

11/7/22

# OP JINDAL UNIVERSITY, RAIGARH (C.G.)



## PhD COURSEWORK EXAMINATION, JULY-2022

Course : **PhD**

Time: **03 Hrs**

Semester: Coursework

Branch: Common

Max. Marks: **100**

Subject Code: **PCW101**

Subject: Research Methodology

**Note:** Section A: Answer any **EIGHT** Questions [08 x 05 Marks = 40]  
Section B: Answer any **FIVE** Questions [05 x 12 Marks = 60]

Q. No.	Section [A]	CO
Q1 a)	Elaborately define the term "Research". Also discuss its objectives.	01
Q1 b)	Differentiate between the terms "Method" and "Methodology".	04
Q1 c)	What are the applications of time series analysis?	03
Q1 d)	Write short notes on Correlation and Regression	07
Q1 e)	What is reliability in research? What are reliability issues in research?	05
Q1 f)	What is nominal and ordinal level of measurement?	03
Q1 g)	What do you mean by research ethics and why it is important?	06
Q1 h)	Differentiate between i-index and h-index of an author?	07
Q1 i)	Why is plagiarism crucial during the writing of research reports? Listed out the software used for detection of plagiarism?	06
Q1 j)	Discuss features of a good research design.	01
Q1 k)	Describe the qualitative and quantitative research with examples.	01

Q. No.	Section [B]	CO
Q2 a)	Pointwise discuss the research process for identification of research problem and Developing of Hypotheses.	02
Q2 b)	Define the term "Hypothesis". What are the sources to come up with a good hypothesis? State the characteristics of scientific methods.	02
Q2 c)	Discuss the various tools and techniques of data collection used in research	03
Q2 d)	Define the term Validity. Discuss the different forms of Validity.	07
Q2 e)	Discuss the key differences between supervised and unsupervised learning	08
Q2 f)	Describe the types of reports with its significance	06
Q2 g)	Briefly explain the structure of the research report.	06
Q2 h)	Describe extraneous variable with examples. Discuss factorial design and cross over design with examples.	03

\*\*\*\*\*



Name of the Candidate  
Roll No.

Branch / Department

Page No. / Total Pages

Subject Name / Code

Section / Paper / Marks

Q. No.	Answer	Marks
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		

# OP JINDAL UNIVERSITY, RAIGARH (C.G.)



## PhD COURSEWORK EXAMINATION, JULY-2022

Course : **PhD**

Time: **03 Hrs**

Semester: Coursework

Branch: Common

Max. Marks: **100**

Subject Code: **PCW101**

Subject: Research Methodology

**Note:** Section A: Answer any **EIGHT** Questions [08 x 05 Marks = 40]  
Section B: Answer any **FIVE** Questions [05 x 12 Marks = 60]

Q. No.	Section [A]	CO
Q1 a)	Elaborately define the term "Research". Also discuss its objectives.	01
Q1 b)	Differentiate between the terms "Method" and "Methodology".	04
Q1 c)	What are the applications of time series analysis?	03
Q1 d)	Write short notes on Correlation and Regression	07
Q1 e)	What is reliability in research? What are reliability issues in research?	05
Q1 f)	What is nominal and ordinal level of measurement?	03
Q1 g)	What do you mean by research ethics and why it is important?	06
Q1 h)	Differentiate between i-index and h-index of an author?	07
Q1 i)	Why is plagiarism crucial during the writing of research reports? Listed out the software used for detection of plagiarism?	06
Q1 j)	Discuss features of a good research design.	01
Q1 k)	Describe the qualitative and quantitative research with examples.	01

Q. No.	Section [B]	CO
Q2 a)	Pointwise discuss the research process for identification of research problem and Developing of Hypotheses.	02
Q2 b)	Define the term "Hypothesis". What are the sources to come up with a good hypothesis? State the characteristics of scientific methods.	02
Q2 c)	Discuss the various tools and techniques of data collection used in research	03
Q2 d)	Define the term Validity. Discuss the different forms of Validity.	07
Q2 e)	Discuss the key differences between supervised and unsupervised learning	08
Q2 f)	Describe the types of reports with its significance	06
Q2 g)	Briefly explain the structure of the research report.	06
Q2 h)	Describe extraneous variable with examples. Discuss factorial design and cross over design with examples.	03

\*\*\*\*\*





# UNIVERSITY OF RAJASTHAN

(U.G.)

## LAB COURSE WORK EXAMINATION JULY 2011

Roll No. \_\_\_\_\_  
 Name \_\_\_\_\_  
 Section \_\_\_\_\_  
 Date \_\_\_\_\_  
 Subject: **Physics**  
 Topic: **Modern Physics**

Q.1. Answer the following questions in brief (10 marks) - 10  
 Q.2. Answer the following questions in detail (10 marks) - 10

Q.1	Answer the following questions in brief (10 marks) - 10
Q.2	Answer the following questions in detail (10 marks) - 10
Q.3	Answer the following questions in brief (10 marks) - 10
Q.4	Answer the following questions in detail (10 marks) - 10
Q.5	Answer the following questions in brief (10 marks) - 10
Q.6	Answer the following questions in detail (10 marks) - 10
Q.7	Answer the following questions in brief (10 marks) - 10
Q.8	Answer the following questions in detail (10 marks) - 10
Q.9	Answer the following questions in brief (10 marks) - 10
Q.10	Answer the following questions in detail (10 marks) - 10
Q.11	Answer the following questions in brief (10 marks) - 10
Q.12	Answer the following questions in detail (10 marks) - 10
Q.13	Answer the following questions in brief (10 marks) - 10
Q.14	Answer the following questions in detail (10 marks) - 10
Q.15	Answer the following questions in brief (10 marks) - 10
Q.16	Answer the following questions in detail (10 marks) - 10
Q.17	Answer the following questions in brief (10 marks) - 10
Q.18	Answer the following questions in detail (10 marks) - 10
Q.19	Answer the following questions in brief (10 marks) - 10
Q.20	Answer the following questions in detail (10 marks) - 10



# OP JINDAL UNIVERSITY, RAIGARH (C.G.)



## PhD COURSE WORK EXAMINATION, JULY-2022

Department: **CSE**

Time : **03 Hrs**

Subject Code: **SOE-P-CSE103(2)**

Max. Marks : **100**

Subject: **Block Chain**

**Note: Section A :** All Questions are compulsory. [10 x 02 marks]

**Section B :** Answer any 6 questions. [06 x 05 marks]

**Section C :** Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	What are the limitations of blockchain?	CO1
Q1 b)	What is a ledger?	CO1
Q1 c)	What are Merkle trees?	CO2
Q1 d)	What is Double Spending?	CO2
Q1 e)	What is a crypto wallet?	CO3
Q1 f)	What are the most popular cryptocurrencies?	CO3
Q1 g)	What is a blockchain?	CO4
Q1 h)	Write different features of the blockchain technology?	CO4
Q1 i)	What are different types of blockchain ?	CO5
Q1 j)	What is Campuscoin?	CO5

Q. No.	Section [B]	CO
Q2 a)	What is a 51% attack in blockchain?	CO1
Q2 b)	What do you mean by Coinbase transaction?	CO1
Q2 c)	Name the common type of ledgers that can be considered by users in Blockchain?	CO2
Q2 d)	How important are Merkle trees in Blockchains?	CO2
Q2 e)	Is it possible to double spend in a Blockchain system?	CO3
Q2 f)	What is a smart contract and list some of its applications?	CO3
Q2 g)	What is a Dapp and how is it different from a normal application?	CO4
Q2 h)	What is the nonce and how is it used in mining?	CO4
Q2 i)	Explain crypto, coins, tokens, ICOs	CO5
Q2 j)	What are different consensus algorithms?	CO5

Q. No.	Section [C]	CO
Q3 a)	Explain them and elaborate which one is suitable under what typical application scenario?	CO1
Q3 b)	Explain encryption and hashing in the context of blockchain?	CO2
Q3 c)	Explain the difference between Proof of work and proof of stake?	CO3
Q3 d)	Explain the concept of implementation of a bitcoin blockchain network with the help of pictures and explain it's working.	CO3
Q3 e)	How blockchain as a platform gets security – explain with pictorial example?	CO4
Q3 f)	Explain about challenges Business model	CO4
Q3 g)	Explain about the Technical challenges in block chain	CO5

\*\*\*\*\*



1. The first section of the report...

2. The second section of the report...

3. The third section of the report...

4. The fourth section of the report...

5. The fifth section of the report...

6. The sixth section of the report...

7. The seventh section of the report...

8. The eighth section of the report...

9. The ninth section of the report...

10. The tenth section of the report...

11. The eleventh section of the report...

12. The twelfth section of the report...

13. The thirteenth section of the report...

14. The fourteenth section of the report...

15. The fifteenth section of the report...

16. The sixteenth section of the report...

17. The seventeenth section of the report...

18. The eighteenth section of the report...



# OP JINDAL UNIVERSITY, RAIGARH (C.G.)



## PhD COURSE WORK EXAMINATION, JULY-2022

Department: CSE

Time : 03 Hrs

Subject Code: SOE-P-CSE102(5)

Max. Marks : 100

Subject: **Data Structures**

**Note: Section A :** All Questions are compulsory. [10 x 02 marks]

**Section B :** Answer any 6 questions. [06 x 05 marks]

**Section C :** Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	What is Abstract Data Type	CO1
Q1 b)	What is time complexity	CO2
Q1 c)	Explain the usage of stack in recursive algorithm implementation?	CO3
Q1 d)	Write the application of Queue in a computer system	CO3
Q1 e)	What is in-place sorting algorithm?	CO4
Q1 f)	Define binary search tree. Why it is preferred rather than the sorted linear array and linked list?	CO3
Q1 g)	What are the two traversal strategies used in traversing a graph?	CO5
Q1 h)	What is a minimal Spanning Tree	CO5
Q1 i)	What is collision resolution technique?	CO5
Q1 j)	What is a NP-Complete Problem	CO5

Q. No.	Section [B]	CO
Q2 a)	Explain representation of array as an ADT along with their advantages and disadvantages	CO1
Q2 b)	Find the time complexity (Big Oh) of matrix multiplication	CO2
Q2 c)	Explain Small Omega notation with an example	CO2
Q2 d)	Convert the given infix Expression $((10+20)*3-(25-44)^{(3+2)})$ into its Equivalent Prefix and Postfix Notations.	CO3
Q2 e)	Compare singly and circular linked list while performing insertion and deletion operations	CO3
Q2 f)	Explain Binary Search with a suitable Example	CO4
Q2 g)	Sort the elements using Bubble Sort: 55,30,45,60,10,15,20,35,25,50,40	CO4
Q2 h)	What is a Hash Function? What are the basic requirements of a good hash function?	CO5
Q2 i)	Explain Linear Probing with an example	CO5
Q2 j)	Explain characteristics of AVL tree	CO3

Q. No.	Section [C]	CO
Q3 a)	Explain Stack ADT with example	CO1
Q3 b)	Find the Complexity of Bubble Sort	CO2
Q3 c)	Discuss about implementation of queues using linked list	CO3
Q3 d)	How deletion is performed in a BST, explain with the help of an example.	CO3
Q3 e)	What is B+ tree, explain Insertion operation in B+ tree with the help of an example	CO3
Q3 f)	Find the AVL tree after inserting the following integer keys 49, 27, 12, 11, 33, 77, 26, 56, 23, 6.	CO4
Q3 g)	Explain mid-square hashing technique with the help of an example.	CO5

\*\*\*\*\*







Department: **Electrical Engineering**

Time : **03 Hrs**

Subject Code: **SOE-P-EE104(5)**

Max. Marks : **100**

Subject: **Introduction to Python**

**Note: Section A :** All Questions are compulsory. [10 x 02 marks]

**Section B :** Answer any 6 questions. [06 x 05 marks]

**Section C :** Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	Write the differences between NumPy array and list?	CO2
Q1 b)	what are the different ways to create NumPy arrays?	CO2
Q1 c)	What are the built-in data type does python provides?	CO1
Q1 d)	Write a NumPy program to compute the mean, standard deviation, and variance of a given array along the second axis.	CO2
Q1 e)	Write a Python Program to Find Sum of Natural Numbers Using Recursion.	CO5
Q1 f)	Write a Python program to print list of 10 elements stored in list using loop.	CO5
Q1 g)	What is break, continue and pass in Python?	CO4
Q1 h)	What do you mean by local and global variables? Explain with the help of example	CO3
Q1 i)	What is dataframe? What are benefits of using Dataframe.	CO3
Q1 j)	Discuss the relation between tuples and lists, tuples and dictionaries in brief.	CO4

Q. No.	Section [B]	CO
Q2 a)	What is Dictionary? Explain the methods available in Dictionary?	CO2
Q2 b)	What is Pandas library? Explain the data structure of pandas library ?	CO1
Q2 c)	Define function. Write the syntax to define a function. Give example of function definition.	CO2
Q2 d)	How do we implement if, elif and else condition? Explain with example?	CO4
Q2 e)	What is the difference between Mutable datatype and Immutable datatype? Give example in each of the category.	CO4
Q2 f)	Explain call by reference and call by value with suitable example.	CO4
Q2 g)	How regression is different from classification?	CO5
Q2 h)	What are decision making statements in Python. Write a Python program to compare three values and print largest one.	CO2
Q2 i)	Discuss the advantages of Python programming over other high level languages.	CO1

Q. No.	Section [C]	CO
Q3 a)	What do you mean by opeartor? Explain bitwise operator with the help of programming example in python.	CO1
Q3 b)	Write a program that accepts a sentence and calculate the number of digits, uppercase and lowercase letters.	CO5
Q3 c)	Write Pythonic code to check if a given year is a leap year or not.	CO5



Q3 d)	What are usefulness of the libraries in the Python? Explain three libraries in the python	CO3
Q3 e)	Given a point(x, y), write Python program to find whether it lies in the First, Second, Third or Fourth Quadrant of x - y Plane.	CO5
Q3 f)	What is Mean, Median, Mode, Standard Deviation? Explain with suitable examples.	CO5
Q3 g)	Explain in detail about Linear, Polynomial, and Multiple regression with examples.	CO5

\*\*\*\*\*



13/7/22

# OP JINDAL UNIVERSITY, RAIGARH (C.G.)



## END SEMESTER EXAMINATION, JULY-2022

Course: PhD

Time: 03 Hrs.

Semester: 1st

Branch: Electrical Engg.

Max. Marks: 100

Code: SOE-P-EE103 (2)

Subject: Soft Computing

**Note: Section A:** All Questions are compulsory. [10 x 02 marks]

**Section B:** Answer any 8 questions. [08 x 05 marks]

**Section C:** Answer any 5 questions [05 x 08 marks]

Q. No.	Section [A]	CO
Q1 a)	Define hard computing?	1
Q1 b)	What is soft computing?	2
Q1 c)	What is fuzzy logic?	1
Q1 d)	What is neural network?	1
Q1 e)	What is genetic algorithm?	5
Q1 f)	What is hybrid computing?	1
Q1 g)	What is Fuzzy Membership Functions?	5
Q1 h)	Mathematically define Fuzzy Implications?	4
Q1 i)	What are the various types of Fuzzy Set Operations?	1
Q1 j)	What are the applications of fuzzy logic?	1

Q. No.	Section [B]	CO
Q2 a)	Write and explain algorithm for Perceptron Learning.	1
Q2 b)	State the properties of a convex fuzzy set?	3
Q2 c)	What is MOO?	1
Q2 d)	What are the benefits and applications of GA?	3
Q2 e)	What is parameter selection in 8 Queens problem?	2
Q2 f)	What is GA. Explain each and every terminology of GA.	2
Q2 g)	Write short note on the Mamdani method of fuzzy inference system.	1



UNIVERSITY OF CALIFORNIA, BERKELEY  
THE SIMONS CENTER FOR THE STUDY OF HUMAN DEVELOPMENT

NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

DATE: \_\_\_\_\_  
I am writing to you because I am interested in your work on \_\_\_\_\_  
and would like to know more about it. I am currently a student at \_\_\_\_\_  
and I am studying \_\_\_\_\_.

I am interested in your work on \_\_\_\_\_  
and would like to know more about it. I am currently a student at \_\_\_\_\_  
and I am studying \_\_\_\_\_.

I am interested in your work on \_\_\_\_\_  
and would like to know more about it. I am currently a student at \_\_\_\_\_  
and I am studying \_\_\_\_\_.



Q2 h)	What are the benefits and applications of neural network?	5
Q2 i)	Explain defuzzification methods?	2

Q. No.	Section [C]	CO
Q3 a)	Explain (with drawing) the following with respect to Multi-Layer Perceptron: (i) Input layer, hidden layer and output layer (ii) The concept of back propagation?	2
Q3 b)	Using the inference approach find the membership values for each of the triangular shapes (I, R, O) (a) $80^\circ, 75^\circ, 25^\circ$ (b) $60^\circ, 75^\circ, 45^\circ$ (c) $50^\circ, 75^\circ, 55^\circ$ .	1
Q3 c)	Design a fuzzy logic controller for tips in restaurant by using Mamdani approach?	5
Q3 d)	Consider a travelling salesman problem with 8 cities to be visited by the salesman. each city is to be visited only once and the total distance travelled is to be minimized. (i) How would you represent the individuals here (ii) Take two example cases of representation and perform 1st order crossover (iii) Perform mutation n the results of above section.	2
Q3 e)	Find the relation between two fuzzy sets A and B using (a) Max-min composition (b) Max-product composition (c) Max-average composition $A = \begin{bmatrix} 0.3 & 0.1 & 0.6 & 0.3 \\ 0.1 & 1 & 0.2 & 0.1 \end{bmatrix}$ $B = \begin{bmatrix} 0.9 & 0.1 & 1 \\ 0.1 & 0.5 & 0.4 \\ 0.6 & 0.8 & 0.5 \\ 0.1 & 0 & 0 \end{bmatrix} ?$	1&4
Q3 f)	What is pareto-optimal solution set in Multi-objective optimization	1
Q3 g)	Compare Mamdani and Sugeno method of fuzzy inference system.	1 & 4

\*\*\*\*\*



No.	Description	Date	Particulars	Amount	Balance	Total
1	...	...	...	...	...	...
2	...	...	...	...	...	...
3	...	...	...	...	...	...
4	...	...	...	...	...	...
5	...	...	...	...	...	...
6	...	...	...	...	...	...
7	...	...	...	...	...	...
8	...	...	...	...	...	...
9	...	...	...	...	...	...
10	...	...	...	...	...	...
11	...	...	...	...	...	...
12	...	...	...	...	...	...
13	...	...	...	...	...	...
14	...	...	...	...	...	...
15	...	...	...	...	...	...
16	...	...	...	...	...	...
17	...	...	...	...	...	...
18	...	...	...	...	...	...
19	...	...	...	...	...	...
20	...	...	...	...	...	...
21	...	...	...	...	...	...
22	...	...	...	...	...	...
23	...	...	...	...	...	...
24	...	...	...	...	...	...
25	...	...	...	...	...	...
26	...	...	...	...	...	...
27	...	...	...	...	...	...
28	...	...	...	...	...	...
29	...	...	...	...	...	...
30	...	...	...	...	...	...
31	...	...	...	...	...	...
32	...	...	...	...	...	...
33	...	...	...	...	...	...
34	...	...	...	...	...	...
35	...	...	...	...	...	...
36	...	...	...	...	...	...
37	...	...	...	...	...	...
38	...	...	...	...	...	...
39	...	...	...	...	...	...
40	...	...	...	...	...	...
41	...	...	...	...	...	...
42	...	...	...	...	...	...
43	...	...	...	...	...	...
44	...	...	...	...	...	...
45	...	...	...	...	...	...
46	...	...	...	...	...	...
47	...	...	...	...	...	...
48	...	...	...	...	...	...
49	...	...	...	...	...	...
50	...	...	...	...	...	...
51	...	...	...	...	...	...
52	...	...	...	...	...	...
53	...	...	...	...	...	...
54	...	...	...	...	...	...
55	...	...	...	...	...	...
56	...	...	...	...	...	...
57	...	...	...	...	...	...
58	...	...	...	...	...	...
59	...	...	...	...	...	...
60	...	...	...	...	...	...
61	...	...	...	...	...	...
62	...	...	...	...	...	...
63	...	...	...	...	...	...
64	...	...	...	...	...	...
65	...	...	...	...	...	...
66	...	...	...	...	...	...
67	...	...	...	...	...	...
68	...	...	...	...	...	...
69	...	...	...	...	...	...
70	...	...	...	...	...	...
71	...	...	...	...	...	...
72	...	...	...	...	...	...
73	...	...	...	...	...	...
74	...	...	...	...	...	...
75	...	...	...	...	...	...
76	...	...	...	...	...	...
77	...	...	...	...	...	...
78	...	...	...	...	...	...
79	...	...	...	...	...	...
80	...	...	...	...	...	...
81	...	...	...	...	...	...
82	...	...	...	...	...	...
83	...	...	...	...	...	...
84	...	...	...	...	...	...
85	...	...	...	...	...	...
86	...	...	...	...	...	...
87	...	...	...	...	...	...
88	...	...	...	...	...	...
89	...	...	...	...	...	...
90	...	...	...	...	...	...
91	...	...	...	...	...	...
92	...	...	...	...	...	...
93	...	...	...	...	...	...
94	...	...	...	...	...	...
95	...	...	...	...	...	...
96	...	...	...	...	...	...
97	...	...	...	...	...	...
98	...	...	...	...	...	...
99	...	...	...	...	...	...
100	...	...	...	...	...	...



# OP JINDAL UNIVERSITY, RAIGARH (C.G.)

## PhD COURSE WORK EXAMINATION, JULY-2022

**Department: Metallurgy**

**Time: 03 Hrs**

**Subject Code: SOE-P-MME103**

**Max. Marks: 100**

**Subject: Design and Selection of Materials (DSM)**

**Note: Section A :** All Questions are compulsory. [10 x 02 marks]

**Section B :** Answer any 6 questions. [06 x 05 marks]

**Section C :** Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	What are intrinsic properties of materials?	1
Q1 b)	Draw the interactive diagram.	2
Q1 c)	Write four structure and insensitive properties.	1
Q1 d)	Define plastic material. Mention types of plastic materials.	1
Q1 e)	Draw the Stress-Strain curve of ductile and plastic material.	3
Q1 f)	Give the expression for E, G and K for isotropic material.	1
Q1 g)	What is factor of Safety for ductile and brittle materials?	3
Q1 h)	Expand ABS. What are the other tradenames of ABS?	2
Q1 i)	Define Material Index.	1
Q1 j)	What is thermit welding?	1

Q. No.	Section [B]	CO
Q2 a)	I have to select a material for an application. What attributes need to be considered during selection.	1,2
Q2 b)	What is assembly process and how many types of assembly process you know? Mention them.	2,3
Q2 c)	Mention three each physical, chemical and fabrication properties.	1
Q2 d)	What is riveting? Explain it in detail.	1
Q2 e)	How do we select a material? What is the process of Material Selection?	2,3
Q2 f)	Discuss in detail two material indices for metallic foams.	1
Q2 g)	How do you find out the material indices for light strong tie?	2
Q2 h)	Mention three joining process of plastics. Explain anyone of them.	1,2
Q2 i)	Define Screening and ranking in case of selection of materials. What is their significance?	2
Q2 j)	What is the selection strategy for a heat sink?	2

Q. No.	Section [C]	CO
Q3 a)	Discuss about ceramics and its types and properties with applications.	1
Q3 b)	What is performance index? On what parameters it will depend? Give performance index of materials with less weight.	2,3
Q3 c)	How do you select a shape for a material? Explain the conditions and factors.	2,3
Q3 d)	What are the design requirements of heat treatment? Explain them in detail.	3



OF THE BOARD OF TRUSTEES, UNIVERSITY OF CALIFORNIA  
THE COLLEGE WORK EXPERIMENTATION UNIT

Form 10-1-57

1957-1958

Department of Education

College of Education, University of California

Subject: College Work Experimentation Unit

The following information is being furnished to you for your information and for use in your report.

The College Work Experimentation Unit is a unit of the College of Education, University of California, which is engaged in a study of the effectiveness of college work.

The unit is composed of a group of faculty members who are interested in the study of college work.

The unit is currently conducting a study of the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.

The study is being conducted in order to determine the effectiveness of college work.



Q3 e)	What are the differences between Welding, brazing and Soldering? Explain three design requirements for weld joints with neat figure.	2
Q3 f)	With help of Ashby diagram please select the materials for vehicle body. Please give the objectives and constraints properly.	2,3
Q3 g)	What are material selection charts? Draw a) Bubble chart for E vs $\rho$ b) Bar chart E vs materials	2

\*\*\*\*\*







12/7/22

# OP JINDAL UNIVERSITY, RAIGARH (C.G.)



## PhD COURSE WORK EXAMINATION, JULY-2022

Department: **Metallurgy**

Time : **03 Hrs**

Subject Code: SOE-P-MME106

Max. Marks : **100**

Subject: Material Characterization

**Note: Section A :** All Questions are compulsory. [10 x 02 marks]

**Section B :** Answer any 6 questions. [06 x 05 marks]

**Section C :** Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	Why vacuum is necessary for SEM operation?	CO3
Q1 b)	Why metals are good conductor of electricity?	CO1
Q1 c)	How X-rays are generated?	CO1
Q1 d)	What is refractive index of the material?	CO3
Q1 e)	What is linear thermal expansion?	CO2
Q1 f)	What are different aberrations of lens?	CO3
Q1 g)	What is reflection of light?	CO1
Q1 h)	Differentiate between crystalline and amorphous materials.	CO3
Q1 i)	Represent [101], (111) in cubic lattice unit cell.	CO1
Q1 j)	Differentiate between elastic and inelastic scattering of electrons.	CO1

Q. No.	Section [B]	CO
Q2 a)	(a) Define Snell's Law. (b) Sketch the path of light as it travels from the denser medium to the light medium.	CO3
Q2 b)	How do you classify various crystal systems based on lattice parameters?	CO1
Q2 c)	What is bright field and dark field imaging in TEM?	CO2
Q2 d)	Discuss the basic principles of TGA and DTA.	CO1
Q2 e)	Differentiate between 'Optical microscopy' and 'Electron microscopy'.	CO3
Q2 f)	a) Deduce the Bragg's Law of diffraction and describe the applications of XRD method.	CO1
Q2 g)	X-rays of wave length $1.5418 \text{ \AA}$ are diffracted by (111) planes in a crystal at an angle $30^\circ$ in first order. Calculate the interatomic spacing.	CO2
Q2 h)	Compare between SEM and TEM.	CO3



Q. No.	Section [C]	CO
Q3 a)	Illustrate different processes involved in the metallographic sample preparation techniques.	CO2
Q3 b)	Write notes on various kinds of Engineering Materials.	CO3
Q3 c)	With a neat schematic diagram describe the working principle, construction and applications of scanning electron microscope (SEM).	CO1
Q3 d)	Describe the operational principle in schematic diagram and application of horizontal dilatometer.	CO1
Q3 e)	A polymeric sample of polyethylene terephthalate (PET) is cooled from the melt. If the sample's melting point is 250°C, crystallization temperature is 140°C and glass transition temperature is 75°C, show all these transitions in a DSC plot with a temperature scan from 50°C to 300°C and explain.	CO2
Q3 f)	<b>2 cm</b> tall object is placed at a distance of <b>5 cm</b> from a convex lens having a focal length of <b>2.5 cm</b> . (a) Determine the image distance and the image size using the lens equation. b) Show with neat drawing, the image formation by the convex lens.	CO2
Q3 g)	Explain the working principle and construction of TEM with a neat schematic diagram.	CO1

\*\*\*\*\*



Department: **School of Management**

Time: **03 Hrs.**

Subject Code: **PHDM 013**

Max. Marks: **100**

Subject: **Operations Management (Management Paper, Specialization)**

Q. No.	Section [A] All Questions are compulsory. [10 x 02 marks]	CO
Q1 (a)	Johnson's rule is applied for _____ of operations.	CO1
Q1 (b)	MRP and MRP-I respectively stand for _____ and _____.	CO1
Q1 (c)	What are the strategies adopted in Aggregate Sales and Operations Planning?	CO1
Q1 (d)	'Alpha' used in the exponential smoothing technique of forecasting means _____.	CO1
Q1 (e)	The term 'Sigma' used in Six-Sigma Approach to Quality Management stands for _____.	CO1
Q1 (f)	Which type of layout is suitable for a aircraft manufacturing factory?	CO1
Q1 (g)	Can there be a dummy activity in the critical path of a project network diagram?	CO1
Q1 (h)	SPC and SQC respectively stand for _____ and _____.	CO1
Q1 (i)	Name the highly coveted quality awards given in Japan.	CO1
Q1 (j)	When you approached a hotel door, the glass door opened automatically and soon after your entry it closed automatically. What type of automation is used there? (i) Flexible Automation (ii) Programmable Automation (iii) Fixed Automation Fixed Automation – as its operations are only limited to closing and opening	CO1

Q. No.	Section [B] Answer any 6 questions. [06 x 05 marks]	CO
Q2 (a)	Derive an expression for EOQ using a graph with conceptual components like inventory carrying or holding cost; inventory ordering cost; and total inventory cost.	CO2
Q2 (b)	Relate the concepts of 'capacity management' and 'learning curve' in operations management.	CO2
Q2 (c)	Explain how DMAIC improves the process quality?	CO2
Q2 (d)	What are the steps followed in designing a product? Where does it need to change for designing a service?	CO2
Q2 (e)	What are the different types of production systems and what are the different types of plant layouts? Relate them with brief analytical justifications.	CO2
Q2 (f)	What are the means to eliminate the waiting line effect on a production unit? Justify.	CO2
Q2 (g)	List the methods of selecting a business location. Analyze and explain why one is better than the other in which context.	CO2
Q2 (h)	What is meant by 'facility' to some supply chain personnel? Interpret their view in comparison to production and operations personnel.	CO2
Q2 (i)	Differentiate 'Logistics Management' from 'Supply Chain Management'	CO2
Q2 (j)	Describe 'job design' as a cross-functional management skill by drawing analogy from the concerned departments of an organization (of your choice).	CO2



Q. No.	Section [C] Answer any 5 questions [05 x 10 marks]	CO
Q3 (a)	Food and accommodation are two types of service operations offered by the hospitality industry. Think of applying the concept of 'Break-Even Analysis' there and suggest a standard operations procedure.	CO3
Q3 (b)	List the seven wastes defined by TOYOTA. Also list the seven quality control tools. Use a particular tool of 2 <sup>nd</sup> list for controlling a particular waste of 1 <sup>st</sup> list.	CO3
Q3 (c)	We are used formulate linear programming problems (LPP) from the narration of a case. Here, you need to develop a narration by looking at the LPP problem given below. Maximize, $P = 10q + 9r$ Subject to constraints: $5q + 4r \leq 14$ $4q + 5r \leq 9$ $7q - 9r \leq 11$ Where 'q' and 'r' positive.	CO3
Q3 (d)	List the types of automations. Also list the types of production systems. Analyze and suggest which type of automation is suitable for which type of production.	CO3
Q3 (e)	Positioning yourself at the strategic level of a Tourism Board in one of the Indian states, apply the knowledge of supply chain management to formulate the SOP for a transporter as a 3PL. Assume and mention your assumptions, wherever required.	CO4
Q3 (f)	Develop your understanding of MRP by relating the concepts of 'Bill of Materials' and 'Forecasting' of a product (of your choice) and Explain.	CO4
Q3 (g)	Assume that you are going for a new process design (NPD). Accordingly define their steps or activities; define the precedence relationships among the activities; use the three time estimates for calculating the durations of NPD activities; develop a network diagram; indicate critical path on the network; and calculate the overall project duration.	CO4

\*\*\*\*\*



Department: SOM

Time : 03 Hrs

Subject Code:

Max. Marks : 100

Subject: QT and Computer Applications

Note: Section A : All Questions are compulsory. [10 x 02 marks]

Section B : Answer any 6 questions. [06 x 05 marks]

Section C : Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	What is correlation?	CO3
Q1 b)	What is regression analysis?	CO3
Q1 c)	What is "error" in simple regression?	CO3
Q1 d)	Explain Homoscedasticity.	CO3
Q1 e)	What are non-parametric statistics?	CO4
Q1 f)	Differentiate between null and alternate hypothesis. How to represent them symbolically?	CO4
Q1 g)	Differentiate between one tailed test and two-tailed test.	CO5
Q1 h)	Differentiate between Type-I error and Type-II error.	CO5
Q1 i)	What is probability? Explain with the help of an example.	CO2
Q1 j)	What is the range of values probability can take?	CO2

Q. No.	Section [B]	CO
Q2 a)	How is the Karl-Pearson's coefficient of correlation ( r )is calculated? What is the range of values r can take? How would you interpret the different values of r ?	CO3
Q2 b)	Simple linear regression is based on the slope-intercept equation of a line. Justify. Describe the two models in regression: deterministic model and probabilistic model.	CO3
Q2 c)	While developing a regression model, how would you measure the "total variation"? Explain using both diagram and equations.	CO3
Q2 d)	Explain the F-distribution.	CO5
Q2 e)	Explain ANOVA.	CO5
Q2 f)	Explain Chi-square distribution.	CO5
Q2 g)	Explain a general Linear Programming Model.	CO5
Q2 h)	Explain the level of significance and the acceptance and rejection regions in case of a normal distribution.	CO4
Q2 i)	What is the probability of having 53 Sundays in a leap year?	CO2
Q2 j)	What are the different scales of measurement of variables in research? Explain each of them with suitable examples.	CO2

Q. No.	Section [C]	CO																																							
Q3 a)	The following data gives the sales and advertisement expenses of a cable wire company (in thousand rupees): <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Month</th> <th>Jan</th> <th>Feb</th> <th>Mar</th> <th>Apr</th> <th>May</th> <th>Jun</th> <th>Jul</th> <th>Aug</th> <th>Sep</th> <th>Oct</th> <th>Nov</th> <th>Dec</th> </tr> </thead> <tbody> <tr> <td>Advt</td> <td>92</td> <td>94</td> <td>97</td> <td>98</td> <td>100</td> <td>102</td> <td>104</td> <td>105</td> <td>105</td> <td>107</td> <td>107</td> <td>110</td> </tr> <tr> <td>Sales</td> <td>930</td> <td>900</td> <td>1020</td> <td>990</td> <td>1100</td> <td>1050</td> <td>1150</td> <td>1120</td> <td>1130</td> <td>1200</td> <td>1250</td> <td>1220</td> </tr> </tbody> </table> From this data compute the equation of the simple regression line.	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Advt	92	94	97	98	100	102	104	105	105	107	107	110	Sales	930	900	1020	990	1100	1050	1150	1120	1130	1200	1250	1220	CO3
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																													
Advt	92	94	97	98	100	102	104	105	105	107	107	110																													
Sales	930	900	1020	990	1100	1050	1150	1120	1130	1200	1250	1220																													



Q3 b)	Explain the seven steps of Hypothesis testing.	C01
Q3 c)	<p>An electronic goods company arranged a special training program for its employees. The scores obtained 10 employees before and after the training are given below:</p> <p>Employee #: 1 2 3 4 5 6 7 8 9 10</p> <p>Before score: 25 26 28 22 20 30 22 20 21 24</p> <p>After score: 32 30 32 34 32 28 25 30 25 28</p> <p>Use <math>\alpha=0.10</math> to determine whether there is a significant change in the attitude of employees after the training program.</p>	C05
Q3 d)	It was reported that 30% of the husbands and 20% of the wives are regular viewers of a popular Friday evening program. For 12% of the couples in the study, both husband and wife were regular viewers of the program. What is the probability that at least one member of a married couple is a regular viewer of the program?	C02
Q3 e)	What is Cronbach's alpha? How is it calculated?	C05
Q3 f)	Explain the various steps in the sampling design process.	C01
Q3 g)	Explain the various random and non-random sampling methods with suitable examples.	C01

\*\*\*\*\*



Department: **Humanities (English)**

Time: **03 Hrs.**

Subject Code: PHM102

Max. Marks: **100**

Subject: **Elective-1/ COMMUNICATION SKILLS**

**Note:** Section A: All Questions are compulsory. [10 x 02 marks]

Section B: Answer any 6 questions. [06 x 05 marks]

Section C: Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	What do you mean by Active Listening?	CO 1
Q1 b)	What is role of 'Attitude' in communication?	CO 1
Q1 c)	What are the Four Attributes of a Speaker?	CO 1
Q1 d)	What do you mean by expository writing?	CO 1
Q1 e)	What do you mean by Free writing?	CO 2
Q1 f)	What do you mean by CUBING?	CO 2
Q1 g)	What do you mean by reference in a Research Paper?	CO 3
Q1 h)	What do you mean by appendix and bibliography?	CO 3
Q1 i)	What do mean by Solicited and Unsolicited Proposals?	CO 4
Q1 j)	What is the importance of MS Excel in Research?	CO 5

Q. No.	Section [B]	CO
Q2 a)	Adaption is the key to effective writing. Discuss.	CO 1
Q2 b)	What are the principles of effective speaking?	CO 1
Q2 c)	What do you mean by clustering/ mapping?	CO 2
Q2 d)	Differentiate between plagiarism and paraphrasing.	CO 2
Q2 e)	What is the importance of Body Language in oral presentation?	CO 3
Q2 f)	Discuss in brief the features of a presentation.	CO 3
Q2 g)	Write the importance of Research Proposal to a Scholar.	CO 4
Q2 h)	What are the elements of a good research proposal?	CO 4
Q2 i)	What are the basic functions of MS Word?	CO 5
Q2 j)	What are the features of MS Word?	CO 5



o.	Section [C]	CO
a)	Discuss in detail the types of writing.	CO 1
Q3 b)	How to improve Public Speaking Skill?	CO 1
Q3 c)	What do you mean by Research? Discuss the structure of a research paper.	CO 2
Q3 d)	What are the Ten Simple Rules for Making Good Oral Presentations?	CO 3
Q3 e)	How to design effective Power Point presentation?	CO 3
Q3 f)	How to write a Literature Review in a Research Proposal? Discuss in detail.	CO 4
Q3 g)	Discuss in detail the functions of MS Word?	CO 5



Department: **Humanities (English)**

Time: **03 Hrs.**

Subject Code: PHM103

Max. Marks: **100**

Subject: **Elective-2/ Contemporary Literary Thought and Critical Approaches**

**Note:** Section A: All Questions are compulsory. [10 x 02 marks]

Section B: Answer any 6 questions. [06 x 05 marks]

Section C: Answer any 5 questions [05 x 10 marks]

Q. No.	Section [A]	CO
Q1 a)	What do you mean by Postcolonial Literature?	CO 1
Q1 b)	What is diaspora in literary theory?	CO 1
Q1 c)	Who are diasporic writers of India?	CO 1
Q1 d)	Discuss the purpose of Dalit literature?	CO 2
Q1 e)	What is the central theme of Tribal Literature?	CO 2
Q1 f)	Why do we need ecocriticism in literature?	CO 2
Q1 g)	Why is ecocriticism interdisciplinary?	CO3
Q1 h)	What's the difference between multidisciplinary and interdisciplinary?	CO 3
Q1 i)	What is the difference between gender equity, gender equality and women's empowerment?	CO 4
Q1 j)	Who introduced English Drama in India?	CO 5

Q. No.	Section [B]	CO
Q2 a)	What are the major themes of postcolonial literature?	CO 1
Q2 b)	What are the common themes in diaspora writing?	CO 1
Q2 c)	What are the main characteristics of tribal literature?	CO 2
Q2 d)	What are the core concern of Dalit Literature?	CO 2
Q2 e)	Why do we need ecocriticism in literature?	CO 3
Q2 f)	How does theatre affect culture?	CO 3
Q2 g)	What are the challenges of oral tradition?	CO 4
Q2 h)	Is oral tradition still used today? Discuss.	CO 4
Q2 i)	What is the importance of Rasa in art?	CO 5
Q2 j)	What are the major theme of Indian writers in English literature? Discuss.	CO 5





Name of the Candidate

Roll Number (English)

Signature

Date of Writing

Subject: Contemporary Literary Thought and Critical Approaches

Q.1. Write a note on the following: (10 marks)

(a) Post-structuralism

(b) Deconstruction

(c) Reader-response criticism

(d) Feminist literary criticism

(e) Post-colonialism

(f) Queer theory

(g) Cultural studies

(h) Postmodernism

(i) Post-positivism

(j) Post-phenomenology



Q. No.	Section [C]	CO
Q3 a)	What are the main issues that postcolonial theory and literature deals with?	CO 1
Q3 b)	Why is diasporic literature important? Discuss in detail.	CO 1
Q3 c)	Discuss in detail the features of Dalit writing?	CO 2
Q3 d)	What we talk about when we talk about Ecocriticism? Discuss the main features of Ecocriticism.	CO 3
Q3 e)	How does oral tradition help in preserving one's culture and tradition? Discuss in detail.	CO 3
Q3 f)	Write a note on the contemporary gender issues discussed in English Literature.	CO 4
Q3 g)	What are the major themes of Post-Independence Indian English Novels? Discuss in detail.	CO 5



