



ANJUMAN KHAIRUL ISLAM'S  
**POONA COLLEGE**  
OF ARTS, SCIENCE & COMMERCE  
CAMP, PUNE-411001



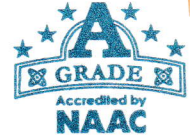
**STUDENT  
CENTRIC METHODS  
FOR TEACHING  
AND LEARNING**

**PROBLEM SOLVING  
METHODOLOGIES**

**Assignments**



Anjuman Khairul Islam's  
**POONA COLLEGE**  
**OF ARTS, SCIENCE & COMMERCE**  
(Affiliated to University of Pune)



**NOTICE**

To be put on:

**'C' Programs Lab Assignment**

10/10/2015


To be remove on:

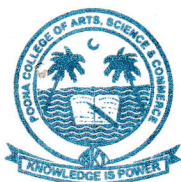
All the student of F.Y.B.Sc (Computer Science) Div I and II are directed to take the printout of the following programs on or before **5<sup>th</sup> Dec. 2015**.

<i>EXERCISE</i>	<i>SET A</i>	<i>SET B</i>	<i>SET C</i>
1	2, 7	3	2
2	3, 6	1	2
3	2	2	2
4	4	3, 5	3
5	3	1, 2, 3	3
6	1	2	1

**Instructions for students:**

1. The Students are directed to write the algorithm and draw the flowchart of every program (**from Exercise - 1 to Exercise – 6**) mention above in CS-I journal.
2. Students are advised to submit their journal on or before **12<sup>th</sup> Dec. 2015**.
3. No journal will be accepted for correction/ checking after the last date.

  
Head  
Dept. of Computer Sc.  
Poona College, Pune – 1.  
**HEAD**  
Dept. of Computer Science  
Poona College, Camp  
PUNE-411001.



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**OF ARTS, SCIENCE & COMMERCE**  
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**NOTICE**

To be put on:

To be remove on:

Date: 18/12/2015

**LAB COURSE II- ASSIGNMENT**

All the students of F.Y.Bsc. (Computer Science) Division I and II is directed to take the print out of the following programmes on or before **21 December 2015**.

Exercise	Set A	Set B	Set C
4 (LINUX COMMANDS)	1,2	1 to 7	1 to 4
5 (VI EDITOR)	1,2	1,2	-
1.(HTML PAGE)	1,2,3,4	1,2	-
2.(LIST TABLES, HYPERLINKS)	1,2,3	1,2	-
3.(FRAMES AND IFRAMES)	1,2,3	1,2	-
4.(CSS AND ITS TYPE)	1,2,3,4	1,2	-
5.(CSS AND ITS TYPE II)	3	-	-
6.(CREATION OF FORMS)	1,2	-	-
11.(TO CREATE SIMPLE TABLE)	ALL	ALL	ALL

**INSTRUCTIONS FOR THE STUDENTS:**

1. The students are directed to write **Exercise 4 and 5** mention above in CS II journal.
2. Students are advised to submit their journal on or before **23 December 2015**.
3. No journal will be accepted for correction/checking after the last date.

**HEAD** 18.12.15

**Department of Computer Sci.**

**Poona College, Pune-1**

HEAD  
Dept. of Computer Science  
Poona College, Pune-1



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**NOTICE**

To be put on :

19.12.2017

To be remove on :

26.12.2017

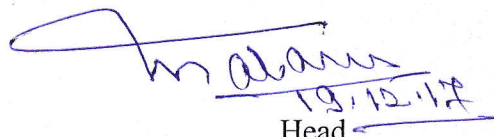
**C' PROGRAMS LAB ASSIGNMENT**

All the student of **F.Y.B.Sc (Computer Science) Div A and B** are directed to take the printout of the following programs on or before **23<sup>rd</sup> Dec. 2017**.

EXERCISE	SET A	SET B	SET C
1	2, 7	1	2
2	3, 6	1	3
3	2	2	2
4	4	5	3
5	3	1, 2, 3	1
6	1	2	1
7	2	1	1 (iii)
8	4	2	-

**Instructions for students:**

1. The Students are directed to write the algorithm and draw the flowchart of every program mention above in CS-I journal.
2. Students are directed to submit their journal on or before **26<sup>th</sup> Dec. 2017**.
3. No journal will be accepted for correction/ checking after the last date.

  
19.12.17  
Head

Dept. of Computer Sc.  
Poona College, Pune - 1.

Dept. of Computer Science  
Poona College, Camp  
PUNE-411001.



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(Affiliated to University of Pune)

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**NOTICE**

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02/08/2017

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05/08/2017

**Assignment-1**

Sub:- file organization and Introduction to database (CS-II)

Class:- F.Y.B.Sc. (Computer Science)

- 
- 1) Write a note on DBA
  - 2) Explain different level of abstraction with suitable diagram
  - 3) Define Data, database and DBMS
  - 4) Write a note on naïve user and online users
  - 5) Explain component of DBMS

**Note:-** Student must submit their assignment on or before 05/08/2017.

  
Mr. Mansur Shaikh

Subject Incharge

  
Mahtab Alam

Head

Dept. of Computer Science

**HEAD**  
**Dept. of Computer Science**  
**Poona College, Camp**  
**PUNE-411001**



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12/08/2017

19/08/2017

**Assignment-4**

Sub:- file organization and Introduction to database (CS-II)  
Class:- F.Y.B.Sc. (Computer Science)

**Case Study:**

1. Shahrukh Khan signed the movie which is directed by Karan Johar. Karan Johar searches the best actress for this movie. For that he took screen test for new female model. Many female model attended this session. Many models have experience in acting in small screen. The best model has to undergo for screen test, acting test and other test for selection criteria. Lata Mangeshkar and Sonu Nigam are to be singing songs for the movie. Farah Khan is a choreographer for this movie. Draw E-R Diagram, find entities and relationship.

- Draw the E-R Diagram
- Find the entities and relationship

2. Ramdev Baba exercise centre having two receptionist who take care that every person who comes in exercise centre are giving the fees or not. There are many gents, ladies and children who come to do exercise. The centre provides gym, aerobics, swimming, tennis, chess and yoga. Each section has different well trained coach. There is a management committee to manage all the outside things like marketing, government permission, taxes etc.

- Draw the E-R Diagram
- Find the entities

**Note:- Student must submit their assignment on or before 18/08/2017.**

Mr. Mansur Shaikh

Subject Incharge

Mahtab Alam

Head

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Poona College, Camp  
PUNE-411001



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19/08/2017

**Assignment-3**

Sub:- file organization and Introduction to database (CS-II)

Class:- F.Y.B.Sc. (Computer Science)

**Case Study: 1** A reputed general hospital has decided to computerized general hospital has decided to computerized their operation. In the hospital many doctors are working. Personal information of doctors are maintained to get fixed salary per month. A patients are admitted to the hospital into the room. They are treated by various doctors. Sometime patients perform certain pathological test which are carried out into the labs

- Identify all entities Identify all relationship and Draw the E-R Diagram

2 AIIMS hospital admits many patients. Patients may be out patients or in patients. In patients are admitted in the room. Patients are provided with all facilities like lab test, hospital runs its own lab and medical store. Doctors treats the patients.

- Identify all entities ,Identify all relationships and Draw the E-R Diagram

3 A global super market is a super market that does sales of different types of different types of items like groceries, medicines, clothes etc. The super market has a set of sales person to held the sales. The customers are member customer who are membership customer are allowed to buy on credit. They are also allowed to buy on credit. They are allowed payment by installments. The other customers related to cash are offered discount schemes. Depending on the amount of their purchase.

- Draw the E-R Diagram Find the entities and relationship

Note:- Student must submit their assignment on or before 18/08/2017.

Mr. Mansur Shaikh

Subject Incharge

Mahtab Alam

Head

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Poona College, Camp  
PUNE-411001.



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(Affiliated to University of Pune)

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12/08/2017

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19/08/2017

**Assignment-2**

Sub:- file organization and Introduction to database (CS-II)

Class:- F.Y.B.Sc. (Computer Science)

- 
- 1 Define entity, attributes and its types?
  - 2 Differentiate single value attribute and multi value attribute?
  - 3 Write a note on strong entity set and weak entity set?
  - 4 What is primary key, super key, candidate key, foreign key?
  - 5 Write a note on specialization and generalization?

**Note:-** Student must submit their assignment on or before 18/08/2017.

  
Mr. Mansur Shaikh

Subject Incharge

  
Mahtab Alam


Head

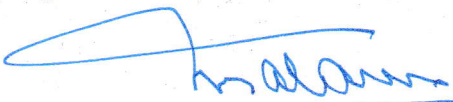
HEAD  
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Dept. of Computer Science  
Poona College, Camp  
PUNE-411001.

## Principles of Programming Languages (PPL)

### Assignment 2

1. Explain the principal categories of ordering in program execution.
2. Explain value model and reference model of variables with examples.
3. What is ordering within expression? Give two main reasons why order can be important.
4. What is short circuit evaluation? Explain with examples.
5. What are the structured alternatives of goto statements?
6. Write a note on:
  - a) Enumeration controlled loops
  - b) Logically controlled loops
  - c) Applicative and normal order evaluation
7. What is tail recursive function? Why is tail recursion important?
8. What are primitive data types?
9. Define ordinal, enumeration and subrange types
10. Explain the categories of arrays based on binding to subscript ranges and storages.
11. What are the problems with pointers? Which sequence of problems creates these problems?
12. What are the solutions to dangling pointers problem?
13. What are the two common approaches to garbage collection?
14. Explain the different parameter passing techniques
15. What are the two complications that can arise when subprogram is passed as a parameter?
16. Define
  - a) Overloaded subprograms
  - b) Generic subprogram
  - c) Coroutines

  
31/8/17  
Ms. Shaheda Ansari  
Subject Incharge

  
Head  
31/8/17  
Department of Comp. Sci.

AKI's  
**Poona College of Arts, Science & Commerce**

Camp, Pune 1

Department of Computer Science

**ASSIGNMENTS**

**Class: M. Sc. Computer Science Semester III**

**Subject: CS-305 Web Services**

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1. What are Web Services? Explain various characteristics of web services.
2. Write in brief on web services life cycle with neat labeled diagram.
3. Define
  - a. Web service interface
  - b. Web service implementation
4. What are the main building blocks of Web services? Explain in detail.
5. Steps in implementing web services.
6. Draw the structure of SOAP with attachment message, give an example and explain it.
7. Write the anatomy of SOAP message and describe each element.
8. Write a note on
  - a. SOAP intermediaries
  - b. URI
  - c. Must Understand Attribute
  - d. XML namespaces
  - e. URL
9. Give the description of any five UDDI publisher API messages.
10. Answer the following.
  - a. What do you mean by wire protocol and transport protocol?
  - b. What is SOAP message path?
11. Explain advantages and disadvantages of SOAP.
12. SOAP and REST protocol.
13. Give the anatomy of WSDL document, describe definitions and import elements with an example.
14. What are UDDI data structures? Show the relationship of UDDI data structures with the help of neat labeled diagram.
15. What are <definitions> and <port type> elements in WSDL, Write an example for each.

16. Answer the following.

- a. Define UDDI. Give the two operating modes of UDDI registry.
- b. What is WSDL? Specify the need of WSDL.

17. Write down WSDL document for obtaining factorial of an integer number if number is inputted.

18. What is cloud computing? What are its characteristics?

19. Describe various cloud deployment models.

20. Enlist and give explanation about potential risks of cloud computing.

21. What is Virtualization? Give the role of virtualization in cloud computing paradigm.

22. Explain in brief

- a. Multitenancy
- b. Hypervisor

23. Which type of service is provided by Amazon EC2 and Google APP Engine, explain these services.

24. Answer the following.

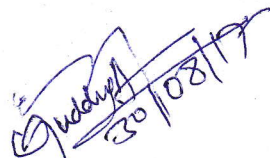
- a. Differentiate between web services and web based applications.
- b. What is WS-I?

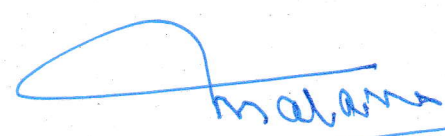
25. Answer the following.

- a. Write about xen, vmware Hypervisor.
- b. Explain in short Apache Axis environment.

**Note:**

- Students are advised to submit the assignment on or before 16<sup>th</sup> September 2018.
- Students must write the assignment in their own handwriting.

  
Teacher Incharge  
Mohammed Abdul Quddus

  
Head  
31.8.18


HEAD  
Dept. of Computer Science  
Poona College, Camp  
PUNE-411001.

A.K.I's  
Poona College of Arts, Science & Commerce, Camp, Pune-1  
Department of Computer Science  
M.Sc.(C.S) - I (Sem-I)

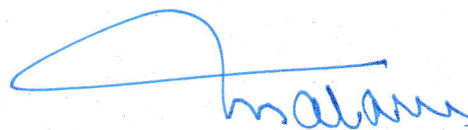
**Principles of Programming Languages (PPL)**

**Assignment 1**

1. Why are there so many programming languages?
2. Write a note on Imperative and Declarative languages.
3. Why to study Programming languages?
4. What are the different times at which decisions may be bound?
5. What are different storage allocation mechanisms? Explain anyone in detail.
6. What is scope rule? Explain static scope rules in detail.
7. Differentiate between deep binding and shallow binding.
8. Give purpose, syntax and example of following predicates in LISP
  - i. defun
  - ii. LET
  - iii. cond
  - iv. case
9. What is Unification in Prolog? What are the rules for Unification?
10. What are CUT and FAIL predicates in Prolog? Give examples.

  
22/8/17

Ms. Shaheda Ansari  
Subject Incharge

  
Head 22.8.17

Department of Comp. Sci.

HEAD  
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Poona College, Camp  
PUNE-411001.

**Y & M AKI'S**  
**Poona college of Arts, Science & Commerce**  
**Camp, Pune-1**

Department of Computer Science (Post Graduate Center)

**Subject: - Distributed Database Concepts (CS-103) Class: M.Sc. (C.S.) Part-I**

**ASSIGNMENT-I**

**Date:-26/08/2017**

1. How centralized database differs from distributed database.
2. Discuss the factors that can be distributed.
3. Discuss the issues of Global directory.
4. Write a short note a Distributed catalogue management.
5. Explain three different approaches to describe reference model.
6. Define allocation problem. Give information requirement for the same.
7. Let  $Q = \{q_1, q_2, q_3, q_4, q_5\}$  be a set of queries.  $A = \{A_1, A_2, A_3, A_4, A_5\}$  be a set of attribute &  $S = \{S_1, S_2, S_3\}$  be a set of sites. Matrix (a) describes attribute usage values & Matrix (b) gives application access frequencies. Assume that  $ref_i(q_k) = 1 \forall q_k \& S_i$  and that  $A_4$  is the key attribute. Use Bond Energy & vertical partitioning algorithm to obtain vertical fragment of set of attributes in A.

Matrix (a)						Matrix (b)			
	$A_1$	$A_2$	$A_3$	$A_4$	$A_5$		$S_1$	$S_2$	$S_3$
$q_1$	0	1	1	1	0	$q_1$	20	4	0
$q_2$	1	1	1	0	0	$q_2$	25	10	0
$q_3$	1	1	0	0	0	$q_3$	15	0	0
$q_4$	0	0	0	1	1	$q_4$	0	0	30
$q_5$	0	0	1	1	1	$q_5$	0	20	25

8. Let  $Q = \{q_1, q_2, q_3, q_4\}$  be a set of queries.  $A = \{A_1, A_2, A_3, A_4\}$  be a set of attribute &  $S = \{S_1, S_2, S_3\}$  be a set of sites. Matrix (a) describe attribute usage values & Matrix (b) gives application access frequencies. Assume that  $ref_i(q_k) = 1 \forall q_k \& S_i$  and that  $A_1$  is the key attribute. Use Bond Energy & vertical partitioning algorithm to obtain vertical fragment of set of attributes in A.

Matrix (a)					Matrix (b)			
	$A_1$	$A_2$	$A_3$	$A_4$		$S_1$	$S_2$	$S_3$
$q_1$	1	0	1	0	$q_1$	15	20	10
$q_2$	0	1	1	0	$q_2$	5	0	0
$q_3$	0	1	0	1	$q_3$	25	25	25
$q_4$	0	0	1	1	$q_4$	3	0	0


9. Explain in with the help of neat diagram, the different layers of query processing in a DDBS..

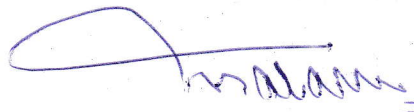
10. Write the detailed steps for query decomposition.
11. State following rules of reduction for primary horizontal fragmentation.
12. What are the main reasons for a query getting rejected?
13. Define the following
  - a. The completeness rule of fragmentation.
  - b. The disjointness rule of fragmentation.
14. Consider the following query:  
 SELECT ENAME, SAL FROM EMP, PROJ, ASG, PAY  
 WHERE EMP.ENO = ASG.ENO  
 AND EMP.TITLE = PAY.TITLE AND (BUDGET > 200000 OR DUR > 24)  
 AND ASG.PNO = PROJ.PNO;  
 Compose the selection predicate corresponding to the where clause and transform it, using idempotency rules, into the simplest form. Furthermore, compose an operator tree corresponding to query and transform it, using relational algebra transformation rules, to a form that is optimal with respect to total execution time by considering only selectivity factor of operations.
15. Draw an operator tree for the following query.  
 SELECT EMP.ENAME FROM EMP, DEPT WHERE EMP.SEX = "MALE"  
 AND EMP.AGE > 45 AND DEPT.BUDGET > 200000 AND EMP.DNO = DEPT.DNO;  
 The DEPT relation is fragmented horizontally as  
 $DEPT1 = \sigma_{\text{budget} < 200000} (DEPT)$   
 $DEPT2 = \sigma_{\text{budget} \geq 200000} (DEPT)$   
 EMP relation is fragmented using derived horizontal fragmentation a  
 $EMP1 = EMP \bowtie DEPT1$   
 $EMP2 = EMP \bowtie DEPT2$   
 Convert operator tree to generic tree and then reduce it.

----\*\*\*\*----

**Note:-**

- Students are advised to submit the assignment on or before 09 September 2017.
- Write the assignment in 100 pages note book only.

  
 26/08/17  
**Mirza Imran Baig**  
**Subject Teacher**

  
 26/8/17  
**Mahtab Alam**  
**Head, Dept. of Comp. Sci.**

HEAD  
 Dept. of Computer Science  
 Poona College, Camp  
 PUNE-411001

Date: 28-08-2017

AKI's  
POONA COLLEGE OF ARTS, SCIENCE & COMMERCE  
CAMP, PUNE - 411001  
DEPARTMENT OF COMPUTER SCIENCE

HOME ASSIGNMENT 1 CS-303 Soft Computing

Class: M.Sc. (CS) II, SEM III

Instruction: Students must write the assignment in their own handwriting.

- Q1. Let  $X = \{\text{low, medium, high}\}$ ,  $Y = \{\text{positive, zero, negative}\}$  be the universe of discourse on which the following fuzzy sets be defined respectively

$$A = \left\{ \frac{1}{\text{low}} + \frac{0.2}{\text{medium}} + \frac{0.5}{\text{high}} \right\}$$

$$B = \left\{ \frac{0.9}{\text{positive}} + \frac{0.4}{\text{zero}} + \frac{0.9}{\text{negative}} \right\}$$

- Find the fuzzy relation for the Cartesian product of  $A$  and  $B$ .
- Introduce a fuzzy set  $C$  given by

$$C = \left\{ \frac{0.1}{\text{low}} + \frac{0.2}{\text{medium}} + \frac{0.7}{\text{high}} \right\}$$

- Find the Cartesian product between  $C$  and  $B$ .
- Also find
  - $T = C \circ R$  (Max-min Composition)
  - $U = C \bullet S$  (Max-Product Composition)

- Q2. Given universe  $X = \text{universe of temperature} = [160, 165, 170, 175, 180, 185, 190, 195]$  and universe  $Y = \text{universe of distillate fractions (percentage)} = [77, 80, 83, 86, 89, 92, 95, 98]$  we define fuzzy sets  $A$  and  $B$  on  $X, Y$  respectively.

$$A = \text{temperature of i/p stream is hot} = \left\{ \frac{0}{175} + \frac{0.7}{180} + \frac{1}{185} + \frac{0.4}{190} \right\}$$

$$\tilde{B} = \text{separation of mixture is good} = \left\{ \frac{0}{89} + \frac{0.5}{92} + \frac{0.8}{95} + \frac{1}{98} \right\}$$

Find the proposition; if "temperature is hot" then "separation of mixture is good".

- Q3. Consider the fuzzy sets

$$\text{"Low Temperature"} = \{ 1/40 + 0.7/50 + 0.5/60 + 0.3/70 + 0/80 \}$$

$$\text{"High Temperature"} = \{ 0/40 + 0.2/50 + 0.4/60 + 0.7/70 + 1.0/80 \}$$

Find the membership functions for the following linguistic expressions

- Temperature not very low and not very high.
- Temperature not very very low.

Q4. Explain different features of membership functions.

Q5. Explain any two Fuzzification methods and Defuzzification methods each.

Q6. Consider two fuzzy sets

$$\text{Plane} = \left\{ \frac{0.2}{\text{train}} + \frac{0.5}{\text{bike}} + \frac{0.3}{\text{boat}} + \frac{0.8}{\text{plane}} + \frac{0.1}{\text{house}} \right\}$$

$$\text{Train} = \left\{ \frac{1}{\text{train}} + \frac{0.2}{\text{bike}} + \frac{0.4}{\text{boat}} + \frac{0.5}{\text{plane}} + \frac{0.2}{\text{house}} \right\}$$

Find the following:

a.  $\text{Plane} \cap \text{Train}$

b.  $\text{Plane} \cup \text{Train}$

c.  $\overline{\text{Plane} \cup \text{Train}}$

d.  $\text{Plane} \mid \text{Train}$

e.  $\overline{\text{Plane} \cap \text{Train}}$

f.  $\overline{\text{Plane}}$

Q7. Define the following terms:

a. Height of fuzzy set

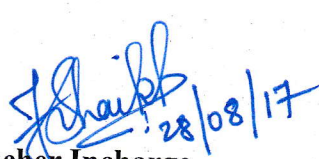
b. Normal fuzzy set

c. Convex fuzzy set

d. Crossover points

e. Fuzzy number

**Note:** Last date of submission is 09-09-2017.

  
Teacher Incharge  
Shaikh Farhat

  
Head  
Dept. of Computer Sc.

25/09/2017

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POONA COLLEGE OF ARTS, SCIENCE & COMMERCE  
CAMP, PUNE – 411001  
DEPARTMENT OF COMPUTER SCIENCE  
HOME ASSIGNMENT 1 CS – 104 DAA

**Class:** M.Sc. (CS) I, SEM I

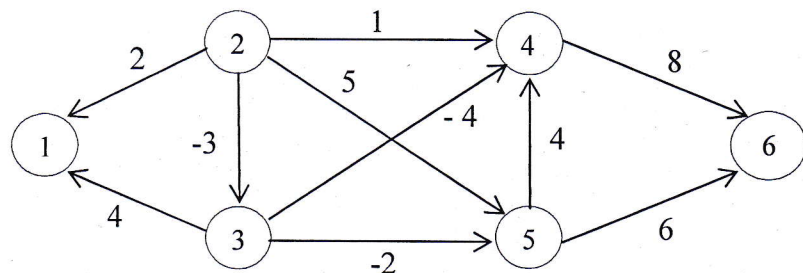
**Instruction:** Student must write the assignment in their own handwriting.

Q1. Write the Kruskal's algorithm.

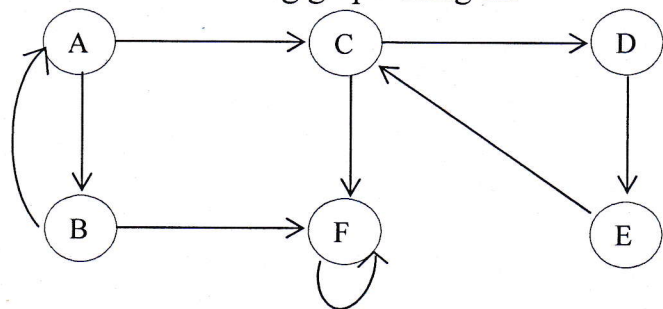
Q2. Find an optimal binary merge pattern for 10 files whose lengths are 15, 2, 12, 35, 28, 11, 23, 5, 20, 3.

Q3. What is the best way to multiply a chain of matrices with dimensions that are  $3 \times 2$ ,  $2 \times 4$ ,  $4 \times 2$ ,  $2 \times 3$ .

Q4. Apply the Bellman ford algorithm find lengths of shortest paths from source 1 to all other vertices.

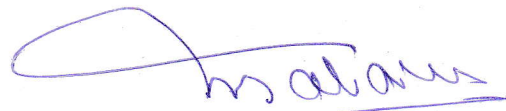


Q5. Find the strongly connected components of the following graph using the Algorithm (start at vertex A).



Q6. Let  $X = a a b a a b a b a a$  and  $Y = b a b a a b a$ . Find the minimum cost edit sequence which transforms X into Y.

**Note:** Last date of submission is 28/09/2017.

  
Head 25.9.17

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Poona College, Pune – 01

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Dept. of Computer Science  
Poona College, Camp  
PUNE-411001.



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**Assignment-3**

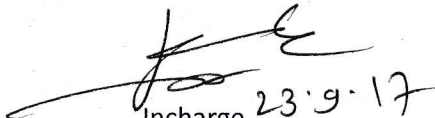
Sub:- Database and Sys Admin (CS-305)

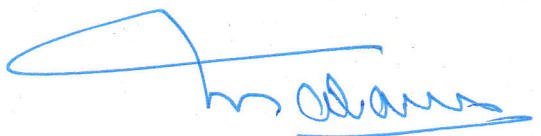
Class:- M.Sc. (Computer Science) Sem-III

**Note:**

- Students are advised to submit the assignment on or before 26<sup>th</sup> September 2017.
- Students must write the assignment in their own handwriting.

1. Explain merge storage engine.
2. Explain MYSQL cluster.
3. How MYSQL uses disk space?

  
Incharge 23.9.17  
Mansur Shaikh

  
Head 23.9.17  
Dept. of Computer Science


**Y & M AKI's**  
**Poona College of Arts, Science & Commerce, Camp, Pune-1**  
**Department of Computer Science**  
**(PG-CENTER)**  
**M.Sc. (Computer Science) Part-I (SEM-I)**  
**Subject: Distributed Database Concepts (CS-103)**  
**ASSIGNMENT II**

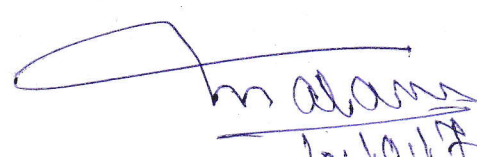
04.10.2017

- Q.1. Describe three components of query optimizer.
- Q.2. What are logs? What information do they contain?
- Q.3. Write a short note on
- i. Distributed deadlock
  - ii. Timestamp
- Q.4. Differentiate between Join and Semi join
- Q.5. Define
- i. Linear Join Tree
  - ii. Bushy Join Tree

**Note:-**

- Students are advised to submit the assignment on or before 10 October 2017.
- Write the assignment in 100 pages note book only.

  
**Mirza Imran Baig**  
**Subject Incharge**

  
**Mahtab Alam**  
**Head**  
**Dept. of Comp. Sci.**  
**HEAD**  
**Dept. of Computer Science**  
**Poona College, Camp**  
**PUNE-411031**

AKI's  
POONA COLLEGE OF ARTS, SCIENCE & COMMERCE  
CAMP, PUNE – 411001  
DEPARTMENT OF COMPUTER SCIENCE  
HOME ASSIGNMENT 2 CS – 104 DAA

**Class:** M.Sc. (CS) I, SEM I

**Instruction:** Student must write the assignment in their own handwriting.

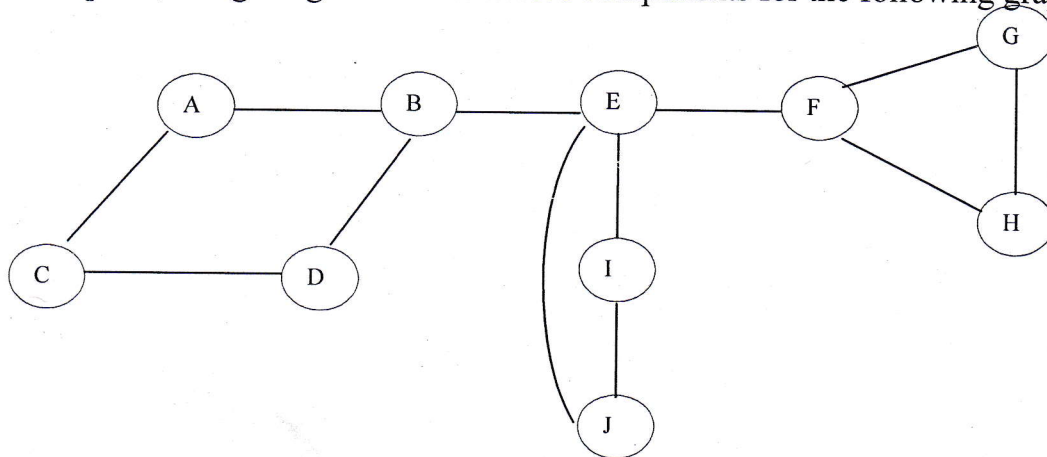
Q1. Use Strassen's matrix multiplication algorithm to multiply the matrices

$$\begin{pmatrix} 3 & 2 \\ 2 & 8 \end{pmatrix} \begin{pmatrix} 1 & 5 \\ 9 & 6 \end{pmatrix}$$

Q2. Discuss the time complexity of merge sort algorithm in best case, worst case.

Q3. Give the implicit and explicit constraints for 8 Queen's problem.

Q4. Define the terms: Articulation point, bridge and biconnected components of graph. Find the Articulation point, bridge edge and biconnected components for the following graph:



Q5. Find  $n_0$  such that for all  $n > n_0$  the following is true  $3\log_2 n < 4n < n^2$ .

Also Justify:  $4n^2 + 3n + 2 = O(n^2)$ .

Q6. Let  $A[1 \dots n]$  be an array of integers, integers can be duplicated. Write an efficient Algorithm to find occurrences of given integer in an array A. Find its time complexity.

Q7. Define state space tree and a problem state. Given set S of weights as  $\{5, 10, 12, 13, 15, 18\}$   
 $n = 6, m = 30$ . Apply backtracking algorithm to find all possible subsets of S that give sum of elements to 30.

**Note:** Last date of submission is 03/10/2017.

*malaviya*  
Head 25.9.17

Dept. of Computer Science  
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25/09/2017

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CAMP, PUNE – 411001  
DEPARTMENT OF COMPUTER SCIENCE  
HOME ASSIGNMENT 2 CS – 104 DAA

Class: M.Sc. (CS) I, SEM I

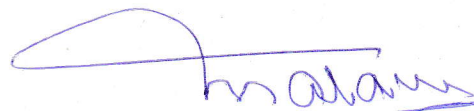
Instruction: Student must write the assignment in their own handwriting.

- Q1. Solve the given 0/1 Knapsack instance by LCBB method by drawing variable tuple size state space tree,  $m = 12$ ,  $n = 5$ ,  $w = (4, 6, 3, 4, 2)$ ,  $p = (10, 15, 6, 8, 4)$ .
- Q2. Write a non-deterministic algorithm for knapsack problem.
- Q3. Explain AVL trees.
- Q4. Define P and NP class. State Cook's theorem and explain its significance.
- Q5. Determine the polynomial of smallest degree that interpolates the points (0, 5), (1, 10) and (2, 21).
- Q6. Obtain reduced cost matrix using LCBB for the given TSP instance.

$\infty$	10	12	9	5
7	$\infty$	6	4	3
8	4	$\infty$	4	8
11	10	5	$\infty$	5
5	4	9	6	$\infty$

- Q7. Why Least cost search method is preferred over LIFO and FIFO Branch Bound Method?

Note: Last date of submission is 07/10/2017.

  
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26/09/2017

**Assignment-2**

Sub:- Database and Sys Admin (CS-305)

Class:- M.Sc. (Computer Science) Sem-III

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**Note:**

- Students are advised to submit the assignment on or before 26<sup>th</sup> September 2017.
- Students must write the assignment in their own handwriting.

1. What is locking? Give two examples of types.
2. Explain storage engine INNO DB
3. Explain MYSQL architecture with diagram.
4. Explain storage engine MYISAM.

Incharge  
Mansur Shaikh

Head  
Dept. of Computer Science

AKI's

Poona College of Arts, Science & Commerce

Camp, Pune 1

### Assignments 2017 -18

Subject: Mobile computing

Last Date: 26-09-2017

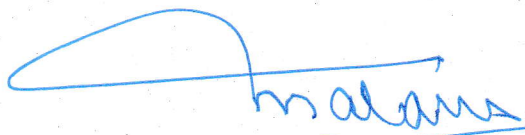
Class: M. Sc. Computer Science Semester III

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1. Draw and explain the system architecture of GSM Global System for mobile communication.
2. Draw and explain the WAP architecture in detail.
3. Create android small App to demonstrate the different android view and event handling.

  
M Umer Hasan

Techer Incharge

  
Mahtab Alam 8.9.17

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**Y & M AKI'S**  
**Poona college of Arts, Science & Commerce**  
**Camp, Pune-1**

Department of Computer Science (Post Graduate Center)

**Subject: - Programming with DOT NET Class: M.Sc. (C.S.) Part-I**

**ASSIGNMENT-III**

**Date:-30/03/2018**

---

1. Explain ASP.NET architecture?


**Note:-**

- Students are advised to submit the assignment on or before 30<sup>th</sup> April 2018.
- Write the assignment in 100 pages note book only.
- Those who have written assignment on supplements, bring them in a folder.



**Mohd. Umer Hassan**

**Subject Teacher**



**Mahtab Alam** 22/3/18

**Head, Dept. of Comp. Sci.**

**Y & M AKI'S**  
**Poona college of Arts, Science & Commerce**  
**Camp, Pune-1**

Department of Computer Science (Post Graduate Center)

**Subject: - Programming with DOT NET Class: M.Sc. (C.S.) Part-I**

**ASSIGNMENT-II**

**Date:-30/03/2018**

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1. Explain polymorphism in C# with suitable example?

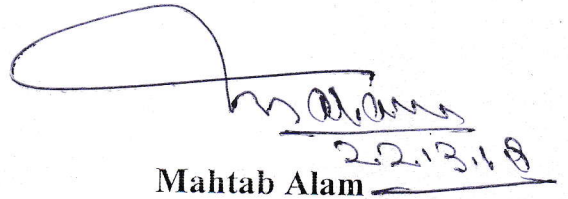
**Note:-**

- Students are advised to submit the assignment on or before 30<sup>th</sup> March 2018.
- Write the assignment in 100 pages note book only.
- Those who have written assignment on supplements ,bring them in a folder.



Mohd. Umer Hassan

Subject Teacher

  
22/3/18

Mahtab Alam

Head, Dept. of Comp. Sci.

**Y & M AKI'S**  
**Poona college of Arts, Science & Commerce**  
**Camp, Pune-1**

Department of Computer Science (Post Graduate Center)

**Subject: - Data Mining and Data Warehousing Class: M.Sc. (C.S.) Part-I**


**ASSIGNMENT-II**

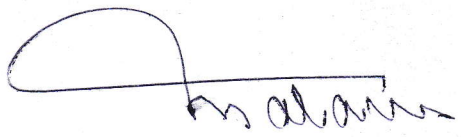
22 March 2018

1. What is overfitting? Explain with example?
2. Write a short note on CART?
3. Write a short note on precision and recall?
4. Define confusion matrix?
5. What is WEKA? What are the advantages of WEKA?

**Note:-**

- Students are advised to submit the assignment on or before  
**04 April 2018.**
- Write the assignment in 100 pages note book only.

  
22/03/18  
**Mirza Imran Baig**  
Subject Teacher

  
Mahtab Alam 22.3.18  
**Head, Dept. of Comp. Sci.**

**Y & M AKI'S**  
**Poona college of Arts, Science & Commerce**  
**Camp, Pune-1**

Department of Computer Science (Post Graduate Center)

**Subject: - Data Mining and Data Warehousing (CS-203) Class: M.Sc. (C.S.)**

Part-I

**ASSIGNMENT-I**

**Date:-22/02/2018**

1. Define: Data Mining.
2. Explain the major issues in data mining.
3. What are the different data mining applications?
4. Differentiate between OLTP and OLAP.
5. Write a note on: Architecture of Data Warehouse.
6. What are data preprocessing techniques? Explain any one in detail.
7. What do you mean by machine learning?
8. Suppose that a data warehouse of a match consists of four dimensions date, spectator, location and game and the two measures count and charge, where the charge is the fare that spectator pays when watching a game on a given date, spectators may be students, adults or seniors, with each category having its own charge rate.  
Draw a star schema diagram for a given data warehouse.
9. Define association rule. What is the purpose of association rule?
10. Define FP-Tree. Construct FP-Tree for the following data.

TID	Item
1	A, B, C
2	D, A, C, B
3	C, A, B
4	B, A, D
5	D
6	D, B
7	A, D, B
8	B, C

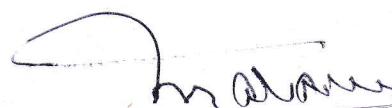
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**Note:-**

- Students are advised to submit the assignment on or before 03 March 2018.
- Write the assignment in 100 pages note book only.

  
22/02/18

**Mirza Imran Baig**  
**Subject Teacher**

  
Mahtab Alam 22/2/18  
**Head, Dept. of Comp. Sci.**

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Dept. of Computer Science  
Poona College of Arts, Science & Commerce  
Pune-411 004

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POONA COLLEGE OF ARTS, SCIENCE & COMMERCE

CAMP PUNE -411001

DEPARTMENT OF COMPUTER SCIENCE

HOME ASSIGNMENT 3 CS-101 PPL

Class: M.Sc(CS) I, SEM I

Q1. The semantic of a call to and return from simple subprograms requires which action and storage for?

Q2. Explain the activation record format for implementing subprograms with stack dynamic Local variables with example?

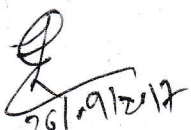
Q3. Define static chain, static depth, nesting depth and chain offset.


Q4. Explain how dynamic scoping is implemented?

Q5. Write a note on

- a) Multi processor Architecture.
- b) Semaphores.
- c) Monitors.
- d) Categories of concurrency.
- e) Message passing.

NOTE : Last date of submission is 30/9/17.

  
26/9/17  
(Anurag Inman)

  
Head 26/9/17

Dept. of Computer science

Poona college pune-01

12/09/2017

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POONA COLLEGE OF ARTS, SCIENCE & COMMERCE  
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DEPARTMENT OF COMPUTER SCIENCE

HOME ASSIGNMENT 1 CS – 102 ADVANCE N/W

**Class: M.Sc. (CS) I, SEM I**

**Instruction: Student must write the assignment in their own handwriting.**

Q1. Explain the Layers of TCP/IP Protocol Suite?

Q2. What is WLAN? Explain the Ethernet frame format?

Q3. Define the following: -

1. Brute – force Attack

2. Avalance Effect

3. Meet – in – the Middle Attack 4. Man – in – Middle Attack (Women – in – the Middle Attack or Bucket Brigade Attack)

Q4. Distinguish between Fast Ethernet, Gigabit Ethernet & Ten – Gigabit Ethernet.

Q5. What is Wireless LANS? Explain the architecture of BSS & ESS?

Q6. I.) Plain text: “BEAUTIFUL LAMP” Solve using following techniques:

a) Rail Fence technique

b) Playfair Cipher technique (Keyword- WONDERFUL)

II.) A) Using Hill Cipher technique encrypt the Plain text: “LAND”

$$\text{Key Matrix} = \begin{bmatrix} 6 & 24 & 1 & 5 \\ 13 & 16 & 10 & 21 \\ 20 & 18 & 15 & 14 \\ 12 & 17 & 25 & 11 \end{bmatrix}$$

B) Given a plain text “ALGORITHM” & one – time pad “ABXZCDE” use Vernam cipher to obtain cipher text.

Q7. What is Switched WANS? Explain Frame Relay?

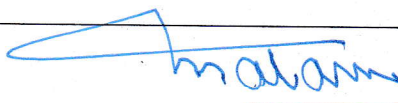
Q8. Write a note Diffie – Hellman technique, why was it introduced? Find whether Alice & Bob exchange the Symmetric key successfully gives the values of n, g, x & y as 7, 13, 5, 2 respectively.

Q9. Compare and contrast CSMA/CD & CA?

Q10. What is Point – to – Point WANS? Explain the DSL technology & state their different types.

**Note: Last date of submission is 30/09/2017.**

  
Shaikh Farhat  
Teacher Incharge

  
Head 12.9.17  
Dept. of Computer Science  
Poona College, Pune – 01  
HEAD  
Dept. of Computer Science  
Poona College, Camp  
PUNE-411001

Date: 14/09/2017

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CAMP, PUNE - 411001

DEPARTMENT OF COMPUTER SCIENCE

HOME ASSIGNMENT 3 CS-303 Soft Computing

Class: M.Sc. (CS) II, SEM III

Instruction: Students must write the assignment in their own handwriting.

Q.1 Consider 3 strings,

A= {101101}

B= {011000}

C= {000111}

Find which string belongs to schemata

H<sub>1</sub>=\*0\*\*\*1, H<sub>2</sub>= 1\*\*\*\*1, H<sub>3</sub>=0\*\*\*\*\*, H<sub>4</sub>= \*\*\*\*\*1, H<sub>5</sub>=\*\*1\*\*\*

Q.2 Explain how genetic algorithm differs from Traditional Method.

Q.3 Explain properties of TLN's.

Q.4 Develop a perceptron for AND function with binary inputs and bipolar targets upto **one epoch**. Assume initial weights and bias to be 0, Learning rate =1 activation function is

$$Y=f(y_{in}) = \begin{cases} 1 & \text{if } y_{in} > 0 \\ 0 & \text{if } -0 \leq y_{in} \leq 0 \\ -1 & \text{if } y_{in} < 0 \end{cases}$$

X <sub>1</sub>	X <sub>2</sub>	Target : t
1	1	1
-1	1	-1
1	-1	-1
-1	-1	-1

Note: Last date of submission is 30/09/2017.

  
Shaikh Farhat  
Teacher Incharge

  
Head  
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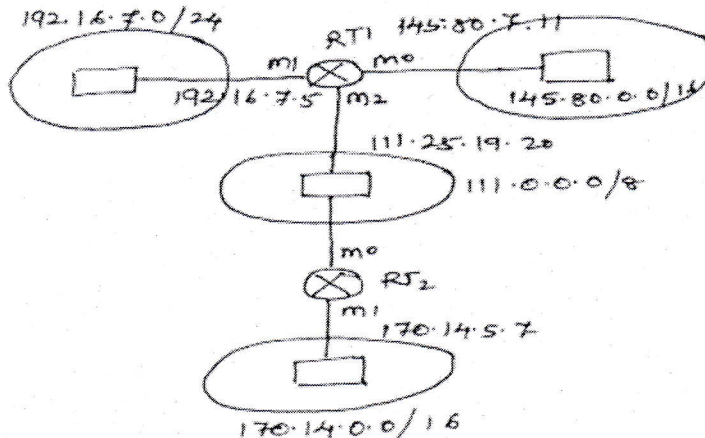
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DEPARTMENT OF COMPUTER SCIENCE

HOME ASSIGNMENT 2 CS – 102 ADVANCE N/W

**Class: M.Sc. (CS) I, SEM I**

**Instruction: Student must write the assignment in their own handwriting.**

- Q1. Consider a Plain text alphabet “G”? Using RSA algorithm and the values  $P=17$  &  $Q=29$ , find out  $N$ ,  $E$  and  $D$  in an encryption process. Compute the Cipher text and also verify that upon decryption, it transforms back to “G”.
- Q2. How crash recovery is handled in transport layer?
- Q3. Explain different strategies of transition from IPv4 to IPv6.
- Q4. Explain in detail various forwarding techniques for Forwarding based on Destination Address.
- Q5. What are typical contents of a digital certificate and discuss the key steps used in creation of a digital certificate?
- Q6 Explain with example, how buffers are allocated dynamically in transport layer?
- Q7 Given Figure shows an imaginary part of the Internet. Show the routing tables for router RT1 using Classful Addressing. Router RT1 receives a packet with destination address 170.14.89.4. Show how the packet is forwarded.



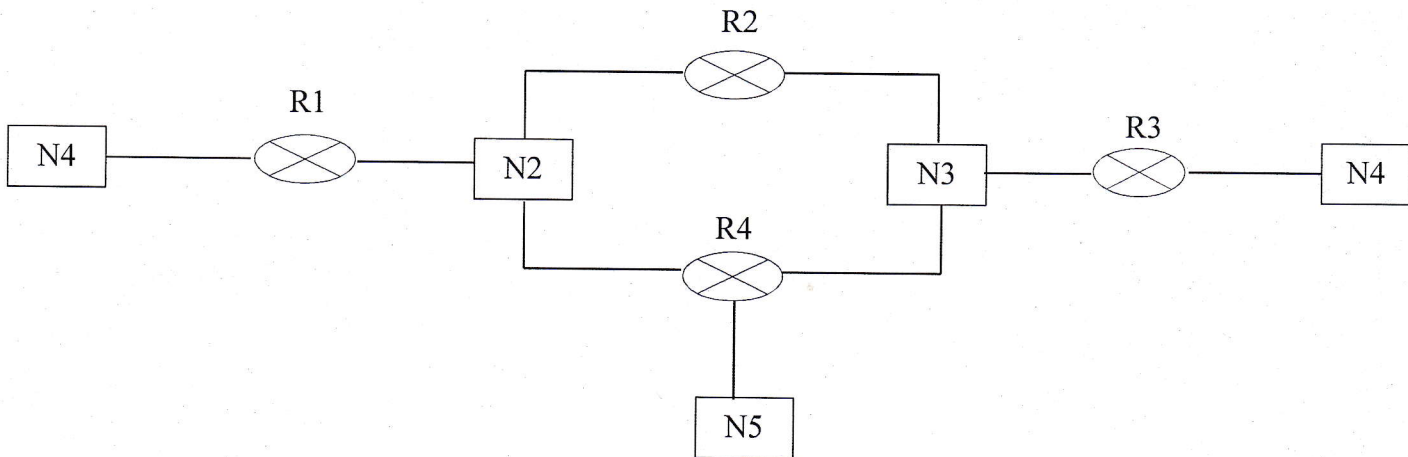
- Q8. Consider the following routing table for router R1:

**Routing table for router R1**

Mask	Network Address	Next Hop	Interface
/26	180.70.65.192	-	m2
/25	180.70.65.128	-	m0
/24	201.4.22.0	-	m3
/22	201.4.16.0	....	m1
Default	Default	180.70.65.200	m2

- i. Show the forwarding process if a packet arrives at R1 with the destination address 201.4.22.40
- ii. Show the forwarding process if a packet arrives at R1 with the destination address 20.24.30.75

Q9. Define Router – LSA and Network – LSA. Show which routers send out Router Link and Network Link LSAs in the following figure?



Note: Last date of submission is 30/09/2017.

*Shaikh Farhat*  
14/09/17

Shaikh Farhat  
Teacher Incharge

*Head*  
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14/09/2017

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CAMP, PUNE – 411001  
DEPARTMENT OF COMPUTER SCIENCE

HOME ASSIGNMENT 1 CS – 102 ADVANCE N/W

Class: M.Sc. (CS) I, SEM I

Instruction: Student must write the assignment in their own handwriting.

Q1. Explain the Layers of TCP/IP Protocol Suite?

Q2. What is WLAN? Explain the Ethernet frame format?

Q3. Define the following: -

1. Brute – force Attack

2. Avalance Effect

3. Meet – in – the Middle Attack 4. Man – in – Middle Attack (Women – in – the Middle Attack or Bucket Brigade Attack)

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II.) A) Using Hill Cipher technique encrypt the Plain text: “LAND”

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B) Given a plain text “ALGORITHM” & one – time pad “ABXZCDE” use Vernam cipher to obtain cipher text.

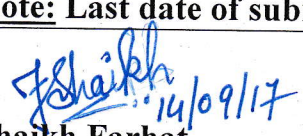
Q7. What is Switched WANS? Explain Frame Relay?

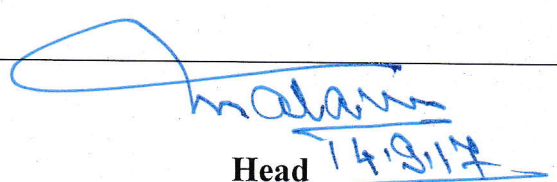
Q8. Write a note Diffie – Hellman technique, why was it introduced? Find whether Alice & Bob exchange the Symmetric key successfully gives the values of n, g, x & y as 7, 13, 5, 2 respectively.

Q9. Compare and contrast CSMA/CD & CA?

Q10. What is Point – to – Point WANS? Explain the DSL technology & state their different types.

Note: Last date of submission is 29/09/2017.

  
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Teacher Incharge

  
Head  
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PUNE-411001.

Date:14/09/2017

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DEPARTMENT OF COMPUTER SCIENCE  
HOME ASSIGNMENT 2 CS-303 Soft Computing

Class: M.Sc. (CS) II, SEM III

Instruction: Students must write the assignment in their own handwriting.

- Q.1 Describe the Fuzzy inference system in detail.  
Q.2 For the fuzzy relation matrix

$$R = \begin{pmatrix} 1 & 0.8 & 0.6 & 0.3 & 0.1 \\ 0.7 & 1 & 0.7 & 0.5 & 0.4 \\ 0.5 & 0.6 & 1 & 0.8 & 0.8 \\ 0.3 & 0.4 & 0.6 & 1 & 0.9 \\ 0.9 & 0.3 & 0.5 & 0.7 & 1 \end{pmatrix}$$

Determine the  $\lambda$ -cuts relations for the following  $\lambda$ -values on R.  $\lambda_{0.9}, \lambda_{0.7}, \lambda_{0.5}, \lambda_{0.3}$ .

Q.3

$$\begin{matrix} & x_1 & x_2 & x_3 & x_4 & x_5 \\ \begin{matrix} x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \end{matrix} & \begin{pmatrix} 1 & 0.8 & 0 & 0.1 & 0.2 \\ 0.8 & 1 & 0.4 & 0 & 0.9 \\ 0 & 0.4 & 1 & 0 & 0 \\ 0.1 & 0 & 0 & 1 & 0.5 \\ 0.2 & 0.9 & 0 & 0.5 & 1 \end{pmatrix} \end{matrix} \quad \leftarrow R$$

Find whether the given Relation is Equivalence relation or not?

- Q.4 Given the following fuzzy members A and B, using Zadeh's extension principle calculate fuzzy number "approximately 12"

$$A = \text{"approximately 2"} = \left\{ \frac{0.6}{1} + \frac{1}{2} + \frac{0.8}{3} \right\}$$

$$B = \text{"approximately 6"} = \left\{ \frac{0.8}{5} + \frac{1}{6} + \frac{0.7}{7} \right\}$$

- Q.5 Using inference approach find membership values for each of the triangular shapes

(I, R, E, IR, T) for each of the following:

a.  $20^\circ, 40^\circ, 120^\circ$

b.  $90^\circ, 45^\circ, 45^\circ$

**Note: Last date of submission is 30/09/2017.**

  
Shaikh Farhat  
Teacher Incharge

  
Head  
Dept. of Computer Science

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Poona College, Camp  
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Anjuman Khairul Islam's  
**POONA COLLEGE**  
OF ARTS, SCIENCE & COMMERCE  
(Affiliated to University of Pune)

ACCREDITED BY  
**NAAC**

**NOTICE**

To be put on :

To be remove on :

30/03/2019

30/04/2019

**.Net (CS-204) Assignments**

All the students of M.Sc. (Computer Science) Part – I Semester II are hereby informed the schedule of project completion as follows

Day and date	Project Work
Saturday 6/ April /2019	All documentation part
Saturday 13/ April /2019	Project in running state
by Saturday 20/ April /2019	Certification of project work

Ms. Shaheda Ansari  
Subject In-charge

Head 30/3/19  
Dept. of Computer Science

Mr. M Umer  
Subject In-charge

HEAD  
Dept. of Computer Science  
Poona College, Camp  
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AKI's  
POONA COLLEGE OF ARTS, SCIENCE & COMMERCE  
CAMP, PUNE - 411 001

**DEPARTMENT OF COMPUTER SCIENCE**

S.No.	Roll No.	Name of Students (with group partner, if any)	Title of Project	Seat No.	Sign.
1	6401	Shaikh UmmeSalma	'Online Institute Admission System'	10365	Yash
2	6425	Ansari Jyulbahar		10357	Gursha
3	6405	Mohammad Aamir	book my show system	10359	Romi
4	6421	Anis Shaikh		10347	Shik
5	6406	Alisha Shaikh	result Analysis system.	10363	Shik
6	6418	Dhanashree D.		10358	Chandak
7	6407	Lukhsar Ansari	Vehicle Tracking System (School Bus Tracking)	10360	Rutisha
8	6408	futunkar Sahil		10348	Shik
9	6412	Sagar Thorat	Courier Management System	10354	Shik
10	6413	Sagar Khanapure		10353	Shik
11	6409	Shaikh Akbar	mobile store management	10362	Shik
12	6419	Neel S. Makarand		10350	Shik
13	6422	Mohammad Unaiiz Shaikh		10351	Shik
14	6411	Saeed Khan	House of wisdom	10361	Shik
15	6414	SHAIKH MOHAMMED IRFAN		10356	Shik
16	6410	Ronak Samuel	LIC management System	10355	Shik
17	6416	Irfan Shaikh		10364	Shik
18	6420	Jarannum Sheikh	Payroll Mgmt System	10367	Shik

AKI's  
POONA COLLEGE OF ARTS, SCIENCE & COMMERCE  
CAMP, PUNE - 411 001

**DEPARTMENT OF COMPUTER SCIENCE**

S.No.	Roll No.	Name of Students (with group partner, if any)	Title of Project	Seat No.	Sign.
19	6417	Shikhar Kumar Singh	Library Management System	10368	Shikhar
20	6423	Shiraj Sanjay Rathod	"	10352	S.S. Rathod
21	6424	Shaikh Yasmin	Hostel Admission System	10366	Shaikh
22					
23				10349	
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					

# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

zebashaikh888@gmail.com

Name and Roll No \*

5751

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☒ Cos a
- ☐ Cos(a+b)
- ☐ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☐ Satisfies CR equations at  $Z=0$
- ☒ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☒ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☐ True
- ☒ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
- ☐ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☐ True
- ☒ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☒ True
- ☐ False

## Short Answers

\*

4 points


Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 IMG\_20181230\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 IMG\_20181230\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 IMG\_20181230\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

madihahayat11@gmail.com

Name and Roll No \*

Atiya fatema5763

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☒ Cos a
- ☐ Cos(a+b)
- ☐ Cosh b Cos a
- ☐ Sinh b sina

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1 point

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1 point

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## Short Answers

\*

4 points


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 Screenshot\_201...

\*

4 points


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 Screenshot\_201...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 Screenshot\_201...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

saudapatel151@gmail.com

Name and Roll No \*

Sauda 5761

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☒ Cos(a+b)
- ☐ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

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- ☒ Satisfies CR equations at  $Z=0$
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- ☐ is differentiable at  $Z=0$
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\*

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1 point

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All trigonometric functions are continuous on their domain \*

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- ☐ False

\*

1 point

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- ☐ False

\*

1 point

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- ☐ False

\*

1 point

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- ☒ False

## Short Answers

\*

4 points

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 IMG\_20181230\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 IMG\_20181230\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 IMG\_20181230\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

tinglifarheen@gmail.com

Name and Roll No \*

Farheen 5755

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

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\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

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☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

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True or False

Every entire function satisfy CR equations \*

1 point

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All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

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\*

1 point

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- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$


- ☒ True
- ☐ False

## Short Answers

\*

4 points


Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 1546234115977...

\*

4 points


If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 1546236187590...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 1546235986053...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

shaikhanjum296@gmail.com

Name and Roll No \*

5758

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

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- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

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$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☒ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

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All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
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\*

1 point

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- ☒ True
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\*

1 point

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- ☒ True
- ☐ False

## Short Answers

\*

4 points


Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 1546237666463...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 1546237553259...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 1546238249516...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

bholebibifatima@gmail.com

Name and Roll No \*

M-5753

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

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- ☐ is differentiable at  $Z=0$
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\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☒ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
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\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☒ True
- ☐ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 IMG-20181231-...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 IMG-20181231-...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 IMG-20181231-...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

saba.m7276@gmail.com

Name and Roll No \*

Saba (M-5752)

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
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\*

1 point

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\*

1 point

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☐ Option 1

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True or False

Every entire function satisfy CR equations \*

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\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$


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## Short Answers

\*

4 points


Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 1546259237578-...

\*

4 points


If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 1546259161981-...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 1546259075899-...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

rizwanasayyad1997@gmail.com

Name and Roll No \*

5765

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
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 1546266181466...

\*

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 1546266102607...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 1546266069097...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

shaikhzubeda57@gmail.com

Name and Roll No \*

Shaikh zubeda Musa..5757

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
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True or False

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1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☒ True
- ☐ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



IMG\_20181231\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



IMG\_20181231\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



IMG\_20181231\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

aasmalandge786@gmail.com

Name and Roll No \*

5760

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☒ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☐ True☒ False

All trigonometric functions are continuous on their domain \*

1 point

- ☐ True
- ☒ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
- ☐ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☐ True
- ☒ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☒ True
- ☐ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



1546272870513...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



1546273012796...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



1546272934385...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

dhananjayjha7@gmail.com

Name and Roll No \*

Dhananjay Jha 5762

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☒ Cos(a+b)
- ☐ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☐ Satisfies CR equations at  $Z=0$
- ☒ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☒ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☐ True
- ☒ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$


- ☐ True
- ☒ False

## Short Answers

\*

4 points


Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 IMG-20190101-...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 IMG-20190101-...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 IMG-20190101-...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

tasnimfirdos125@gmail.com

Name and Roll No \*

Tasnim 5759

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☐ Cosh b Cos a
- ☒ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☒ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☐ True☒ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
- ☐ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☒ True
- ☐ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



Screenshot\_201...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



Screenshot\_201...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



Screenshot\_201...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

namirashaikh1702@gmail.com

Name and Roll No \*

6325

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☒ Cos(a+b)
- ☐ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☐ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☒ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☒ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☐ True☒ False

All trigonometric functions are continuous on their domain \*

1 point

- ☐ True
- ☒ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
- ☐ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☒ True
- ☐ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



IMG\_20200125\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



IMG\_20200125\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



IMG\_20200125\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

swaleha587@gmail.com

Name and Roll No \*

Shaikh Swaleha Maqbool.(6313)

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



IMG\_20200125\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



IMG\_20200125\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



IMG\_20200125\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

tambolimuskan28@gmail.com

Name and Roll No \*

Tamboli Muskan 6319

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



1579941402423...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



1579941485543...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



1579941337353...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

t.taskeen24@gmail.com

Name and Roll No \*

Taskeen 6318

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



IMG\_20200125\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



IMG\_20200125\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



IMG\_20200125\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

samreenattar01@gmail.com

Name and Roll No \*

Samrin attar(6314)

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 20200125\_1340...

\*

4 points


If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 20200125\_1347...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 20200125\_1345...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

kumbharzakiya309@gmail.com

Name and Roll No \*

Kumbhar Zakiya 6311

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



1579939550288...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



1579939936324...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



1579939676715...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

8446118607s@gmail.com

Name and Roll No \*

6327

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



1579941779542-...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



1579941849995-...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



1579941711659...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

anjusyed99@gmail.com

Name and Roll No \*

6323

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

-}

1579941914300...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

-}

1579941840352...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

-}

1579941363780-...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

jaypdube1209@gmail.com

Name and Roll No \*

Jayprakash Dube. 6302

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☒ True
- ☐ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



IMG\_20200125\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



IMG\_20200125\_...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



IMG\_20200125\_...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

kradheshyam1999@gmail.com

Name and Roll No \*

6326

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

IMG\_20200125\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

DEBUG\_IMG\_202...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

adcshaikh151@gmail.com

Name and Roll No \*

Shaikh Sauleha Arif 6308

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

1579947033543...



\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

1579946972644-...



\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

1579947074393-...



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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

aluremuskan3036@gmail.com

Name and Roll No \*

Muskan alure 6312

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

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\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

IMG-20200125-...



\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

IMG-20200125-...



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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

khansashaikh472@gmail.com

Name and Roll No \*

Shaikh khansa 6315

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

1579963388801...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

1579963429693...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

1579963320006...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

sk.sana1201@gmail.com

Name and Roll No \*

Shaikh Sana Zakir 6324

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☒ Cos a
- ☐ Cos(a+b)
- ☐ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☐ Satisfies CR equations at  $Z=0$
- ☒ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☐ Option 2

$$i\frac{\pi}{4}$$

☒ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☐ True☒ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
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\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

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- ☐ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



IMG\_20200125\_...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



1579965329722...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

shaikhsaina7865@gmail.com

Name and Roll No \*

Shaikh Saima Murtuza (6309)?

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
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- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



1579966222684...

\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



1579966389669...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

shaikhhumera78635@gmail.com

Name and Roll No \*

6310

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☒ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☐ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$


- ☐ True
- ☒ False

## Short Answers

\*

4 points


Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.

 88D2224C-E8A9-...

\*

4 points


If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .

 C70D71C0-CEC5-...

\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.

 8533282A-E085-...

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

sk.alfiya321@gmail.com

Name and Roll No \*

Shaikh alfiya asif

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
- ☐ Cos(a+b)
- ☒ Cosh b Cos a
- ☐ Sinh b sina

\*

1 point

The function

$$f(z) = \begin{cases} \frac{\bar{z}^2}{z^2} & \text{if } z \neq 0 \\ 0 & \text{if } z = 0 \end{cases}$$

- ☐ Satisfies CR equations at  $Z=0$
- ☐ is continuous at  $Z = 0$
- ☒ is differentiable at  $Z=0$
- ☐ is analytic at  $Z=0$

\*

1 point

The Principle value of  $\log(i^{1/4})$  is |

$$i\pi$$

☐ Option 1

$$i\frac{\pi}{2}$$

☒ Option 2

$$i\frac{\pi}{4}$$

☐ Option 3

$$i\frac{\pi}{8}$$

☐ Option 4

True or False

Every entire function satisfy CR equations \*

1 point

☒ True☐ False

All trigonometric functions are continuous on their domain \*

1 point

- ☒ True
- ☐ False

\*

1 point

If  $f: D \rightarrow \mathbb{C}$  ( $D$  is a Domain) is analytic and  $f = u + iv$  then  $u$  and  $v$  are differentiable on  $D$  but not conversely

- ☐ True
- ☒ False

\*

1 point

If  $f(z)$  is analytic then  $\overline{f(z)}$  is analytic if and only if  $f(z)$  is a constant function

- ☒ True
- ☐ False

\*

1 point

If  $v$  is harmonic conjugate of  $u$  then  $u$  is not harmonic conjugate of  $v$

- ☐ True
- ☒ False

## Short Answers

\*

4 points

Show that  $\lim_{z \rightarrow 0} \left( \frac{z}{\bar{z}} \right)^2$  does not exist.



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\*

4 points

If a function  $f(z) = u(x, y) + iv(x, y)$  is analytic in a domain  $D$ , then prove that its component functions  $u$  and  $v$  are harmonic in  $D$ .



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\*

4 points

Show that the function  $u(x, y) = 2x - x^3 + 3xy^2$  is harmonic and find its harmonic conjugate.



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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

nidaparth@gmail.com

Name and Roll No \*

Nida Alim Khan 6307

## Multiple Choice Questions

\*

1 point

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4 points

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# T.Y.B.Sc.\_Assignment \_Sem II\_2019-20

Paper-I : Complex Analysis (Last date of submission : 25/01/2020 upto 11.00 pm)

Email \*

shaikhanas3299@gmail.com

Name and Roll No \*

6301

## Multiple Choice Questions

\*

1 point

Let  $z = a + bi$  with  $a$  and  $b$  real. What is the real part of  $\cos(a + bi)$ ?

- ☐ Cos a
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