Shri Shankaracharya Technical Campus
Shri Shankaracharya Group of Institutions
(Managed by Shri Gangajali Education Scociety, Bhilai)

Junwani, Bhilai-490020 (Chhattisgarh), India

Phone: 0788-2291605, 4088888 Fax: 0788-2291606 E-mail: ssgi@ssgi.edu.in

NAAC

*NIRF ranking 2020 (250-300) band

BTech (6-th All)

Semester – 6th Session 2022-23

Class Test-I

Subject Code: CS102601

Subject Name: compiler design

Duration: 02 Hrs

Max. Marks: 40

CO1 To understanding the fundamental principles in compiler design

CO2 To provide the skills needed for building compilers for various situations that one may encounter in a career in ComputerScience.

CO3 After the course a student should have an understanding, based on knowledge of the underlying machine architecture, the limitations and efficiency of various design techniques of compilers implementation

Note: *Attempt Ques.1 & Ques.2. Parts (a) of both the questions is compulsory & attempt any two parts from (b), (c) & (d) of both the questions*

SECTION 1

Question No.	Questions	Marks	CO	BL	PI
1 a)	Write differences between compiler and interpreter..	2	CO1	L2	1.2.1
1 b)	What are different phases of compiler? Explain in detail	6	CO2	L3	1.2.1
1 c)	Explain compiler construction tools kit.	6	CO2	L3	1.2.2
1 d)	Convert the given NFA to DFA:	6	CO2	L3	1.2.2

Convert the given NFA to DFA:

Input/State	0	1
q0 (start state)	{q0, q1}	q0
q1	q2	q1
q2	q3	q3
q3 (final state)	(null character)	q2

SECTION 2

Question No.	Questions	Marks	CO	BL	PI
2 a)	What is Bootstrapping.	2	CO1,2	L2	1.2.2
2b	Explain cross compiler with example.	6	CO2	L3	1.2.2

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2 C	Calculate FIRST( ) & FOLLOW ( )for given Grammar $E=E*T/T$ $T=T+F/F$ $F=(E)/id$, Modify the following CFG so as to make it suitable for Top-down parsing. Construct LL1 parser for modified CFG show moves made by this LL1 parser on Input id+id * id	6	CO2	L3	1.2.2
2 d	Explain the following terms: a) Specification of Tokens b) Recognition of Tokens	6	CO2	L3	1.2.2

SECTION 3

Question No.	Questions	Marks	CO	BL	PI
3 a	What is token counting? Count the tokens in given instructions : For(i=1;i<=n;i++) x=x+y; y=y+x;	2	CO3	L2	1.2.2
3 b	S → a S → ↑ S → (T) T → T,S T → S construct the predictive parsing Table For the above grammar and also parse the given string w=(a,a)	5	CO3	L3	1.2.2
3 C	Explain classification of parser with suitable diagram.	5	CO3	L3	1.2.2
3 d	Let G be a Context Free Grammar for which the production Rules are given below: S -> aB|bA A -> a|aS|bAA B -> b|bS|aBB Drive the string aaabbabbba using the above grammar (using Left Most Derivation and Right most Derivation).	5	CO3	L3	1.2.2

Class Test -1	Course Name: B Tech (CSE,) A, B, C, D,	Semester: 6th
Time: 2 Hours	Subject Name: Software Engineering and Agile	Min Marks: 14
	Subject Code: CS102602	Max Marks: 40

Note: Attempt all questions, Parts (a) are compulsory & attempt any two parts from (b), (c) & (d).

Course Outcome:

CO1	Developing some basic level of software architecture/design
CO2	Extracting and analysing software requirements specifications for different projects
CO3	Select and implement different software development process models
CO4	Defining the concepts of software quality and reliability on the basis of International quality standards
CO5	Analysing software risks and risk management strategies

Q. No.		Questions	Marks	CO	BL	PI
1	a	What is the unified process?	2	CO1	L2	1.3.1
1	b	Write down major characteristics of a software. Illustrate with a diagram that the software does not wear out.	6	CO2	L2	1.3.1
1	c	Explain software engineering as a layered technology.	6	CO3	L2	1.3.1
1	d	Write short notes: 1)Evolution process model 2)Waterfall Model	6	CO3	L1	2.1.2
2	a	Explain Reverse Engineering	2	CO2	L3	21.3
2	b	Explain about the incremental model. List out its merits and demerits.	6	CO4	L2	1.3.1
2	c	With suitable illustrations explain spiral model evolutionary software development.	6	CO5	L2	13.1
2	d	A project size of 200KLOC is to be Developed ,Software Development team has average experience on similar type of project. The project size is not very tight. Calculate the effort, development time, average staff size and productivity of the project.	6	CO2	L3	2.1.3
3	a	Define requirement engineering.	2	CO3	L2	1.3.1

3	b	What is software measurement and metrics of software quality? Explain.	5	CO1	L3	1.3.1
3	c	Explain Halsteads software science metric with example. Or Explain open source Software development.	5	CO5	L1	2.1.2
3	d	An application has following :10 low external inputs 12 high External outputs 20 low internal logical files 15 high external interface files 12 Average external inquiries Complexity Adjustment Factor of 1.10 What are the unadjusted and adjusted function point counts?	5	CO6	L2	1.3.1

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श्री शंकराचार्य टेक्नीकल कैंपस
भिलाई (छत्तीसगढ़)

स्वशासी संस्थान

Class Test 1
Session: EVEN SEM (2022-23)

Subject Code	CS109603
Subject Name	Artificial Intelligence and Machine Learning

Course & Sem: B. Tech. 6th Sem
Sec(C,D)
Max Marks: 40

Min Marks: 14

Branch: CSE

Time: 2Hours

Note: Attempt all questions. Parts (a) are compulsory & attempt any two parts from (b), (c) & (d).

Q. No.		Questions	M	CO	BL	PI
1	a	Difference between Bias and Variance?	2	CO1	L2	1.3.1
1	b	Explain machine learning Life cycle?	6	CO1	L2	1.3.1
1	c	Explain Bais variance Tradeoff along with different combination of Bais and variance?	6	CO1	L2	1.3.1
1	d	Short Notes: a)Scope of Machine Learning d)Limitation of Machine Learning	6	CO1	L1	2.1.2
2	a	Define Perceptron?	2	CO2	L3	2.1.3
2	b	Explain KNN algorithm and it working with different steps. Find the solution to the given question. We have an objective testing with two attribute (Acid Durability) and (Strength)to classify whether a special paper tissue is good or not. Here are four training sampleX1 (Acid Durability) X2(Strength) y(classification) 7 7 ~~Bad~~ Good 7 4 ~~Bad~~ Good 3 4 Bad 1 4 ~~Bad~~ Good Now the factor produce a new paper tissue that pass laboratory test with X1=3 and X2=7.Without another expensive survey can we guess what classification of this new tissue is? Assume k=3	6	CO2	L2	1.3.1
2	c	~~Define Perceptron?~~Explain in brief Perceptron Convergence Theorem?	6	CO2	L2	1.3.1
2	d	Explain different type of Naïve Bayes algorithm?.	6	CO2	L3	2.1.3

3	a	Difference of linear and logistic regression?	2	CO1, 2	L2	1.3.1
3	b	Define SVM? Also discuss it working?	5	CO1, 2	L3	1.3.1
3	c	Write the difference between different type of Machine learning Algorithm?	5	CO1, 2	L1	2.1.2
3	d	Estimate conditional probability of each attribute {color,leg,,height,,smelly} the species classes:{M,H} using the data given in table using these probabilit estimate the probability value for new instance (color=green,,legs=2,height=tall and smelly=no)	5	CO1, 2	L2	1.3.1

Estimate conditional probability of each attribute {color,leg,,height,,smelly} the species classes:{M,H} using the data given in table using these probabilit estimate the probability value for new instance
(color=green,,legs=2,height=tall and smelly=no)

No	Color	Legs	Height	Smelly	Species
1	white	3	short	yes	M
2	green	2	tall	no	M
3	green	3	short	yes	M
4	white	3	short	yes	M
5	Green	2	short	no	H
6	White	2	tall	no	H
7	White	2	tall	no	H
8	White	2	short	yes	H

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स्वशासी संस्थान

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All B.Tech Courses Accredited by NBA, New Delhi
Accredited by NAAC with "A" Grade

NIRF Ranking 2022 & 2021 (Band 251-300)
Rank 1015 Unit (Nation al Level)
An ISO 9001:2015 Certified Institution

Class Test 1
Session: EVEN SEM (2022-23)

Subject Code	CS102644
Subject Name	Cloud Computing

Course : B. Tech.
Sem : 6th (A,B,C,D,IoTCS,DS)
Max Marks: 40

Branch: CSE

Min Marks: 14

Time: 2Hours

Note: Attempt all questions. Parts (a) are compulsory & attempt any two parts from (b), (c) & (d).

Q. No.		Questions	M	CO	BL	PI
1	a	Define the term "Cloud Computing".	2	CO1	L2	1.3.1
1	b	What are the different characteristics of Cloud Computing?	6	CO1	L2	1.3.1
1	c	What are the cloud adoption and rudiments methods?	6	CO1	L2	1.3.1
1	d	Explain Cloud and Dynamic Infrastructure.	6	CO1	L1	2.1.2
2	a	What do you mean by term "as-a-service"?	2	CO2	L3	2.1.3
2	b	Write short notes on (any 2) : i) DBaaS ii) NaaS iii) BaaS	6	CO2	L2	1.3.1
2	c	Explain briefly Cloud Referencing Model.	6	CO2	L2	1.3.1
2	d	Differentiate between Fog Computing and Edge computing.	6	CO2	L3	2.1.3
3	a	List the companies who offer cloud service development.	2	CO1, 2	L2	1.3.1
3	b	Explain different types of cloud.	5	CO1, 2	L3	1.3.1
3	c	Explain the evolution of cloud computing.	5	CO1, 2	L1	2.1.2
3	d	Explain the most common scenario where a) a private cloud is preferred over a public cloud. b) a public cloud is preferred over a private cloud.	5	CO1, 2	L2	1.3.1

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Session: EVEN SEM (2022-23)

Class Test - I	Course Name: B Tech (CSE)	Semester: 6th (C, D)
Time: 2 Hours	Subject Name: Data analytics using R Programming	Min Marks: 14
	Subject Code: CS102626	Max Marks: 40

Note: Attempt all questions. Parts (a) are compulsory & attempt any two parts from (b), (c) & (d).

Course Outcome:

CO1	Learn Fundamentals of R.
CO2	Covers how to use different functions in R, how to read data into R, accessing R packages.
CO3	Writing R functions, debugging, and organizing data using R functions.
CO4	Cover the Basics of statistical data analysis with examples.
CO5	The whole syllabus will give an idea to collect, compile and visualize data using statistical functions.

Q. No.		Questions	Marks	CO	BL	PI
1	a	Explain commands : 1. installed.packages() 2. packageDescription()	2	CO1	L2	1.3.1
1	b	Explain Input and Output functions usage: a. scan() b. readLine()	6	CO2	L2	1.3.1
1	c	What are vectors? Explain different ways to create vectors. Give example.	6	CO3	L2	1.3.1
1	d	R has five "atomic" classes of object. What are they? Quote examples.	6	CO3	L1	2.1.2
2	a	What would be the output of the following code? > x <- 1:4 > x > 2	2	CO2	L3	2.1.3
2	b	How to import packages in R? Give examples.	6	CO4	L2	1.3.1
2	c	Demonstrate the following using R programming : 1. For loop 2. Repeat loop	6	CO5	L2	1.3.1
2	d	Explain Special Values functions : NA, Inf and –inf.	6	CO2	L3	2.1.3

3	a	Write about complex objects in R.	2	CO3	L2	
3	b	Explain various data structures involved in R programming with example.	5	CO1	L3	1.3.1
3	c	Write short notes on: 1. library() 2. require()	5	CO5	L1	2.1.2
3	d	Illustrate the creation of an empty vector and insert the values in the vector using for loop.	5	CO6	L2	1.3.1