

Printed Pages: 3

24/1/88

Final Examination

UID No: 23BCB1008

Academic year 2023-2024

Program Name/Code: BE

Subject Code: 23SMT-127

Subject Title: Linear Algebra

Semester: 2nd

Time: 3 Hour

Maximum Marks: 60

Instructions:

- The question paper is consisting of three sections. It is compulsory for students to attempt all questions of Section A and Section B.
- Question no. 10 & 11 of section C, are compulsory to be attempted.
- Students to attempt any one question from question no. 12 & question no. 13 of section C

Q. No	Statement	CO mapping
Section A (5 x 2 = 10 marks)		
1	Check whether the given matrix is Hermitian or not. $A = \begin{bmatrix} 1 & i & 3i \\ -i & 0 & 2-i \\ -3i & 2+i & -1 \end{bmatrix}$	CO2
2	Check if the following is Linear Transformation or not $T(x) = (x, 2x, 3x)$	CO1
3	What are the uses of Principal Component Analysis	CO1
4	What is the role of eigen values in SVD	CO5
5	Write the projection formula in Gram Schmidt process	CO1
Section B (4 x 5 = 20 marks)		

6	If $x = -4$ is a root of $\Delta = \begin{vmatrix} x & 2 & 3 \\ 1 & x & 1 \\ 3 & 2 & x \end{vmatrix} = 0$, then find the other two roots.	CO2
7	Show that the vectors $v_1 = (1, 2, 3)$, $v_2 = (0, 1, 2)$, $v_3 = (0, 0, 1)$ generate $V_3(R)$	CO4
8	Explain the process of QR Decomposition	CO2
9	Write five applications of decompositions in image processing and machine learning	CO2
Section C (3 x 10 = 30 marks)		
10	Determine b such that the system of homogeneous equations $\begin{aligned} 2x + y + 2z &= 0 \\ x + y + 3z &= 0 \\ 4x + 3y + bz &= 0 \end{aligned}$ has (i) Trivial solution (ii) non-trivial solution. Find the non-trivial solution.	CO3
11	Apply Gram Schmidt Orthogonalization process to the vectors $a_1 = (1, 0, 1)$ $a_2 = (1, 0, -1)$ $a_3 = (0, 3, 4)$ To obtain Orthonormal basis	CO4
Optional Question of Section C		

Program Name/Code: BE

Subject Code: 23PCH-103

Subject Title: Business Communication and Value Science-II

Semester: 2nd

Time: 3 Hour

Maximum Marks: 60

Instructions:

- The question paper is consisting of three sections. It is compulsory for students to attempt all questions of Section A and Section B.
- Question no. 10 & 11 of section C, are compulsory to be attempted.
- Students to attempt any one question from question no. 12 & question no. 13 of section C

Q. No	Statement	CO mapping
Section A (5 x 2 = 10 marks)		
1	List the differences between Skimming and Scanning. Give example for each.	CO3
2	A press note should be precise, accurate and reader oriented. Comment.	CO3
3	What is the difference between a panel interview and group interview?	CO2
4	Mention any four things which are to be avoided while preparing a resume.	CO2
5	Complete the sentences using the word or set of words that best fits the meaning of the sentence as a whole: 1. Everything from our plastic water bottles and cosmetics to our non-stick frying pans, _____ chemicals that _____ in our bodies. A. Have; dilute B. Comprises; harm C. Has; stays D. Contains; accumulate 2. Unwilling to admit that they had been in error, the researchers tried to _____ their case with more	CO3

	data obtained from dubious sources. A. ascertain B. buttress C. dispute D. absolve	
Section B (4 x 5 = 20 marks)		
6	Write a concise executive summary (200-250 words) for a report on the impact of artificial intelligence on the job market.	CO4
7	Explain how vision and mission work together, providing direction for the small business. In your discussion, identify at least five key questions a mission statement should answer.	CO5
8	Write a paragraph in about 200-250 words on the topic "Save Fuel For Better Environment."	CO3
9	Give an appropriate word in each blank. Reena was walking to her class slowly. She was worried _____ (1) _____ the History test she would have to _____ (2) _____ that morning. As she was reaching the classroom, a piece of paper fluttered down and _____ (3) _____ near her feet. As Reena glanced down at the paper, her heart nearly _____ (4) _____ a beat. It was the History test paper _____ (5) _____ complete answers.	CO1
Section C (3 x 10 = 30 marks)		
10	Imagine that you are working with a reputed company and your company is considering a proposal to establish a new factory in your city. Some of the factors that will influence its decisions are: availability of raw material, labour, transport facilities, market, competition climate, construction, cost and communication facilities. Draft a feasibility report with the help of these points and give suitable recommendations for the site of setting up the factory.	CO4
11	Analyze how organizational values can influence decision-making processes. Provide examples of how companies prioritize values in making strategic or ethical decisions.	CO5
Optional Question of Section C		

12	Draft a resume along with the covering letter for the post of a management trainee in a reputed Multi National Corporation	CO3
OR		
13	<p>Choose the correct answer for the Analogy:</p> <p>1. Palette is to artist as spatula is to: A) Chef B) Carpenter C) Sculptor D) Painter</p> <p>2. Tree is to bark as human is to: A) Skin B) Hair C) Bones D) Muscles</p> <p>3. Pen is to write as keyboard is to: A) Type B) Click C) Press D) Tap</p> <p>4. Safe is to secure as protect is to : A) Lock B) Sure C) Guard D) Conserve</p> <p>5. Flow is to river as stagnant is to: A) Rain B) Stream C) Pool D) Canal</p> <p>6. Ornithologist is to bird as archaeologist is to: A) Islands B) Mediators C) Archaeology D) Aquatic</p> <p>7. Eye is to myopia as teeth is to : A) Pyorrhoea B) Cataract D) Trachoma E) Eczema</p> <p>8. Echo is to sound as reflection is to: A) Light B) Mirror C) Shadow D) Refraction</p> <p>9. College is to student as Hospital is to : A) Nurse B) Doctor C) Treatment D) Patient</p> <p>10. Cloth is to mill as newspaper is to : A) Editor B) Reader C) Paper D) Press</p>	CO3

Printed Pages: 2 24M186 UID No: 22BCB100B1

Final Examination

Academic year 2023-2024

Program Name/Code: BE

Subject Code: 23ECH-104

Subject Title: Principles of Electronics

Semester: 2nd

Time: 3 Hour

Maximum Marks: 60

Instructions:

- The question paper is consisting of three sections. It is compulsory for students to attempt all questions of Section A and Section B.
- Question no. 10 & 11 of section C, are compulsory to be attempted.
- Students to attempt any one question from question no. 12 & question no. 13 of section C

Q. No	Statement	CO mapping
Section A (5 x 2 = 10 marks)		
1	Discuss about crystalline material with its mechanical properties in your own words.	CO1
2	Illuminate about transistor with its types.	CO1
3	Draw the pin configuration of operational amplifier. with its nomenclature	CO2
4	Explain CMRR of OPAMP with its formula.	CO2
5	Describe the concept of virtual ground in an inverting op-amp configuration.	CO2
Section B (4 x 5 = 20 marks)		
6	Draw and explain the working of PN junction diode in reverse biased with its characteristics.	CO3
7	Discuss applications of CMOS with its advantages and disadvantages.	CO2
8	Enumerate about combinational circuit with its applications.	CO4
9	Enumerate about sequential circuit with its applications.	CO4
Section C (3 x 10 = 30 marks)		

10	Explain the advantages of a full-wave rectifier over a half-wave rectifier. Discuss how a full-wave rectifier utilizes both halves of the input AC signal to provide a smoother DC output with less ripple.	CO1
11	Draw and explain construction and working of common collector configuration of transistor with its suitable diagram.	CO3
Optional Question of Section C		
12	Differentiate between inverting and non-inverting OPAMP as comparator by using circuit diagram and input-output curve.	CO4
OR		
13	Define flip flop with its types. Also demonstrate the working of J-K flip flop with its truth table.	CO4

Final Examination
Academic year 2023–2024

Program Name/Code: BE

Subject Code: 23SMT-128

Subject Title: Statistical Methods

Semester: 2nd

Time: 3 Hour

Maximum Marks: 60

Instructions:

- The question paper is consisting of three sections. It is compulsory for students to attempt all questions of Section A and Section B.
- Question no. 10 & 11 of section C, are compulsory to be attempted.
- Students to attempt any one question from question no. 12 & question no. 13 of section C

Q. No	Statement	CO mapping
Section A (5 x 2 = 10 marks)		
1	Elaborate sampling with finite and infinite Population.	CO2
2	Fit a straight line into the following data. x: 0 1 2 3 4 5 y: 3 6 8 11 13 14	CO4
3	Difference between parametric and non parametric tests.	CO5
4	What is the difference between Wilcoxon and Mann Whitney?	CO5
5	Write all non-parametric tests and explain one of them.	CO5
Section B (4 x 5 = 20 marks)		
6	Difference between sampling distribution of sample mean and Population mean.	CO1
7	The demand for a particular spare part in a factory was found to vary from day to day. In a sample study the following information was obtained: Days Mon. Tues. Wed. Thurs. Fri. Sat. No. of parts 1124 1125 1110 1120 1126 1115 Test the hypothesis that the number of parts demanded does not depend on the day of the week.	CO3

8	(Use Wilcoxon signed rank test) The production manager of a large undertaking randomly paid 10 visits to the worksite in a month. The number of workers who reported late for duty was found to be 2,4,5,1,6,3,2,1,7 and 8 respectively. Verify the claim of production supervisor that on an average not more than 3 workers report late for duty. Use 5% level of significance	CO5
9	Two sections of an elementary course consisting of 5 and 7 students respectively in economics were taught by the teachers. The marks obtained on the final test were as under (Teacher-I: 50,55,60,65,70) (Teacher-II: 60, 63, 58, 70, 55, 68,73) Using the Kruskal -Wallis test, verify that the distribution of marks awarded by the two teachers are equal.	CO5
Section C (3 x 10 = 30 marks)		
10	Calculate coefficient of Correlation and two regression equations : X 10 20 30 40 50 60 70 80 90 Y 9 8 10 12 11 13 14 16 15	CO2
11	Samples of sizes 10 and 14 were taken from two normal populations with S.D= 3.5 and 5.2 . The sample means were found to be 20.3 and 18.6. Test whether the means of the two populations are the same at 5% level.	CO4
Optional Question of Section C		
12	Use the sign test of see if there is a difference between the number of days until the collection of an account receivable before and after a new collection policy. Use the 0.05 level of significance. Before 72 82 50 54 56 90 68 76 66 84 After 72 76 60 66 54 88 74 82 80 86	CO5
OR		
13	Suppose playing four rounds of golf at the city club 11 professionals totaled 280,282,290,273,283,283,275,284,282,279 and 281. Use the sign test at 5% level of significance to test the null hypothesis that professional golfers average $\mu=284$ for four rounds against the alternative $\mu<284$.	CO5

Printed Pages: 2

24M183
Final Examination
Academic year 2023-2024

UID No: 23BCB10081

Program Name/Code: BE-CS05

Subject Code: 23CET-107

Subject Title: Environmental Science

Semester: 2nd

Time: 3 Hour

Maximum Marks: 60

Instructions:

- The question paper is consisting of three sections. It is compulsory for students to attempt all questions of Section A and Section B.
- Question no. 10 & 11 of section C, are compulsory to be attempted.
- Students to attempt any one question from question no. 12 & question no. 13 of section C

11	"Modern agricultural activities, though increased productivity, brought in environmental degradation" List out the major environmental problems associated modern agricultural activities.	CO2
Optional Question of Section C		
12	Bottled water is a product with enormous annual sales. What are the advantages of using this source of drinking water? What are the environmental disadvantages of this product?	CO3
OR		
13	Composting is an important technique for transferring nutrients back to the soil. Comment.	CO3

Q. No	Statement	CO mapping
Section A (5 x 2 = 10 marks)		
1	Enlist the four major global environmental issues.	CO1
2	Mention the different factors contributing to population explosion	CO1
3	Floods have a serious environmental hazard. Justify the statement	CO3
4	State various features of response phase in disaster management.	CO3
5	Mention the various waste processing techniques	CO3
Section B (4 x 5 = 20 marks)		
6	Analyse, discuss and contrast the environmental issues associated with rural areas and urban areas. How the public awareness play a role in environmental protection?	CO2
7	Floods have huge social consequences for individuals and communities. Explain the effects of floods on both people and the environment	CO2
8	Throw light on the term Cyclone. Enlist its impacts and mitigation measures	CO3
9	(a) Differentiate between natural and man-made disasters. (b) Differentiate between magnitude and intensity of earthquake	CO3
Section C (3 x 10 = 30 marks)		
10	Biodiversity is being degraded at a very high pace. Discuss the need to conserve the biodiversity. Also, provide the appropriate approaches that can be adopted for its conservation.	CO1

Printed Pages: 2

24M185
Final Examination
Academic year 2023-2024

UID No: 23RCB10081

Program Name/Code: BE-CSBS
Subject Code: 23CST-106
Subject Title: Fundamentals of Economics
Semester: 2nd
Time: 3 Hour
Instructions:

Maximum Marks: 60

- The question paper is consisting of three sections. It is compulsory for students to attempt all questions of Section A and Section B.
- Question no. 10 & 11 of section C, are compulsory to be attempted.
- Students to attempt any one question from question no. 12 & question no. 13 of section C

Q. No	Statement	CO mapping																		
Section A (5 x 2 = 10 marks)																				
1	Illustrate the information provided by economics as a science for decision making.	CO1																		
2	Draw a comparison between fixed and variable factors of production.	CO3																		
3	Demystify the various functions of commercial Banks.	CO5																		
4	State different functions of money.	CO5																		
5	Expound the meaning of central bank and state the reason behind calling it lender of last resort.	CO5																		
Section B (4 x 5 = 20 marks)																				
6	Illustrate the concept of inelastic demand.	CO2																		
7	Calculate MC from following table: <table border="1"> <thead> <tr> <th>Units</th><th>TPC</th><th>TVC</th></tr> </thead> <tbody> <tr> <td>1</td><td>20</td><td>22</td></tr> <tr> <td>2</td><td>20</td><td>27</td></tr> <tr> <td>3</td><td>20</td><td>34</td></tr> <tr> <td>4</td><td>20</td><td>42</td></tr> <tr> <td>5</td><td>20</td><td>50</td></tr> </tbody> </table>	Units	TPC	TVC	1	20	22	2	20	27	3	20	34	4	20	42	5	20	50	CO3
Units	TPC	TVC																		
1	20	22																		
2	20	27																		
3	20	34																		
4	20	42																		
5	20	50																		
8	Discuss the significance of SLR.	CO5																		
9	Discuss any two types of tax receipts.	CO5																		

Section C (3 x 10 = 30 marks)		
10	Designate the rationale behind the application of price flooring by the government.	CO1
11	According to the Second Advance Estimates of production of key crops for the agricultural year 2021-22, the total foodgrains output in the nation is expected to hit a record high of 316.06 million tonnes. Fixed and variable factors are used in the production process. When a farmer applies variable elements to the fixed parts of production, what production patterns will he or she see?	CO4
Optional Question of Section C		
12	Explicate different types of Budget expenditure which government considers while the preparation of a budget.	CO5
OR		
13	Communities have to come up with new ways of coping with the crisis. Some of them choose to go back to bartering, which was an option they were comfortable with. Wheat was used as a currency to pay children's school fees, and people traded perishable products like vegetables in return for wheat at local kirana shops. Those who lacked commodities were willing to trade their time for them. Let us know your thoughts on whether or not the barter system can operate in India today.	CO5