarrow id$	$addtype(id.entry, L.in)$

Answer b or c

b	Construct a Syntax-Directed Translation scheme that translates arithmetic expressions from infix into postfix notation. Your solution should include the context-free grammar, the semantic attributes for each of the grammar symbols, and semantic rules. Show the application of your scheme to the input "3*4+5*2".	6
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c	Explain parser stack implementation of Postfix SDT using an example of desk calculator.	6
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Module 2

2.a	Consider following definition	3
------------	-------------------------------	----------

$D \rightarrow T L$	$L.in := T.type$
$T \rightarrow real$	$T.type := real$
$T \rightarrow int$	$T.type := int$
$L \rightarrow L_1, I$	$L_1.in := L.in; I.in = L.in$
$L \rightarrow I$	$I.in = L.in$
$I \rightarrow I_1 [num]$	$I_1.in = array(numeral, I.in)$
$I \rightarrow id$	$addtype(id.entry, I.in)$

Obtain the parse tree and dependency graph for the string **int x[3], y[5]**

Answer b or c

b Obtain three address codes for the following statement and explain. **6**

```

while a < b do
  if c < d then
    x := y + z
  else
    x := y - z

```

c Consider grammar and rules given below for array address translation and generating address code for array references: **6**

```

E → E1 + E2           {E.addr = newtemp();
                        gen(E.addr '=' E1.addr '+' E2.addr);}

E → E1 * E2           {E.addr = newtemp();
                        gen(E.addr '=' E1.addr '*' E2.addr);}

E → id                {E.addr = id.lexeme; }

E → L                 { E.addr = newtemp();
                        gen(E.addr '=' L.array.basename '['L.addr ']'); }

L → id [ E ]          {L.array = id.lexeme;
                        L.type = L.array.typeofelement;
                        L.addr=newtemp();
                        gen(L.addr '=' E.addr '*' L.type.width);}

L → L1 [ E ]         {L.array = L1.array;
                        L.type=L1.type.typeofelement;
                        t = newtemp(); L.addr = newtemp();
                        gen(t '=' E.addr '*' L.type.width);
                        gen(L.addr '=' L1.addr '+' t); }

```

Function newtemp() returns a new temporary name
L.array.basename means name of the array
L.array.typeofelement means type of the element of the array
L.type.width means width of L.type

Assume size of integer to be 4 bytes, and lower bound of the arrays to be 0
Let A, B and C be 3X4, 4X5, and 3X5 arrays of integers respectively. Let i, j, and k be integers.

Construct an annotated parse tree for the expression C[i][j] + A[i][k]*B[k][j] and show the 3-address code sequence generated for the expression.

Q.no.	Module 3	Marks
3.a	What is activation record?	3

Answer b or c

b Write the algorithm for Mark-and-Compact Garbage Collector and explain. **6**

- c Explain the use of access links for finding non local data. Also explain the display implementation. **6**

Q.no.	Module 4	Marks
4.a	Write the techniques for the optimization of basic blocks.	3

Answer b or c

- b Apply simple code generation algorithm to generate code for the following statements. **6**

```
t1=a-b
t2=c+d
c=e*t2
d=t1+t2
```

Show the instructions generated and changes in address and register descriptors while generating code each statement. Assume there are only three registers .t1 and t2 are temporary variables.

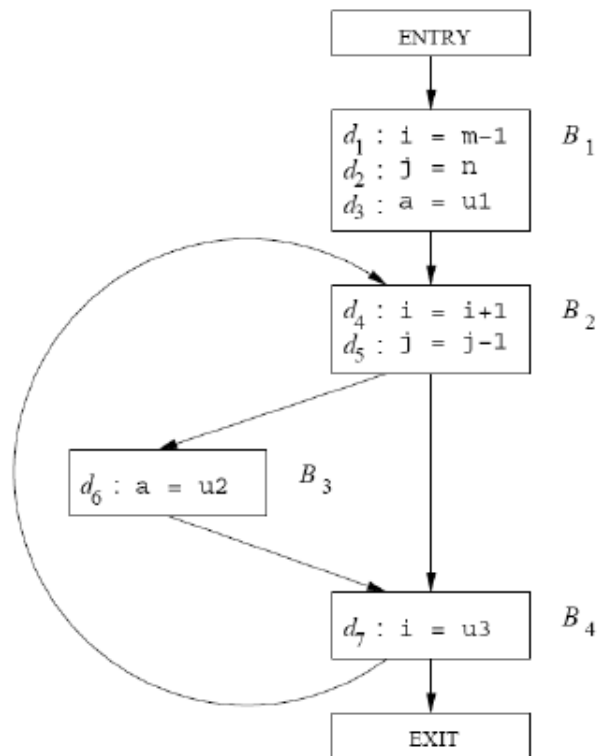
- c Generate code for the following statements from labelled expression tree using Ershov numbers. t,u,v, and w are temporary variables . Assume the number of registers available is three. **6**

```
t= a-b
u=c+d
v=e*u
w=t+v
```

Q.no.	Module 5	Marks
5.a	What are dominators? Draw a flow graph with at least one loop and obtain the dominators of each node.	4

Answer b or c

- b For the flow graph shown below perform live variable analysis and explain **8**



c Write the algorithm for finding the available expression and explain with the help of a suitable example 8

Q.no. **Module 6** **Marks**

6.a Explain true dependence and name dependence with the help of suitable examples. 4

Answer b or c

b Explain global code motion in detail 8

c Explain the concept of loop unrolling with the help of suitable examples. 8

APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : 08CSE19-6012-1

(Pages: 4)

Name:

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08 CS 6012: ADVANCED COMPILER DESIGN

(Common to CSE)

Time:3 hours

Max. marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	Suppose that we have a production $A \rightarrow BCD$. Each of the non-terminals has two attributes s as a synthesized attribute and i as an inherited attribute. For each sets of rule given below tell whether i) Consistent with an S-attributed definition ii) Consistent with an L-attributed definition iii) Whether the rules are inconsistent with any order. 1) $A.s = B.i + C.s$ and $D.i = A.i + B.s$ 2) $A.s = D.i$, $B.i = A.s + C.s$, $C.i = B.s$ 3) $A.s = B.s + D.s$ <p style="text-align: center;">Answer b or c</p>	3
b	Write SDT analogous to the following production, which represents a familiar flow-of-control construct $S \rightarrow \mathbf{do} S1 \mathbf{while} (C)$. Also revise the above SDT for on-the fly code generation for do-while statements.	6
c	Give L-attributed SDD to construct syntax trees during top-down parsing and with the SDD draw dependency graph and write all the topological sorts for the expression $a-4+c$.	6

Q.no.	Module 2	Marks
2.a	Show how to transform a three-address code sequence into one in which each defined variable gets a unique variable name.	3

Answer b or c

- b** Translate the expression $c + a[i][j]$, assuming the width of an integer is 4 into the sequence of three-address code and draw annotated parse tree for the given expression. **6**
- c** Write translation scheme for Backpatching Boolean expressions. Using the translation, translate each of the following expressions. Show the true and false lists for each subexpression. You may assume the address for the first instruction generated is 100. **6**
- 1) $(a = b \parallel c = d) \parallel e = f$ 2) $a = b \ \&\& \ (c = d \parallel e = f)$

Q.no.	Module 3	Marks
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- 3.a** In the C code given below to compute Fibonacci numbers recursively. **3**

```

int f ( int n ) {
    int t , s;
    if ( n < 2 ) r e t u r n 1;
    s = f ( n - 1 );
    t = f ( n - 2 );
    r e t u r n s+t; }

```

Suppose that the activation record for f includes the following elements in order (return value, argument n , local s , local t); there will normally be other elements in the activation record as well. The questions below assume that the initial call is $f(5)$.

- i) Show the complete activation tree.
- ii) What does the stack and its activation records look like the first time $f(1)$ is about to return?
- iii) What does the stack and its activation records look like the fifth time $f(1)$ is about to return?

Answer b or c

- b** With suitable example of network of objects explain Baker mark-and-sweep algorithm which moves objects among lists. **6**
- c** Using appropriate example explain the storage management technique that is used for data that lives indefinitely, or until the program explicitly deletes it. **6**

Q.no. **Module 4** **Marks**

- 4.a** Generate code for the following three-address statements assuming a and b are arrays whose elements are 4-byte values. Also determine the costs of the instruction sequences generated. **3**

$$x = a[i]$$

$$y = b[i]$$

$$z = x * y$$

Answer b or c

- b** Construct the DAG for the basic block **6**

$$d = b * c$$

$$e = a + b$$

$$b = b * c$$

$$a = e - d$$

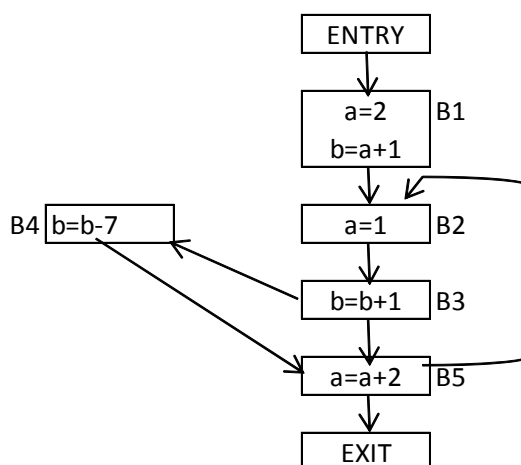
Simplify the three-address code given above, assuming

- Only a is live on exit from the block.
- a , b , and c are live on exit from the block.

- c** Generate the target machine instructions using tree-rewriting rules or by tiling an input tree. Compute Ershov numbers for the given expression $a + b * (c * (d + e))$ **6**

Q.no. **Module 5** **Marks**

- 5.a** For the flow graph given below compute (i) The *gen* and *kill* sets for each block. (ii) The *IN* and *OUT* sets for each block. **4**



Answer b or c

- b** Determine the four data flow passes in partial-redundancy elimination. **8**
- c** Illustrate how region-based analysis works based on the example of reaching definitions. **8**

Q.no.	Module 6	Marks
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- 6.a** Given a sequence of assignments exhibiting data dependencies: **4**

- 1) a = b
- 2) c = d
- 3) b = c
- 4) d = a
- 5) c = d
- 6) a = b

Classify above dependencies for each pairs of statements below as (i) true dependence (ii) antidependence (iii) output dependence or (iv) no dependence. Give reasons for each.

- 1) Statements (1) and (4)
- 2) Statements (3) and (5)
- 3) Statements (1) and (6)
- 4) Statements (3) and (6)
- 5) Statements (4) and (6)

Answer b or c

- b** For each of the code fragments given below, draw the dependence graph and write algorithm for list scheduling a basic block. **8**

1) LD R1, a	LD R1, a	LD R1, a
2) LD R2, b	LD R2, b	LD R2, b
3) SUB R3, R1, R2	SUB R1, R1, R2	SUB R3, R1, R2
4) ADD R2, R1, R2	ADD R2, R1, R2	ADD R4, R1, R2
5) ST a, R3	ST a, R1	ST a, R3
6) ST b, R2	ST b, R2	ST b, R4

(a)

(b)

(c)

- c** Using globally scheduled machine codes explain data dependences and control dependences to get more parallelism. **8**

APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : 08CSE19-6022-1

(Pages: 3)

Name:

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08CS 6022 INFORMATION RETRIEVAL

(Common to CSE)

Time:3 hours

Max. marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	Compare the process of data retrieval and information retrieval.	3
Answer b or c		
b	Write note on Recall and Precision for retrieval performance evaluation. Explain with a simple example why Recall or Precision alone is not enough to quantify the performance of IR System. Explain any two alternative measures which combine recall and precision to get a better performance evaluation.	6
c	Describe the Retrieval process with simple, generic software architecture.	6
Q.no	Module 2	Marks
2.a	Explain how Euclidean distance function and cosine similarity can be used as similarity measures. Will a document pair found 'similar' with cosine similarity measure be similar with distance function similarity measure? Justify your answer with a suitable example.	3
Answer b or c		
b	Write note on Boolean and Vector classical models for information retrieval. What are the advantages of vector model over Boolean model.	6
C	Explain the classic probabilistic model. What are the advantages and disadvantages of this model?	6
Q.no.	Module 3	Marks
3.a	Discuss Page Ranking.	3

Answer b or c

- b Write note on the User Relevance Feedback strategy for query reformulation. **6**
 Explain the process of Query Expansion and Term Reweighting for vector model.
- c Write note on the process of query expansion through Local Clustering. Explain **6**
 three cluster building strategies for local clustering in detail (association clusters, metric clusters, and scalar clusters).

Q.no.	Module 4	Marks
4.a	Write note on two type of multimedia similarity queries <i>Whole Match</i> and <i>Sub-pattern Match</i> queries with example.	3

Answer b or c

- b Why we need spatial access methods instead of sequential scanning to access **6**
 multimedia objects? Explain GEMINI algorithm (Explain each step).
- c What do you mean by *curse of dimensionality*? Discuss the difference between **6**
 feature selection and feature extraction with example. How do these two process contribute to dimensionality reduction?

Q.no.	Module 5	Marks
5.a	Discuss steps involved in decision tree classification process with a simple example .List its advantages and disadvantages.	4

Answer b or c

- b Discuss k-NN and Naive Bayes classification. In the figure given below two **8**
 types of two-dimensional data distributions are given. One is linearly separable and other is linearly non-separable. You are asked to select a classifier from kNN and Naive Bayes for each of data distribution. Justify your selection.

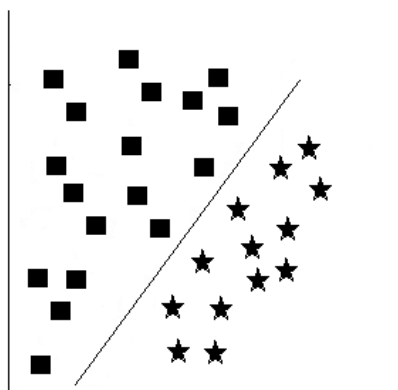


fig:1

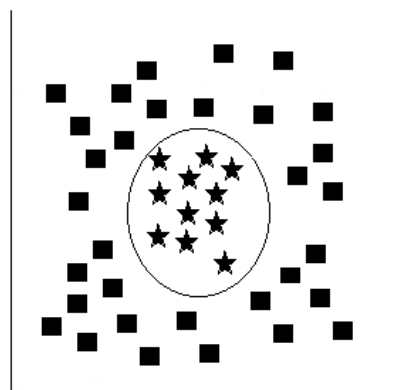


fig:2

- c Explain Naive Bayes classifier. With Naive Bays classifier and data given in table below compute $P(Yes|x')$, $P(No|x')$ for the unseen data $x'=(Outlook=Sunny, Temperature=Cool, Humidity=High, Wind=Strong)$. How will you interpret the result? **8**

Day	Outlook	Temperature	Humidity	Wind	PlayTennis
D1	Sunny	Hot	High	Weak	No
D2	Sunny	Hot	High	Strong	No
D3	Overcast	Hot	High	Weak	Yes
D4	Rain	Mild	High	Weak	Yes
D5	Rain	Cool	Normal	Weak	Yes
D6	Rain	Cool	Normal	Strong	No
D7	Overcast	Cool	Normal	Strong	Yes
D8	Sunny	Mild	High	Weak	No
D9	Sunny	Cool	Normal	Weak	Yes
D10	Rain	Mild	Normal	Weak	Yes
D11	Sunny	Mild	Normal	Strong	Yes
D12	Overcast	Mild	High	Strong	Yes
D13	Overcast	Hot	Normal	Weak	Yes
D14	Rain	Mild	High	Strong	No

PlayTennis: training examples

Q.no.	Module 6	Marks
6.a	Write note on Recommender Systems and its applications.	4

Answer b or c

- b Explain K-Means clustering algorithm. Do think k-means clustering is a special case of hard EM(Expectation Maximization).Justify your answer. List advantages and disadvantages of k-means clustering. Analyse the time complexity of K-Means clustering. **8**
- c Explain process of Hierarchical agglomerative clustering with a suitable example. How it is different from divisive approach? Analyse its time complexity. **8**

APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER

Q. P. Code : 08CSE19-6032-1

(Pages: 2)

Name:

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08 CS 6032 EVOLUTIONARY COMPUTING

(Common to CSE)

Time: 3 hours

Max. marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	Compare evolutionary programming and genetic programming based on its relevance.	3
Answer b or c		
b	Explain the reason for the evolution of EC techniques and how the features of EC technique can be used for solving NP problems?	6
c	What are the advantages of EC techniques over traditional methods of problem solving?	6
Q.no.	Module 2	Marks
2.a	Compare plateau and ridge in hill climbing.	3
Answer b or c		
b	You have 2 jugs-a 4 litre one and a 3 litre one and a water faucet. No measuring marks are there on the jug. You can fill the jugs up or empty them out to another jug or on to the ground. You need to measure exactly 2 litres in 4 litre jug. Using hill climbing technique , solve the problem.	6
c	What are the parameters used in simulated annealing technique and what are the criteria for selecting the parameters.	6
Q.no.	Module 3	Marks
3.a	Which one is better "crossover or mutation"?	3
Answer b or c		
b	For the given two parents, find atleast two offsprings for the next generation. Given the position of alleles of two parents 123456789 and 937826514. Apply any explorative method.	6

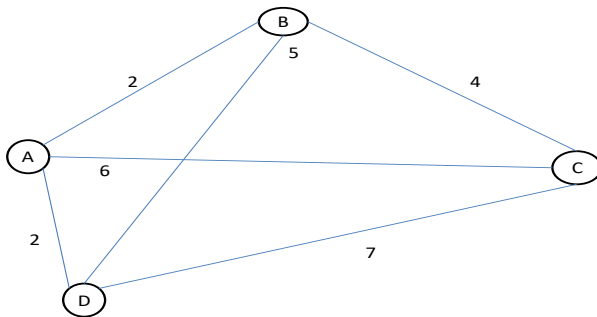
- c What is the mathematical proof of survivability of next generation after applying genetic algorithm for the current generation? **6**

Q.no. **Module 4** **Marks**

- 4.a** What is the relevance of pheromone deposit, evaporation and updation in ACO? **3**

Answer b or c

- b** Using ACO, solve the TSP problem for the following graph. Given $\alpha=1$, $\beta=1$, $\rho=0.5$. **6**



- c Explain Minmax ACO algorithm. Explain how the enhancement is made in ACO and what is its relevance? **6**

Q.no. **Module 5** **Marks**

- 5.a** Explain proximity principle, stability principle and adaptability principle of swarm intelligence. **4**

Answer b or c

- b** Suggest any one variation in PSO algorithm to enhance PSO. **8**
- c** What are the different features of PSO algorithm? Differentiate lbest, pbest and gbest and how it varies according to the change in topologies? **8**

Q.no. **Module 6** **Marks**

- 6.a** What are the functions of employed, onlooker and scout bees? **4**

Answer b or c

- b** Explain ABC algorithm and its working? What is the fitness function used so as to improve the performance of the algorithm? **8**
- c** Suggest a method for solving any NP problem with ABC algorithm. Explain with example based on fitness of each and every next generation. **8**

**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER**

Q. P. Code : 08CSE19-6042B-1

(Pages: 3)

Name:

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08CS6042(B): BIG DATA ESSENTIALS

(Common to CSE)

Time:3 hours

Max. marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	List any two real world big data sources where the “velocity” characteristic dominates.	3
Answer b or c		
b	Write about three big data use cases in detail.	6
c	i. Identify and list key roles in a data analytics project.	2
	ii. List different steps in a data analytics life cycle in sequence.	2
	iii. Define analytical sandbox.	2
Q.no.	Module 2	Marks
2.a	How Hadoop makes the Namenode resilient to failures?	3
Answer b or c		
b	Describe MapReduce Framework in detail. What are the limitations of MapReduce framework and how it is solved in YARN?	6
c	Justify the need of MultipleInputs and MultipleOutputs formats provided by Hadoop with proper examples.	6
Q.no.	Module 3	Marks
3.a	Differentiate Partitioners and Combiners used in a MapReduce program.	3
Answer b or c		

- b List the general sequence of steps to be followed in development of a MapReduce Application **6**
- c Suppose you have a large tabular data, which stores your internal marks for each subjects in the current semester. Structure of the tab separated data is given below: **6**

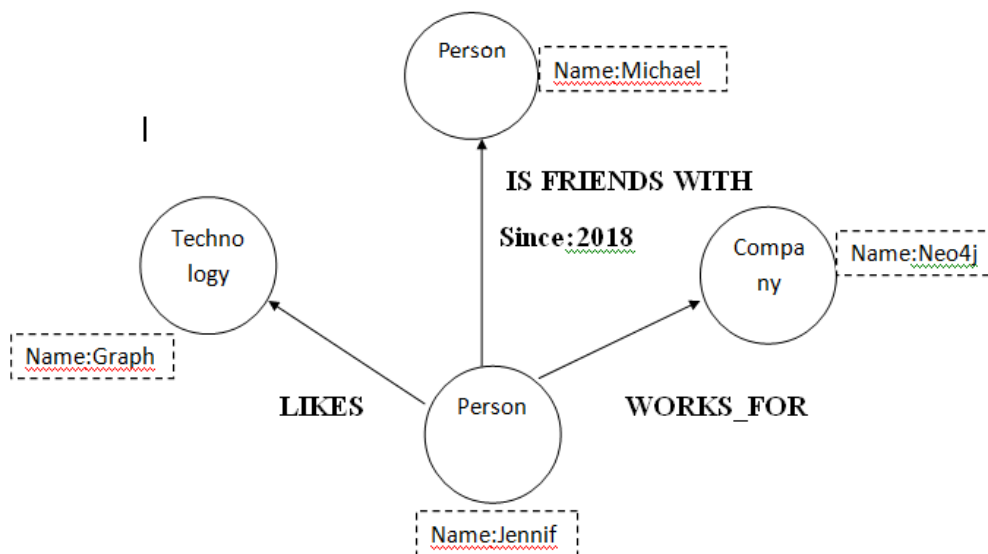
<SubjectCode RollNo Name Marks>

Design a MapReduce algorithm to find total marks of each student. Also draw MapReduce data flow diagram for the same.

Q.no.	Module 4	Marks
4.a	How data gets organized in HBase table?	3

Answer b or c

- b Distinguish different types of NoSQL datastores with respect to its characteristics and use cases along with an example for each type. **6**
- c Write about Neo4j and write sequence of statements to create the following graph using Neo4j. **6**



Q.no.	Module 5	Marks
5.a	List various limitation of MapReduce Framework.	4

Answer b or c

- b State and explain HACE theorem in detail. **8**
- c Write any one big data clustering algorithm with an example. **8**

Q.no.	Module 6	Marks
6.a	Draw and explain Real Time Big Data Analytics Stack.	4
Answer b or c		
b	i. How in memory models works faster than MapReduce? Explain with Apache Spark as example.	4
	ii. List any two Transformations and Actions that can be performed on a Spark RDD (Resilient Distributed Dataset).	4
c	i. List various components and working principle of a Bulk Synchronous Parallel model computer.	4
	ii. Write short notes on Apache Giraph.	4

**APJ ABDULKALAM TECHNOLOGICAL UNIVERSITY
08 PALAKKAD CLUSTER**

Q. P. Code : 08CSE19-6052A-1

(Pages: 2)

Name:

Reg. No:.....

SECOND SEMESTER M.TECH. DEGREE EXAMINATION MAY 2019

Branch: Computer Science and Engineering Specialization: Computer Science and Engineering

08 CS 6052 (A) : CLOUD COMPUTING

(Common to CSE)

Time:3 hours

Max. marks: 60

Answer all six questions.

Modules 1 to 6: Part 'a' of each question is compulsory and answer either part 'b' or part 'c' of each question.

Q.no.	Module 1	Marks
1.a	Differentiate private public and hybrid cloud	3
Answer b or c		
b	Illustrate an overview of NIST cloud computing reference model	6
c	Distributed computing systems are mainly classified into five categories. Discuss any two systems in detail	6
Q.no.	Module 2	Marks
2.a	Why OS level virtualization is needed?	3
Answer b or c		
b	Virtualization can be applied into different levels, "ranging from hardware to application". Comment your opinion with explanation	6
c	Depending on the position of the virtualization level, here are several classes of VM architectures are available. Explain any two in detail.	6
Q.no.	Module 3	Marks
3.a	What is the role of IGG in dynamic resource deployment	3
Answer b or c		
b	Identify six open challenges in cloud architecture development	6
c	Consider the following issues in cloud infrastructure management. how this issues are solved by VM managers	6
	i. Resource management of independent service jobs	
	ii. Execution of third party cloud application	

Q.no.	Module 4	Marks
4.a	Construct a comparison table of MapReduce++ sub categories	3
Answer b or c		
b	Illustrate the data flow in running a job in Hadoop	6
c	Consider the following dataset regarding the electrical consumption of an organization. It contains the monthly electrical consumption and the annual average for various years.	6

Small Sample: [You can add some more lines to the input file].

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1979	23	23	2	43	24	25	26	26	26	26	25	26
1980	26	27	28	28	28	30	31	31	31	30	30	30
1981	31	32	32	32	33	34	35	36	36	34	34	34
1984	39	38	39	39	39	41	42	43	40	39	38	38
1985	38	39	39	39	39	41	41	41	00	40	39	39

Write a Mapreduce Application to find year wise average electrical consumption
[Note: record output only if average > 30]

Q.no.	Module 5	Marks
5.a	What are the five broad classes of instances in amazon AWS	4
Answer b or c		
b	Different cloud providers use different storage services in their cloud system. Explain how Amazon EC2 and Google App engine handle storage services	8
c	Cloud software environments have importance in emerging cloud technologies. Discuss any two software environments	8

Q.no.	Module 6	Marks
6.a	List out the six phases of SDLC?	4
Answer b or c		
b	Discuss data, application and virtual machine security in detail	8
c	Identify the security challenges in cloud	8