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June 2020 - Nov 2020 - ODD SEMESTER...

CLASS	TITLE OF THE PAPER	SUB CODE	HOUR.
III - Maths 'B'	OPERATIONS RESEARCH	U5RMTMBE1	6
I - phy	ALLIED MATHEMATICS - I	U1RMTAC1	6
I - BCA 'A'	ALGEBRA AND CALCULUS	U1RIMCAAC1	5

17.

DD H	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆
1	III B	I phy		I BCA	III B	
2	I BCA					III 'B'
3			I phy		I phy	
4	I phy		I BCA	III 'B'		
5		III B		I phy		

I BCA III
'B'

I BCA

Date: 08.10.2020

Topic: Solved problems.

D.O: D₂

Hour: V

2. Consider the following project

Activity:	A	B	C	D	E	F	G
to:	8	2	2	2	1	4	1
fm:	6	5	4	8	3	6	5
tp:	9	8	6	10	11	8	15
predecessor:	-	-	A	B	B	C, D	E

Date: 09.10.2020

Topic: Inventory control.

D.O: D₃

Hour: VI

* Basic definitions of inventory control.

* EOQ model without shortage.

* deterministic inventory control.

* Inventory costs.

Date: 10.10.2020

Topic: Solved problem.

D.O: D₄

Hour: IV

1. The annual demand of an item is 3200 units. The unit cost is Rs. 6/- and inventory carrying charges 25% p.a. If the cost of one procurement is Rs. 150. Determine.

(i) EOQ (ii) No. of order p/yr

(iii) Total cost of two consecutive order.

Date: 12.11.2020. Topics solved problem.

D.O: D2

Hour: N

An oil engine manufacturer purchases lubricants at the rate of Rs. 42 per piece from a vendor. The requirement of the lubricants is 1800 p/y. What should be the order quantity per order if the cost per placement of an order is Rs. 16 and inventory carrying charge per rupee per year is only 20 paise.

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(June 2020 - Nov 2020 ODD SEMESTER)

S. NO	Subject code	Class	Subject Name	Period
1.	P3RIMTCC9 II	M.Sc	Fluid Dynamics	7
2.	U5RIMTCC9	III - Maths 'c'	Modern Algebra	6
3.	U2RIMTAC2	I - Chemistry	Allied Mathematics - II	3

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D.O H	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆
1		III c				II misc
2		I misc		II misc		I che
3	III c		II misc	II misc	II misc	
4		I che	III c			
5			I che	III c		III c
6	II misc				III c	

Date: 14/10/20

Topic: Theorems.

D.O: D₁

Howr: 3

Theorem:

In an integral domain D of a characteristic p , the order of every element in the additive group is p .

Theorem:

A non-empty subset S of a ring R is a subring iff $a, b \in S \Rightarrow a-b \in S$ & $ab \in S$.

Date: 15/10/20

Topic: Ideals.

D.O: D₂

Howr: 1

Definition:

- \Rightarrow left ideals.
- \Rightarrow Right ideals.
- \Rightarrow Ideals.
- \Rightarrow Maximal ideals.
- \Rightarrow Prime

Date: 16/10/20

Topic: Quotient Rings.

D.O: D₃

Howr: 4

Theorem:

Let R be a ring and I be a subgp of $(R, +)$. The multiplication in R/I given by $(I+a)(I+b) = I+ab$ is well defined iff I is an ideal of R .

Date: 16/1/20 Topic: Orthogonal complement.
D.O: D₂ Hour: 1

$$S^\perp = \{x/x \in V \text{ and } \langle x, u \rangle = 0 \forall u \in S\}$$

Theorems:

1. If S is any subset of V then S^\perp is a space of V .

2. Let V be a finite dimensional i.p.s. let W be a subspace of V . Then V is the direct sum of W and W^\perp .

Date: 17/1/20

Topic:

D.O: D₃

Hour: 4

Revision unit I

Date: 18/1/20

Topic:

D.O: D₄

Hour: 5

Revision unit I

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June 2020 to NOV 2020 (add sem)

S.NO	CLASS	PAPER CODE	TITLE OF THE PAPER	Hours
1	III BSc Maths 'A'	USRMTCC10	Real Analysis	6
2	III BSc Maths 'C'	USNMTMBE1	Operations Research	6
3	III BCA A, B & C	USNMTSBE2	Quantitative Aptitude and Reasoning	6

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P \ #	1	2	3	4	5
D1	III M 'C'	III M 'A'			
D2			III BCA	III M A	III C
D3				III M A	III M 'C'
D4			III M 'A'	III M 'C'	III BCA
D5	III M 'C'		III BCA	III M 'A'	
D6	III BCA	III M C		III M 'A'	

Date : 3/10/20 Topic : Solved problems

D.O : D4 Hour : ~~##~~

2) The following table shows the jobs of a project with their duration in days. Draw the network and determine the critical path & floats

Jobs :	1-2	1-3	1-4	2-5	3-7	4-6	5-7	
Duration :	10	8	9	8	16	7	7	
Jobs :	5-8	6-7	6-9	7-10	8-10	9-10	10-11	11-12
Duration :	7	8	5	12	10	15	8	5

Date : 5/10/20 Topic : Solved problems

D.O : D5 Hour : ~~##~~

3) A project schedule has,

Activity :	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8
Time (days) :	4	1	1	1	6	2	4	8	1
	7-8	8-10	9-10						
	2	5	7						

- (i) Compute network, (ii) All float,
(iii) Critical path, (iv) E.V.T & L.E.T.

Date : 6/10/20 Topic : PERT

D.O : D6 Hour : ~~##~~

Definitions of

(i) optimistic time estimate

(ii) Most likely time estimate

(iii) pessimistic time estimate

PERT procedure to be given

Date: 15/10/20 Topic: Solved problems

D.O: D2 Hour: 1/2

Q) An oil engine manufacturer purchases lubricants at the rate of Rs. 42 per piece from a vendor. The requirement of the lubricants is 1800 pcy. What should be the order quantity per order if the cost per placement of an order is Rs. 16 and inventory carrying charge per piece per year is only 20 paise.



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June 2020 - Nov 2020 [ODD SEMESTER]

S.NO	class	sub.code	Title of the paper	Hour.
1.	II B.Sc Maths A&B	UBRIMT05	Sequences And series	07
2.	II B.Sc Maths	UBRIVE	Value Education	02
3.	I B.Sc "IT"	USRIMITACI	Essential of Mathematics	08

	I	II	III	IV	V	VI
D1					II "A&B" maths	II "A&B" maths
D2		II "A&B" maths				
D3			II maths "A&B"	II maths "A&B"		
D4						II maths "A&B"
D5	II maths "A&B"					
D6					II maths "A&B"	II maths "A&B"

Date: 20.09.2020 Topic: Binomial Expansion.

D.O: D2

Hour: II

* Find the n^{th} term of the series

$$1+3+7+13+21+31+\dots$$

* Basic formula for Binomial expansion

* Expand $(1+3x)^{5/2}$.

Date: 01.10.2020

Topic: Problems

D.O: D3

Hour: III & IV

* Find the greatest term in the expansion $(1-x)^{3/3}$ where $n = 2/7$.

* Multinomial Theorem.

* Vandermonde's Theorem.

Date: 03.10.2020

Topic: Problems.

D.O: D4

Hour: VI

* Find the sum to infinity of the series $1 + \frac{3}{4} + \frac{3 \cdot 5}{4 \cdot 8} + \frac{3 \cdot 5 \cdot 7}{4 \cdot 8 \cdot 12} + \dots$

* Find the sum to infinity of the

$$\text{Series } \frac{15}{16} + \frac{15 \cdot 21}{16 \cdot 24} + \frac{15 \cdot 21 \cdot 27}{16 \cdot 24 \cdot 32} + \dots$$

Date: 08.10.2020

Topic: Problem

D.O: D2

Hours: II

* Sum the series $1 + \frac{1+3}{2!} + \frac{1+3+3^2}{3!} + \dots$ to ∞ .

* Sum the series $\frac{5}{1!} + \frac{7}{3!} + \frac{9}{5!} + \dots$

* Logarithmic Series.

* Prove that $\log\left(\frac{1+x}{1-x}\right) = 2\left(x + \frac{x^3}{3} + \frac{x^5}{5} + \dots\right)$

Date: 09.10.2020

Topic: Problem

D.O: D3

Hours: III & IV

* Show that $\log\left(\frac{a+x}{a-x}\right) = \frac{2ax}{a^2+x^2} + \frac{1}{3}\left(\frac{2ax}{a^2+x^2}\right)^2 + \frac{1}{5}\left(\frac{2ax}{a^2+x^2}\right)^3 + \dots$

* Show that $\log\sqrt{2} = 1 + \left(\frac{1}{2} + \frac{1}{3}\right)\left(\frac{1}{4}\right) + \left(\frac{1}{4} + \frac{1}{5}\right)\left(\frac{1}{4}\right) + \dots$


Im

Date:


Topic:

D.O:

Hours:


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2020-2021

Even Semester

S.No.	CLASS	SUB.CODE	SUBJECT	HOURS
1.	I M.Sc MATHS	P2RIMTCCT	PARTIAL DIFFERENTIAL EQUATIONS	6
2.	III B.Sc MATHS 'A'	U6RMTCC14	FUZZY LOGIC	5
3.	III B.Sc MATHS 'A'	U6RMTSBE3	FOUNDATION MATHEMATICS FOR COMPETITIVE EXAMINATIONS	2
4.	I B.Sc CS 'A'	U2R1CSNMAC3	NUMERICAL METHODS & STATISTICS	5
			Total	18

Hr.	1	2	3	4	5
D ₀					
D ₁					I M.Sc
D ₂	I CS 'A'	I CS 'A'	I M.Sc		III 'A'
D ₃	III 'A'			I M.Sc	
D ₄		I M.Sc	III 'A'		I CS 'A'
D ₅		III 'A'	III 'A' SBE	I CS 'A'	I M.Sc
D ₆	I CS 'A'	I M.Sc		III 'A' SBE	III 'A'

Date: 19-03-2021

Topic: Newton's Divided Difference

Day order: D3

Hour: 1

$$\text{Formula: } f(x) = f(x_0) + (x-x_0) f(x_0, x_1) + (x-x_0)(x-x_1) f(x_0, x_1, x_2) + \dots + (x-x_0)(x-x_1)\dots(x-x_{n-1}) f(x_0, x_1, \dots, x_n)$$

Find the divided difference table for the following data:

x:	2	5	10
y:	5	29	109

Date: 26-03-2021

Topic: Problems

Day order: D2

Hour: 1, 2

2) Using Newton's divided difference formula find $f(x)$ and $f(6)$ from the following data:

x:	1	2	7	8
f(x):	1	5	5	4

$$f(x) = \frac{1}{42} [3x^3 - 58x^2 + 321x - 224]$$

$$f(6) = 6.2381$$

Date: 30-03-2021

Topic: Newton's Forward & Backward Interpolation formula

Day order: D4

Hour: 5

Newton's Forward Interpolation Formula

$$y(x) = 1 + \frac{p}{1!} \Delta y_0 + \frac{p(p-1)}{2!} \Delta^2 y_0 + \frac{p(p-1)(p-2)}{3!} \Delta^3 y_0 + \dots$$

$$p = \frac{x-x_0}{h}$$

Newton's Backward Interpolation formula

$$y(x) = 1 + \frac{p}{1!} \nabla y_n + \frac{p(p+1)}{2!} \nabla^2 y_n + \frac{p(p+1)(p+2)}{3!} \nabla^3 y_n + \dots$$

$$p = \frac{x-x_n}{h}$$

Date: 15-04-2021

Topic: Problems

Day order: D₁

Hours: 1

① Evaluate $\int_0^1 \frac{dx}{1+x^2}$ with $h = \frac{1}{6}$ by Trapezoidal rule

$$\int_0^1 \frac{dx}{1+x^2} = 0.7842$$

② Dividing the range into 10 equal parts, find the value of $\int_0^{\pi/2} \sin x dx$ by (i) Trapezoidal rule (ii) Simpson's rule.

(i) 0.9980 (ii) 1.0000

Date: 16-04-2021

Topic: Problems

Day order: D₂

Hours: 1, 2

③ Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by (i) Trapezoidal rule

(ii) Simpson's $\frac{1}{3}$ & $\frac{3}{8}$ rule. Also check up the results by actual integration.

(i) 1.4108

(ii) 1.3662

(iii) 1.3571

(iv) 1.4056.

Date:


Topic:

Day order:

Hours:


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2020 - 2021
 Even Semester

S.No.	CLASS	SUB. CODE	SUBJECT	HOURS
1.	II M.Sc Maths	P4RIMTCC14	OPTIMIZATION TECHNIQUES	6
2.	III B.Sc Maths	U6RMTCC14	FUZZY LOGIC	5
3.	II B.Sc Maths	U4RIMTSBE1	THEORY OF GAMES & DECISION THEORY	2
4.	I B.Sc CS	U2R1CSNMA03	NUMERICAL METHODS & STATISTICS	5

Total (18)

Hr D.O	1	2	3	4	5
I		II M.Sc	II B.Sc Maths		III 'c'
II		I CS 'B'	III 'c'	II B.Sc Maths	
III	II M.Sc		I CS 'B'		
IV	I CS 'B'	II M.Sc			III 'c'
V	II M.Sc	III 'c'	I CS 'B'	III 'c'	
VI	II M.Sc	I CS 'B'	II M.Sc		

Date: 08-02-2021 Topic: Problems

Day Order: D1 Hour: 3

② Solve the above problem by expected value criteria.

Ans = 55, 3.

Date: 10-02-2021 Topic: Problems

Day Order: D2 Hour: 4

Expected value Criteria:

Expected value of E = 16.67

Expected value of C = 60/3

Expected value of D = 26.

Date: 24-03-2021 Topic: Problems

Day Order: D1 Hour: 3

① Solve!

A 8 0 -1 6

B 4 12 18 -2

C 14 6 0 8

The business man should choose

the strategy B.

Date: 08-04-2021 Topic: Problems

Day Order: D4 Hour: 1

① Evaluate $\int_0^1 \frac{dx}{1+x^2}$ with $h = \frac{1}{6}$ by Trapezoidal rule.

$$\int_0^1 \frac{dx}{1+x^2} = 0.7842.$$

② Dividing the range into 10 equal parts, find the value of $\int_0^{\pi/2} \sin x dx$ by (i) Trapezoidal rule (ii) Simpson's rule.

(i) 0.9980 (ii) 1.0000.

Date: 09-04-2021 Topic: Problems

Day Order: D5 Hour: 3

③ Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by (i) Trapezoidal rule (ii) Simpson's $\frac{1}{3}$ & $\frac{3}{8}$ rule. Also check up the results by actual integration.

Ans: (i) 1.4108

(ii) 1.3862

(iii) 1.3571

(iv) 1.4058

Date: 10-04-2021 Topic: Revision

Day Order: D6 Hour: 2

Revision



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I M.Sc - Algebra $\hat{=}$ - 6 hrs
 I M.B.A - Operations Research - 5 hrs
 III Maths 'B' - Fuzzy Mathematics - 5 hrs
 SBE - Quantitative Aptitude - 2 hrs
18 hrs

	1	2	3	4	5
D ₁	I M.Sc		III M 'B'		
D ₂	III M 'B'	I M.Sc			
D ₃	I M.B.A OR	III M 'B'		III M 'B'	I M.Sc
D ₄			I M.Sc	I M.B.A	III M (S) 'B'
D ₅	I M.Sc	I M.B.A	III M 'B'		I M.B.A
D ₆	I M.Sc		III M 'B'		I M.B.A

Date: 2/3/21

Day: D3

Hour: 9

Topic: Problem

1. If $\{e_1 = (1, -2, 3), e_2 = (1, -1, 1), e_3 = (2, -4, 7)\}$ is a basis of \mathbb{R}^3 , then find the dual basis $\{\phi_i\}$ of $\{e_i\}$.

Ans: $\phi_1(x, y, z) = -3x - 5y - 2z$

$$\phi_2(x, y, z) = 2x + y$$

$$\phi_3(x, y, z) = x + 2y + z$$

Date: 3/3/21

Day: D3

Hour: 9

Topic: Problem

1. Let $\phi: \mathbb{R}^3 \rightarrow \mathbb{R}$ be the linear functional defined by $\phi(x, y, z) = 2x - y + z$

$$\phi(x, y, z) = 3x - y + 2z$$

Find $T^* - 5\psi$) Ans: $-7x + y - 6z$

2. Suppose the linear functional ϕ on \mathbb{R}^3 is given by $\phi(x, y) = 2x - 5y$. Find $T^*(\phi)$

$$\text{Ans } T^*(\phi) = 2x - 7y - 5z$$

Date: 4/3/21

Day: D4

Hour: 11

Topic: Theorem

1. Let W be a non-empty subset of a vector space $V(K)$. Then the annihilator W° of W is subspace of V^* .

2. Then i) any vector $u \in V$ is expressible as

$$u = \sum \phi_i(u) \eta_i$$

(ii) any linear function $\sigma \in V^*$ is

Date: 10/4/21

Day order 56

Page: 1

Topic: Problem

Customers arrive at a milk booth for the required service. A.T inter-arrival and service times are constant and given by 14 and 4 time units respectively. Simulate the system by hand computations for 14 time units. What is the average waiting time per customer? What is the percentage idle time of the facility? (A.T the system starts at $t=0$)

log



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(Dec 2020 to Apr 2021) - Even Sem

S.No	Class	Subcode	Title of the paper	Hours
1.	III. B.Sc "A"	UBRMTCC13	Complex Analysis	5
2.	II B.Sc "A & B"	UARIMTCC7	Differential Equation and Laplace Transforms	5
3.	III. B.Sc CS "A"	UBRCSIDC8	Quantitative Aptitude -II	3
4.	I. PHY "A & B"	UQRIMTAC3	Allied Mathematics III	5

D.O Hour	I	II	III	IV	V
D ₁		III m "A"	.	I phy	II B.Sc A & B.
D ₂	III CS "A"		III m "A"		I phy
D ₃		II B.Sc A & B	I phy	III m "A"	
D ₄	III m "A"	I phy	III CS "A"		II B.Sc Maths
D ₅	III CS "A"		II B.Sc A & B		I phy.

Date: 26.03.2021.

Topic: Plane

D.O: Q2

Hours: 2

* Find the angle b/w two planes

$$2x - y + 2z = 6, \quad x + y + 2z = 3.$$

* Ans: $\theta = \frac{\pi}{3}$.

* Find the angle b/w two planes

$$x + y + 2z = 9, \quad 2x - y + z = 7.$$

* Ans $\theta = \frac{\pi}{3}$

Date: 30.03.21.

Topic: plane.

D.O: Q4

Hours: 1

* Find the eqn: of the plane passing through the points $(-1, 3, 2)$ and perpendicular to the two planes $x + 2y + 2z = 5$ and $3x + 3y + 2z = 8$.

* Ans: $2x - 4y + 3z + 8 = 0$.

* Find the eqn: of the plane passing through pts $(1, 1, 2)$ and perpendicular to the plane $2x - 2y - 4z = 8$ and $3x + y + 6z = 4$.

Date: 01.4.21.

Topic: plane

D.O: Q6

Hours: II

* Find the eqn: of the plane passing through the point $(8, 4, 5)$ parallel to the plane $2x + 3y - z = 0$.

* Ans: $3x - 4y + z - 13 = 0$.

* $(2, -4, 5)$ parallel to the plane $4x + 2y - 7z = 6$

Date: 17.04.2021.

Topic: sphere.

D.O: D 2

Hour: I

* A plane passes through a fixed point (a, b, c) and cuts the axes in the show that the locus of the centre of the sphere $OABC$ is $\frac{a}{x} + \frac{b}{y} + \frac{c}{z} = 2$.

* The locus of (x, y, z) is $\frac{A}{x} + \frac{B}{y} + \frac{C}{z} = 2$.

Pr
17/04/2021



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