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# K.S. SCHOOL OF ENGINEERING & MANAGEMENT


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34/50

# BLUE BOOK

Name of the Student: KAVYA. E

Class / Sem : II Branch: AI&DS

USN : 1 K G 2 1 A D 0 1 7

SUBJECT : ADVANCED CALCULUS AND NUMERICAL METHODS

Subject Code : 21MAT21

MAXIMUM MARKS : 27+20+20 = 67/2=33.5

| Test | I | II | III | Average Marks Obtained | |
|---|---|---|---|---|---|
| Date | 24/7/22 | 8/8/22 | 27/8/22 | 34/50 Kavya.E | 2/9/22 |
| Marks Obtained | 10 | 01/07 | 01 | | 10 |
| Signature of the Student | Kavya.E | Kavya.E | Kavya.E | | Kavya.E |
| Initials of Room Supervisor | [illegible] | Punitha 8/8/22 | [illegible] 27/8/22 | | [illegible] |
| Initials of Faculty | [illegible] | [illegible] | [illegible] | | [illegible] |

NAME OF FACULTY : Dr. C. Vasudev

SIGNATURE : [illegible]

SIGNATURE OF H.O.D. [illegible]

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## First Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 02 | CO1 | 3(a) | 05 | CO1 | CO1 | 07 |
| 1(b) | | | 3(b) | 03 | CO2 | | |
| 1(c) | | | 3(c) | | | CO2 | 03 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | - | — |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | **Grand Total** | 10 |

## Second Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 00 | | 3(a) | | | CO2 | 00 |
| 1(b) | | | 3(b) | | | | |
| 1(c) | | | 3(c) | | | CO3 | 01 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 01 | CO3 | — | — |
| 2(b) | 00 | | 4(b) | 00 | | | |
| 2(c) | | | 4(c) | | | **Grand Total** | 01 |

## Third Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 0 | | 3(a) | 0 | | 4 | 0 |
| 1(b) | | | 3(b) | | | | |
| 1(c) | | | 3(c) | | | 5 | 1 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 0 | | — | — |
| 2(b) | | | 4(b) | 1 | | | |
| 2(c) | | | 4(c) | | | **Grand Total** | 01 |

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## BLUE BOOK

Name of the Student: A. Yaswanth

Class / Sem : 2nd Branch: ECE

USN : 1 K G 2 1 E C 0 0 5

SUBJECT : Engineering Physics Subject Code : 21PHY22

MAXIMUM MARKS : 50

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 14/07/22 | 08/08/22 | 27/08/22 | 49+20+20 = 89/100 → 45/50 |
| Marks Obtained | 15 | 19 | 15 | |
| Signature of the Student | [signature] | [signature] | [signature] | |
| Initials of Room Supervisor | [initials] | NO | [initials] | |
| Initials of Faculty | [initials] | [initials] | [initials] | |

NAME OF FACULTY : Kusuma M

SIGNATURE : [signature]

[signature] SIGNATURE OF H.O.D.

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## First Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | 1 | 3(a) | | | 1 | 14 |
| 1(b) | 4 | 1 | 3(b) | | | | |
| 1(c) | | | 3(c) | | | 2 | 01 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 5 | 1 | | |
| 2(b) | | | 4(b) | 1 | 2 | | |
| 2(c) | | | 4(c) | | | Grand Total | 15 |

## Second Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | 4 | 3 | 2 | 10. |
| 1(b) | | | 3(b) | 5 | 3 | | |
| 1(c) | | | 3(c) | | | 3 | 09 |
| OR | | | OR | | | | |
| 2(a) | 5 | 2 | 4(a) | 4 | 3 | | |
| 2(b) | 5 | 2 | 4(b) | 2 | 3 | | |
| 2(c) | | | 4(c) | | | Grand Total | 19 |

## Third Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 2 | 4 | 3(a) | 5 | 5 | 4 | 07 |
| 1(b) | 5 | 4 | 3(b) | 3 | 5 | | |
| 1(c) | | | 3(c) | | | 5 | 08 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 15 |

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# BLUE BOOK

**Name of the Student:** Pallavi. Abburi

**Class / Sem :** A/2nd **Branch:** CSE

**USN :** 1 K G 2 1 C S 0 0 1

**SUBJECT :** Engineering Chemistry **Subject Code :** 21CHE22

**MAXIMUM MARKS :** IA+Asgn+Activity (60+20+20)

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 14/7/22 | 8/8/22 | 27/8/22 | 57+20+20 / 100 = 97/100 |
| Marks Obtained | 18 | 19 | 20 | |
| Signature of the Student | [signature] | [signature] | [signature] | 49/50 [signature] |
| Initials of Room Supervisor | [initials] | [initials] | [initials] | |
| Initials of Faculty | [initials] | [initials] | [initials] | [initials] |

**NAME OF FACULTY :** Anitha R.

**SIGNATURE :** [signature]

[signature] Vasudev

**SIGNATURE OF H.O.D.**

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## First Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | CO1 | 3(a) | 5 | CO1 | CO1 | 14 |
| 1(b) | 4 | CO1 | 3(b) | 4 | CO2 | | |
| 1(c) | | | 3(c) | | | CO2 | 4 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 18 |

## Second Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 4 | CO2 | 3(a) | | | CO2 | 9 |
| 1(b) | 5 | CO2 | 3(b) | | | | |
| 1(c) | | | 3(c) | | | CO3 | 10 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 5 | CO3 | | |
| 2(b) | | | 4(b) | 5 | CO3 | | |
| 2(c) | | | 4(c) | | | Grand Total | 19 |

## Third Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | CO4 | 3(a) | 5 | CO5 | CO4 | 10 |
| 1(b) | 5 | CO4 | 3(b) | 5 | CO5 | | |
| 1(c) | | | 3(c) | | | CO5 | 10 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 20 |

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Dept. of Computer Science & Engineering KSSEM

## BLUE BOOK

Name of the Student: Pavan Kumar.C

Class / Sem : 6th B Branch: CSE

USN : 1 K G 1 9 C S 0 6 2

SUBJECT : System simulation and Modelling Subject Code : 18CS645

MAXIMUM MARKS : 30+10

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 17-5-2022 | 17-6-22 | 15/7/22 | |
| Marks Obtained | 10 | 15 | 22 | 16+10 |
| Signature of the Student | Pavan Kumar.C | Pavan Kumar.C | Pavan Kumar.C | 26 |
| Initials of Room Supervisor | [signature] | [signature] | [signature] | [signature] |
| Initials of Faculty | [signature] | [signature] | [signature] | [signature] |

NAME OF FACULTY : Sandhya A Kulkarni

SIGNATURE : [signature]

SIGNATURE OF H.O.D. [signature]

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**First Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | | | CO1 | 05 |
| 1(b) | | | 3(b) | | | | |
| 1(c) | | | 3(c) | 5 | CO2 | CO2 | 05 |
| OR | | | OR | | | | |
| 2(a) | 4 | CO1 | 4(a) | | | | |
| 2(b) | 1 | CO1 | 4(b) | | | | |
| 2(c) | | | 4(c) | 5 | CO2 | Grand Total | 10 |

**Second Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | 5 | CO2 | | 05 |
| 1(b) | 4 | CO3 | 3(b) | | | CO2 | |
| 1(c) | | | 3(c) | 4 | CO3 | | 10 |
| OR | | | OR | | | CO1 | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | 4 | CO3 | 4(b) | | | | |
| 2(c) | 2 | CO3 | 4(c) | | | Grand Total | 15 |

**Third Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | 5 | CO4 | CO4 | 17 |
| 1(b) | | | 3(b) | 2 | CO4 | | |
| 1(c) | | | 3(c) | | | CO5 | 05 |
| OR | | | OR | | | | |
| 2(a) | 5 | CO4 | 4(a) | | | | |
| 2(b) | 5 | CO4 | 4(b) | | | | |
| 2(c) | 5 | CO5 | 4(c) | | | Grand Total | 22 |

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Assignment 10
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# BLUE BOOK

Name of the Student: R.C Ramachandra Gowda

Class / Sem : VI Branch: Civil

| USN : | 1 | K | G | 1 | 8 | C | V | 0 | 1 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|

SUBJECT : Hydrology & irrigation Engineering Subject Code : 18CV63

MAXIMUM MARKS : 40

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 16/05/22 | 16/06/22 | 14/7/22 | 34 |
| Marks Obtained | 20 | 23 | 29 | |
| Signature of the Student | Ramachandra | Ramachandra | Ramachandra | Ramachandra |
| Initials of Room Supervisor | 16/5/22 | | | |
| Initials of Faculty | Vyshal | Vyshal | Vyshal | Vyshal |

NAME OF FACULTY : Dr. Vyshal

SIGNATURE : Vyshal

SIGNATURE OF H.O.D.

# K S SCHOOL OF ENGINEERING AND MANAGEMENT

**First Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | 4 | 1 | 1 | 15 |
| 1(b) | | | 3(b) | 4 | 1 | | |
| 1(c) | | | 3(c) | 5 | 2 | 2 | 5 |
| OR | | | OR | | | | |
| 2(a) | 5 | 1 | 4(a) | | | | |
| 2(b) | 2 | 1 | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 20 |

**Second Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | 2 | 3(a) | 5 | 2 | 2 | 10 |
| 1(b) | 4 | 3 | 3(b) | 5 | 3 | | |
| 1(c) | 4 | 3 | 3(c) | | | 3 | 13 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 23 |

**Third Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | 4 | 3(a) | | | 4 | 19 |
| 1(b) | 4 | 4 | 3(b) | | | | |
| 1(c) | 5 | 5 | 3(c) | | | 5 | 20 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 5 | 4 | | |
| 2(b) | | | 4(b) | 5 | 4 | | |
| 2(c) | | | 4(c) | 5 | 5 | Grand Total | 29 |

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# BLUE BOOK

Name of the Student: Lavanya. B. V

Class / Sem : 6th 'B' Branch: ECE

USN : 1 K G 1 9 E C 0 5 3

SUBJECT : DIGITAL COMMUNICATION Subject Code : 18EC61

MAXIMUM MARKS : 30+10

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 16/5/22 | 16/6/22 | 14/7/22 | |
| Marks Obtained | 29 | 20 | 18 | 24+10 |
| Signature of the Student | LavanyaBV | LavanyaBV | LavanyaBV | 34/40 |
| Initials of Room Supervisor | [illegible] | [illegible] | Bhagya | |
| Initials of Faculty | [illegible] | [illegible] | [illegible] | [illegible] |

LavanyaBV

NAME OF FACULTY : Preethi S

SIGNATURE : [illegible]

SIGNATURE OF H.O.D.

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## First Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 4 | Co1 | 3(a) | 5 | Co1 | Co1 | 19 |
| 1(b) | 5 | Co1 | 3(b) | | | | |
| 1(c) | 5 | Co2 | 3(c) | | | Co2 | 10 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 5 | Co1 | | |
| 2(b) | | | 4(b) | 5 | Co1 | | |
| 2(c) | | | 4(c) | 5 | Co2 | **Grand Total** | 29 |

## Second Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | Co2 | 3(a) | | | Co2 | 10 |
| 1(b) | 0 | Co3 | 3(b) | | | | |
| 1(c) | 5 | Co3 | 3(c) | | | Co3 | 13 |
| OR | | | OR | | | | |
| 2(a) | 3 | Co2 | 4(a) | 5 | Co2 | | |
| 2(b) | 3 | Co3 | 4(b) | 5 | Co3 | | |
| 2(c) | 1 | Co3 | 4(c) | 3 | Co3 | **Grand Total** | 23 |

## Third Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | | | Co4 | 14 |
| 1(b) | | | 3(b) | | | | |
| 1(c) | | | 3(c) | | | Co5 | 4 |
| OR | | | OR | | | | |
| 2(a) | 5 | Co4 | 4(a) | 0 | Co4 | | |
| 2(b) | 4 | Co4 | 4(b) | 5 | Co4 | | |
| 2(c) | 4 | Co5 | 4(c) | | | **Grand Total** | 18 |

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# Internal Assessment - 1

## Part A

(a) (1) When phase angles of all the components are shifted by ± 90° then resulting function of time is called as Hilbert transform

→ Hilbert transform of $x(t)$ is denoted as $\hat{x}(t)$

→ Mathematically $\hat{x}(t) = \frac{1}{\pi}\int_{-\infty}^{\infty} \frac{x(\tau)}{(t-\tau)} d\tau$

Hilbert Transform can be obtained using fourier transform as

We have $\hat{x}(t) = \frac{1}{\pi}\int_{-\infty}^{\infty} \frac{x(\tau)}{(t-\tau)} d\tau$

Rearranging

$$\hat{x}(t) = \int_{-\infty}^{\infty} \frac{x(\tau)}{\pi(t-\tau)} d\tau$$

$$\hat{x}(t) = \int_{-\infty}^{\infty} x(\tau) \frac{1}{\pi(t-\tau)} d\tau$$

The above eqn represents the ~~pro~~ convolution of two $f^{n}s$

$$\hat{x}(t) = x(t) * \frac{1}{\pi t}$$

Apply fourier transform on b/s

$$\hat{X}(f) = X(f)\, FT\left\{\frac{1}{\pi t}\right\} \Rightarrow X(f)\left\{-j\, sgn(f)\right\}$$

∴ Rearranging

$$\hat{x}(f) = -j\,sgn(f)\,X(f)$$

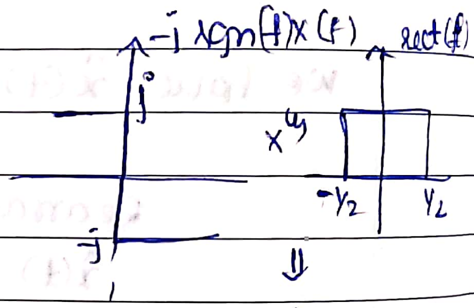
Applying fourier transform for $\hat{x}(t)$ we obtain $\hat{X}(f)$

$$sgn(f) = \begin{cases} 1 & f > 0 \\ 0 & f = 0 \\ -1 & f < 0 \end{cases}$$

Explanation with Block diagram

1(b) $x(t) = sinc(t) \rightarrow (1)$

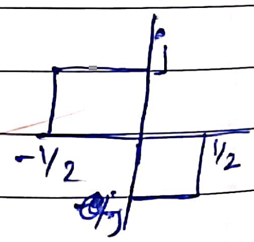
$$\hat{X}(f) = -j\,sgn(f)\,X(f)$$




Applying fourier transform for eqn (1)

$$X(f) = rect(f)$$

$$\therefore \hat{X}(f) = -j\,sgn(f)\,X(f) = -j\,sgn(f)\,rect(f)$$




Apply fourier transform on b/s

$$\hat{x}(t) = \int_{-\infty}^{\infty} \hat{X}(f)\, e^{j2\pi ft}$$

$$= \int_{-1/2}^{0} j e^{j2\pi ft}\, df + \int_{0}^{1/2} -j e^{j2\pi ft}\, df$$

$$= j\left[\frac{e^{j2\pi ft}}{j2\pi t}\right]_{-1/2}^{0} - j\left[\frac{e^{j2\pi ft}}{j2\pi t}\right]_{0}^{1/2}$$

$$\hat{x}(t) = j\left[\frac{1}{j2\pi t}\left(1 - e^{-\pi t}\right)\right] - j\left[\frac{1}{j2\pi t}\left(e^{\pi t} - 1\right)\right]$$

$$= \frac{1}{2\pi t}\left(1 - e^{-\pi t} - e^{\pi t} + 1\right)$$

$$= \frac{1}{2\pi t}\left[2 - \left(e^{\pi t} + e^{-\pi t}\right)\right] \qquad \left[\cos \pi t = \frac{e^{\pi t} + e^{-\pi t}}{2}\right]$$

$$= \frac{1}{2\pi t}\left[2 - 2\cos \pi t\right]$$

$$= \frac{2(1 - \cos \pi t)}{2\pi t}$$

$$\hat{x}(t) = \frac{1 - \cos \pi t}{\pi t}$$

(c) consider $s_i(t) = \sum_{j=1}^{N} s_{ij}\, \phi_j(t) \rightarrow (1)$

at $i=1$ $\quad s_1(t) = s_{11}\phi_1(t) + s_{12}\phi_2(t) + \dots s_{1N}\phi_N(t)$

at $i=2$ $\quad s_2(t) = s_{21}\phi_1(t) + s_{22}\phi_2(t) + \dots s_{2N}\phi_N(t)$

⋮

where $\phi_1(t), \phi_2(t), \dots \phi_N(t)$ represents Basis $f^n$.

let $i=j=2$ in eq$^n$(1)

$$s_1(t) = s_{11}\phi_1(t) + s_{12}\phi_2(t)$$

let $i=2$ in eq$^n$(1)

$$s_2(t) = s_{21}\phi_1(t) + s_{22}\phi_2(t)$$

The above ~~eq$^{ns}$~~ equations represents set of M energy signals as a linear combination of N orthonormal basis $f^n$.

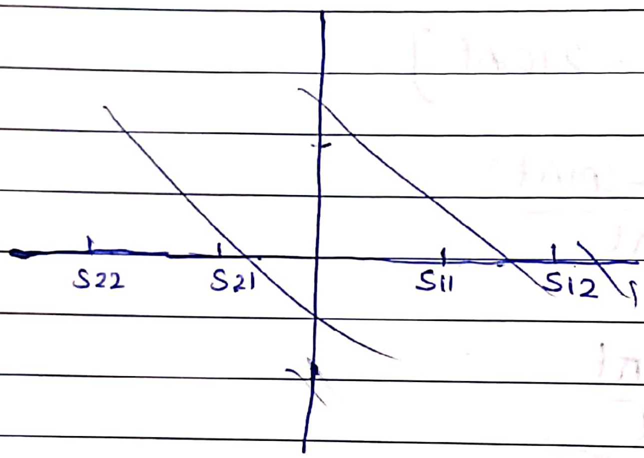
let $N=2$ and $M=3$ in eq$^n$(1)

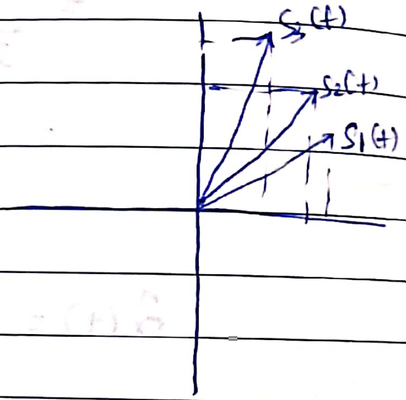
$$s_i(t) = \sum_{j=1}^{2} s_{ij}\,\phi_j(t) \qquad \text{where } i = 1, 2, 3$$

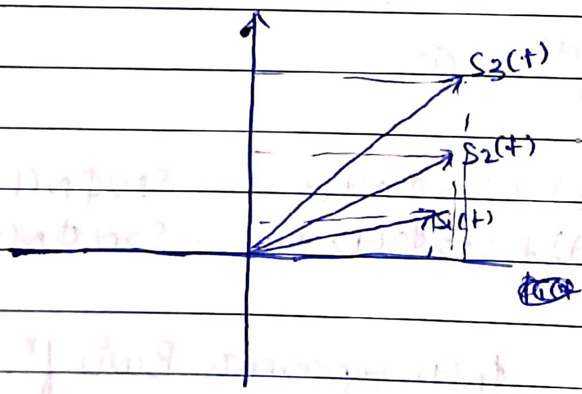
$$s_1(t) = s_{11}\phi_1(t) + s_{12}\phi_2(t)$$

$$s_2(t) = s_{21}\phi_1(t) + s_{22}\phi_2(t)$$

$$s_3(t) = s_{31}\phi_1(t) + s_{32}\phi_2(t)$$




Above represents geometric representation of set of 3 energy signals as linear combination of 2 orthonormal basis functions.

## Part B

3(a) Consider $s(t)$ which is a Band pass signal $s(t) = Re[s_I(t)]$

WKT $s(t) = Re\{s'(t)\, e^{j2\pi f_c t}\} \rightarrow ①$

where $s'(t)$ represents Complex envelope of $s(t)$

$$s'(t) = s_I(t) + j s_Q(t) \rightarrow ②$$

substitute ② in ① $\quad s(t) = Re\{(s_I(t) + j s_Q(t))\} e^{j2\pi f_c t}$

$$s(t) = Re\{ s_I(t) e^{j2\pi f_c t} + j s_Q(t) e^{j2\pi f_c t} \}$$

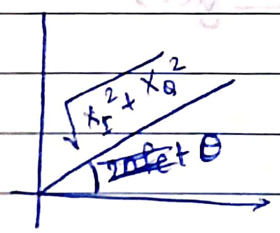
WKT $e^{j\theta} = \cos\theta + j\sin\theta$

$$s(t) = Re\{ s_I(t)[\cos 2\pi f_c t + j\sin 2\pi f_c t] + j s_Q(t)[\cos 2\pi f_c t + j\sin 2\pi f_c t] \}$$

$$= Re\{ s_I(t)\cos 2\pi f_c t + j s_I(t)\sin 2\pi f_c t + j s_Q(t)\cos 2\pi f_c t - s_Q(t)\sin 2\pi f_c t \}$$

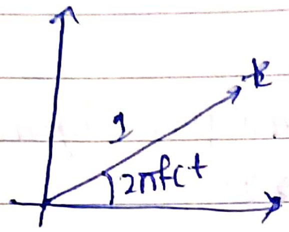
$$s(t) = s_I(t)\cos 2\pi f_c t - s_Q(t)\sin 2\pi f_c t.$$

The Phasor of above eq^n is given as follows

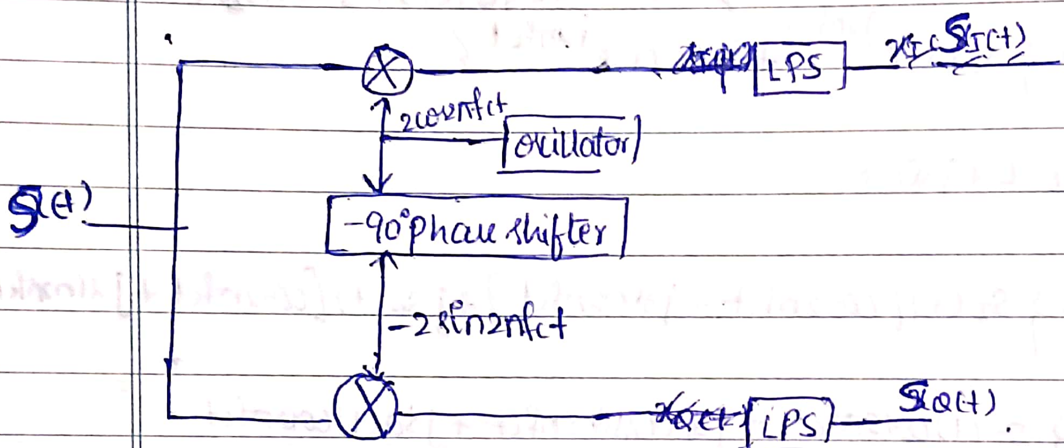



$$\theta = \tan^{-1}\left(\frac{x_Q}{x_I}\right)$$

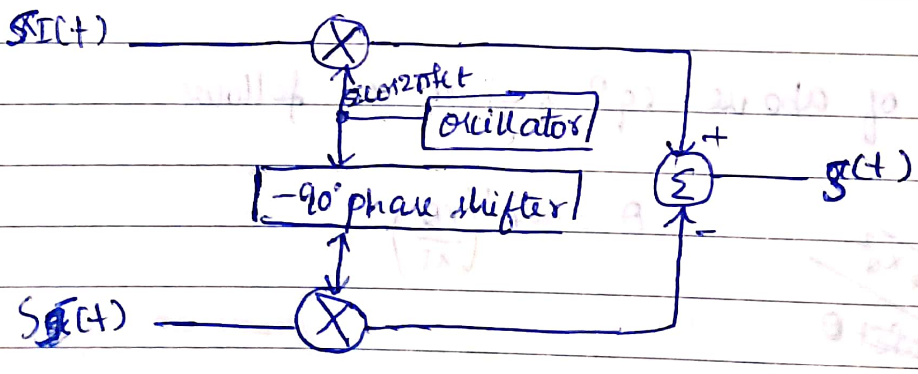
The phasor diagram




Deriving the inphase and quadrature components of the Bandpass slg S(t)




Analyser




Synthesizer.

From A Band pass signal s(t), can be Inphase and Quadrature components can constructed using low pass signal.
→ Since low pass filter has a bandwidth of W $\tilde{s}(t)$ can be reconstructed using inphase & quadrature components.
→ fig (1) is called analyser and fig (2) is called synthesizer
→ linear combination of analyser and synthesizer is called as Linear modulation scheme.

Part B

4(a) Consider a Band pass system whose impulse response is h(t) and a Band pass signal x(t) therefore output of the system is given by $y(t) = h(t) * x(t)$

$$\therefore y(t) = \int_{-\infty}^{\infty} h(\tau) x(t-\tau) d\tau$$

original BP signal

Representing above eqn in terms of pre envelopes.

$$y(t) = \int_{-\infty}^{\infty} Re[h_+(\tau)] Re[x_+(t-\tau)] d\tau$$

$$y(t) = \int_{-\infty}^{\infty} Re[h'(\tau) e^{j2\pi f_c \tau}] Re[x'(t-\tau) e^{j2\pi f_c(t-\tau)}] d\tau$$

$$y(t) = \frac{1}{2} Re \int_{-\infty}^{\infty} e^{j2\pi f t} h'(\tau) x'(t-\tau) d\tau \rightarrow (1)$$

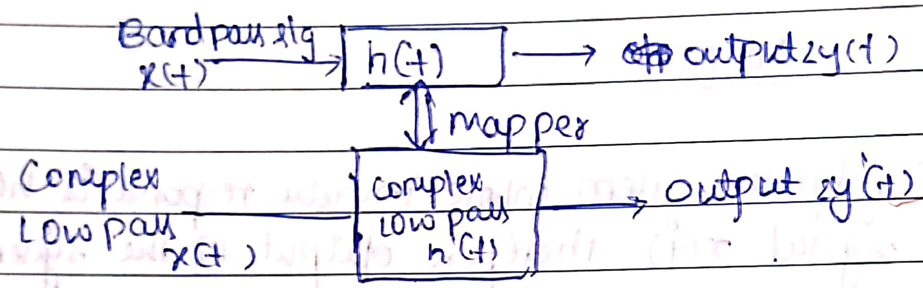
The complex envelope of Band pass signal is given by

$$y'(t) = \frac{1}{2} \int_{-\infty}^{\infty} h'(\tau) x'(t-\tau) \rightarrow (2)$$

Substituting (2) in (1)

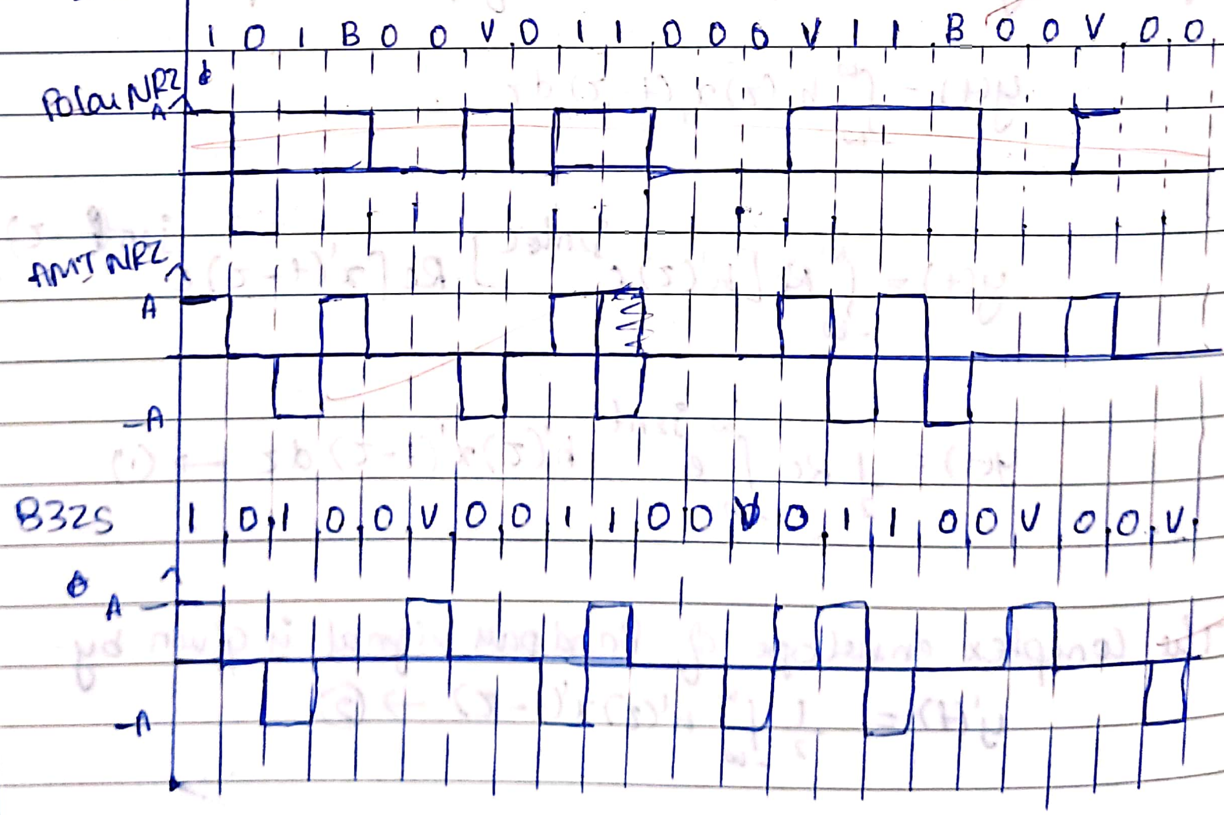
$$y(t) = Re\{ y'(t)\, e^{j\omega_n t} \}$$

The output of the Bandpass system is the convolution of Bandpass signal and impulse response of Band pass s/m.




4(b) 1010000011000011000000

HDB3 101B00V011000V11B00V00



4(c) $\phi_i(t) = \dfrac{g_i(t)}{\sqrt{\int_0^T g_i^2(t)dt}}$ → ①

$g_i(t) = s_i(t) - \sum_{j=1}^{i-1} s_{ij}\phi_j(t)$ → ②

$s_{ij} = \int_0^T s_i(t)\phi_j(t)dt$ → ③

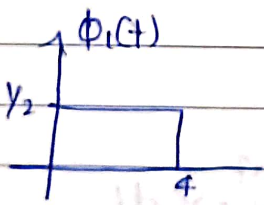
at $i=1$

$\phi_1(t) = \dfrac{g_1(t)}{\sqrt{\int_0^T g_1^2(t)dt}}$ → ④

$g_1(t) = s_1(t) = \begin{cases} 3 & 0 \le t \le 4 \\ 0 & \text{otherwise} \end{cases}$

$\int_0^T g_1^2(t)dt = \int_0^4 9\,dt = 9 \times 4 = 36$

④ ⇒ $\phi_1(t) = \dfrac{g_1(t)}{6} = \dfrac{1}{6}\begin{cases} +3 & 0 \le t \le 4 \\ 0 & \text{otherwise} \end{cases} = \begin{cases} 1/2 & 0 \le t \le 4 \\ 0 & \text{otherwise} \end{cases}$



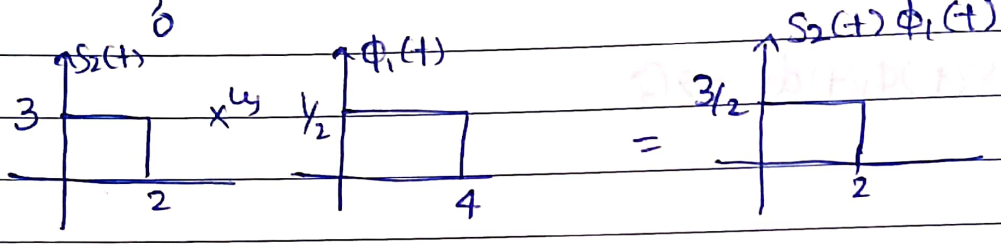

$\phi_2(t) = \dfrac{g_2(t)}{\sqrt{\int_0^T g_2^2(t)dt}}$ → ⑤

~~$q_2^2(t)$~~

$$q_2(t) = S_2(t) - \sum_{j=1}^{1} S_{2j}\,\phi_j(t)$$

$$= S_2(t) - S_{21}\phi_1(t) \rightarrow (5)$$

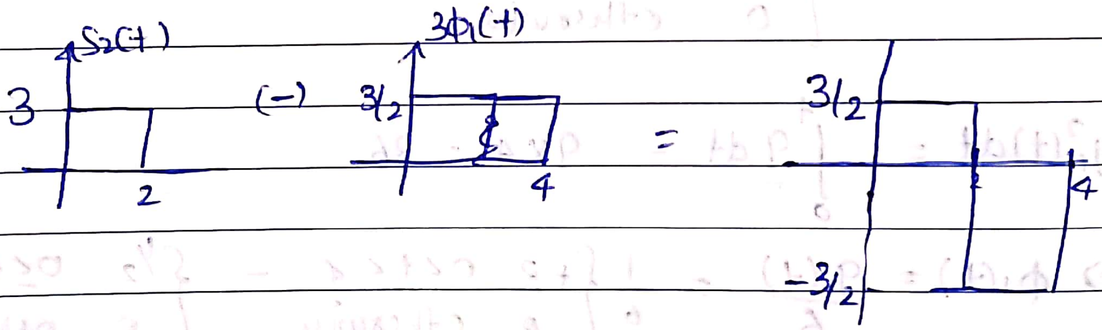
$$S_{21} = \int_0^T S_2(t)\,\phi_1(t)\,dt$$




$$S_{21} = \int_0^2 \left(\frac{3}{2}\right) dt = \frac{3}{2} \times 2 = \underline{\underline{3}}$$

$\therefore (5) \Rightarrow q_2(t) = S_2(t) - 3\phi_1(t)$

$3 - 3/2 = \frac{3}{2}$




$$q_2(t) = \begin{cases} 3/2 & 0 \le t \le 2 \\ -3/2 & 2 \le t \le 4 \end{cases}$$

(6) $$\int_0^T q_2^2(t)\,dt = \int_0^2 \left(\frac{3}{2}\right)^2 dt + \int_2^4 \left(\frac{-3}{2}\right)^2 dt$$

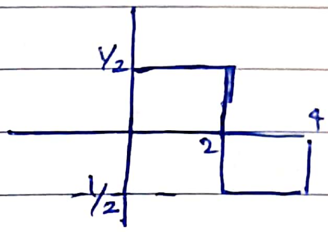
$$= \frac{9 \times 2}{4} + \frac{9 \times 2}{4}$$

$$= \frac{18}{2} = \underline{\underline{9}}$$

(5) ⇒ $\phi_2(t) = \dfrac{g_2(t)}{\sqrt{9}}$

$$= \frac{g_2(t)}{3} = \frac{1}{3}\begin{cases} 3/2 & 0 \le t \le 2 \\ -3/2 & 2 \le t \le 4 \end{cases}$$

$$\phi_2(t) = \begin{cases} 1/2 & 0 \le t \le 2 \\ -1/2 & 2 \le t \le 4 \end{cases} \Rightarrow$$




$S_1(t) = S_{11}\phi_1(t) + S_{12}\phi_2(t)$, $S_2(t) = S_{21}\phi_1(t) + S_{22}\phi_2(t)$

$S_{11} = \sqrt{\int_0^T g_1^2(t)\,dt} = \sqrt{36} = 6$

$S_{12} = 0$

$S_{21} = 3$

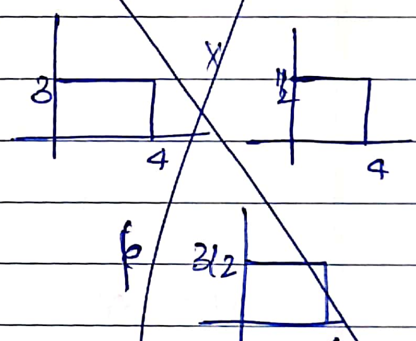
$S_{22} = \sqrt{\int_0^T g_2^2(t)\,dt} = \sqrt{9} = 3$

$S_1(t) = 6\phi_1(t)$

$S_2(t) = 3\phi_1(t) + 3\phi_2(t)$

Working

$S_{11} = \int_0^T s_1(t)\,\phi_1(t)\,dt$




$\int_0^4 (3/2)\,dt = \frac{3}{2} \times \frac{4}{2} = 3$

AMI Bipolar

| | a | b | c |
|---|---|---|---|
| 1 | 4 | 5 | 5 |
| 2 | | | |
| 3 | 5 | | |
| 4 | 5 | 5 | 5 |

29/30

17/5/202

Internal Assessment - 02

Part B

4(a) $\mu_{xj} = E[x_j]$

$= E[s_{ij} + N_j]$

$= E[s_{ij}] + E[N_j]$

$\mu_{xj} = s_{ij}$

$\sigma^2_{xj} = E[(x_j - \mu_{xj})]^2$

$= E[(s_{ij} + N_j - s_{ij})^2]$

$= E[N_j]^2$

$= E[N(t)(N(t)]$

$= E[N(t)]^2 \int_0^T \phi_j(t)\phi_k(t)\,dt$ $\qquad \int_0^T \phi_j \phi_k(t)\,dt = 1 \quad j=k$

$= E[N(t)]^2$

$\sigma^2_{xj} = \frac{N}{2}\delta(t-k)$

$cov[x_j, x_k] = E[(x_j - \mu_{xj})(x_k - \mu_{xk})^2]$

$= E[(s_{ij} + N_j - s_{ij})(s_{ik} + N_k - s_{ik})^2]$

$= E[N_j N_k]$ $\qquad N_j N_k \int_0^T \phi_j(t)\phi_k(t)\,dt$

$cov[x_j, x_k] = 0 \qquad [\because j \neq k]$ $\qquad \frac{N}{2}\delta(j-k) \times 0$

$\therefore$ They are statistically independent. $\qquad = 0$

5

4(b) probability error for BFSK system

Consider Transmitted signal $s_1(t)$ $\int_{-\infty}^{0} f_x(x/1)\,dx =$

Probability error for a BFSK system is given by

$$P(e) = \int_{-\infty}^{0} f_x(x/1)\,dx \longrightarrow (1)$$

where $f_x(x/1) \rightarrow$ conditional probability when bit '1' is transmitted

$$f_x(x/1) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

$\mu$ = mean $\quad \mu = \sqrt{E_b}$ $\quad$ where $E_b$ = bit energy

V = variance. $\quad \sigma^2 = \frac{N_0}{2}$ $\quad \frac{N_0}{2}$ = Power spectral density

$$f_x(x/1) = \frac{1}{\sqrt{2\pi \frac{N_0}{2}}} e^{-\frac{(x-\sqrt{E_b})^2}{2\times\frac{N_0}{2}}}$$

$$= \frac{1}{\sqrt{\pi N_0}} e^{-\left(\frac{x-\sqrt{E_b}}{\sqrt{N_0}}\right)^2}$$

(1) becomes

$$P(e) = \int_{-\infty}^{0} \frac{1}{\sqrt{\pi N_0}} e^{-\left(\frac{x-\sqrt{E_b}}{\sqrt{N_0}}\right)^2} dx$$

$\frac{x-\sqrt{E_b}}{\sqrt{N_0}} = u$

$dx = \sqrt{N_0}\,du$

$x \rightarrow -\infty \quad x \rightarrow -\infty$

$x \rightarrow 0 \quad u \rightarrow -\sqrt{\frac{E_b}{N_0}}$

$$= \int_{-\infty}^{-\sqrt{\frac{E_b}{N_0}}} \frac{1}{\sqrt{\pi N_0}} e^{-u^2} \sqrt{N_0}\,du$$

$$= \frac{1}{\sqrt{\pi}} \int_{\sqrt{\frac{E_b}{N_0}}}^{\infty} e^{-u^2}\,du$$

$x^{4}$

## (4b) Probability of error of BFSK system

$$P_e(1) = \int_{-\infty}^{0} f_x(x/1)\, dx \rightarrow (1)$$

$f_x(x/1)$ = conditional probability when bit 1 is transmitted

$$f_x(x/1) = \int_{-\infty}^{0} \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

where $\mu$ = mean $= \sqrt{E_b}$

$E_b$ = bit energy

$\sigma^2$ = variance $= N_0$

$$f_x(x/1) = \frac{1}{\sqrt{2\pi N_0}} e^{-\frac{(x-\sqrt{E_b})^2}{2N_0}}$$

$$= \frac{1}{\sqrt{2\pi N_0}} e^{-\left(\frac{x-\sqrt{E_b}}{\sqrt{2N_0}}\right)^2}$$

$$P_e(1) = \int_{-\infty}^{0} \frac{1}{\sqrt{2\pi N_0}} e^{-\left(\frac{x-\sqrt{E_b}}{\sqrt{2N_0}}\right)^2} dx$$

$\frac{x-\sqrt{E_b}}{\sqrt{2N_0}} = u$

$dx = \sqrt{2N_0}\, du$

$x \rightarrow -\infty \quad u \rightarrow -\infty$

$x \rightarrow 0 \quad u = -\sqrt{\frac{E}{2N_0}}$

$$= \int_{-\infty}^{-\sqrt{E/2N_0}} \frac{1}{\sqrt{2\pi N_0}} e^{-u^2} \sqrt{2N_0}\, du$$

$$= \frac{1}{\sqrt{\pi}} \int_{\sqrt{\frac{E}{2N_0}}}^{\infty} e^{-u^2} du$$

$x^{4}$ $E_1 \div 2$

$$P_e(1) = \frac{2}{2\sqrt{\pi}} \int_{\sqrt{\frac{E}{2N_0}}}^{\infty} e^{-u^2}\, du$$

$$Q(x) = \frac{1}{\sqrt{\pi}}\, erfc(x) =$$

$$erfc(x) = \frac{2}{\sqrt{\pi}} \int_x^{\infty} e^{-x^2} dx$$

$$P_e(1) = \frac{1}{2}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right)$$

$$\text{lly } P_e(0) = \frac{1}{2}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right)$$

$\therefore$ Total probability $P_e = P_e(1)P(1) + P_e(0)P(0)$

$$= \frac{1}{2}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right)\left(\frac{1}{2}\right) + \frac{1}{2}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right)\left(\frac{1}{2}\right)$$

$$= \frac{1}{4}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right) + \frac{1}{4}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right)$$

$$P_e = \frac{1}{2}\, erfc\left(\sqrt{\frac{E}{2N_0}}\right)$$

5

In terms of function

$$Q(x) = \frac{1}{2}\, erfc\left(\frac{x}{\sqrt{2}}\right)$$

$$P_e = Q\left(\sqrt{\frac{E}{2N_0}}\right)$$

4(c)

| | Assume | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Binary sequence | | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 |
| encoded sequence | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| phase | 0° | 0° | 180° | 180° | 180° | 180° | 0° | 0° | 180° |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Received sequence | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | |
| Delayed sequence | | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| Decoded sequence | [1] | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | [0] → neglected |

Decoded sequence.

| | | |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

2

Correct & Detect

## Part A

1(c) $R_b = 1\,Mbps$

$f_c = 100\,MHz$

$BW = ?$

Symbol duration = ?

$f_b = \frac{1}{T_b} = \frac{1}{1/R_b} = R_b$

$BW = f_b = R_b =$ ~~Mbps~~ $10^6\,Hz$ or $1\,MHz$

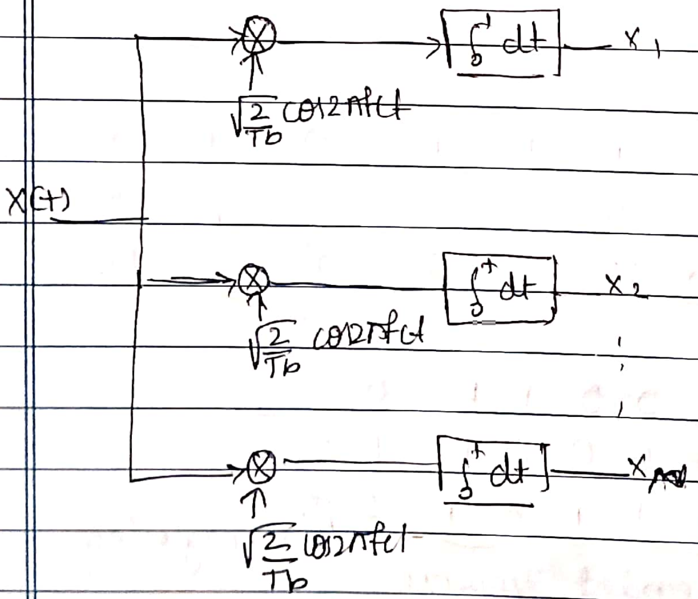
~~$T_b' = 4T_b = 4 \times \frac{1}{R_b} = \frac{4}{10^6} = 4\times10^{-6}\,s$~~

~~$T_b' = 4\mu s$~~

$T_b' = 2T_b = 2\times\frac{1}{R_b} = 2\times\frac{1}{10^6} = 2\times10^{-6} = 2\mu s$

5

1(a) continuous AWGN channel converted into vector channel.



let the received signal be $x(t) = S_i(t) + N(t)$ → ① when applied to the Bank of correlators produces observation vector $x_1, x_2 \dots x_N$

let the Random variable $x_j = \int_0^T x(t)\,\phi_j(t)\,dt$

$$x_j = \int_0^T [S_i(t) + N(t)]\,\phi_j(t)\,dt$$

$$= \int_0^T S_i(t)\,\phi_j(t) + \int_0^T N(t)\,\phi_j(t)\,dt$$

$$x_j = S_{ij} + N_j \rightarrow ②$$

let the new random variable $x'(t) = x(t) - \sum_{j=1}^{N} x_j\,\phi(t)$

$$x'(t) = S_i(t) + N(t) - \sum_{j=1}^{N} (S_{ij} + N_j)\,\phi(t)$$

$$= S_i(t) + N(t) - S_i(t) - \sum_{j=1}^{N} N_j\,\phi(t)$$

$$x'(t) = N(t) - \sum_{j=1}^{N} N_j\,\phi_j(t)$$

let $x'(t) = N'(t)$

$$\therefore \quad N'(t) = N(t) - \sum_{j=1}^{N} N_j\,\phi_j(t)$$

$$\Rightarrow N(t) = N'(t) + \sum_{j=1}^{N} N_j\,\phi_j(t)$$

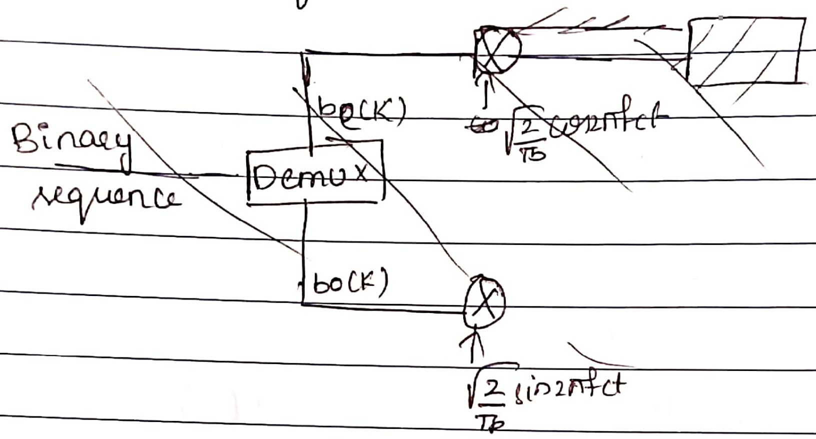
llly $\quad x(t) = x'(t) + \sum_{j=1}^{N} x_j\,\phi_j(t)$

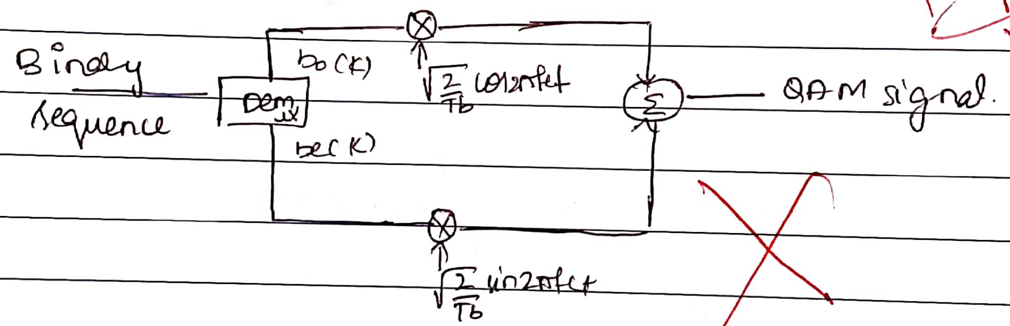
$$x(t) = N'(t) + \sum_{j=1}^{N} x_j\,\phi_j(t)$$

$$x(t) = N'(t) + [x_1, x_2 \dots x_N] \begin{bmatrix} \phi_1 \\ \phi_2 \\ \vdots \\ \phi_N \end{bmatrix}$$

Therefore continuous AWGN channel is converted into vector channel.

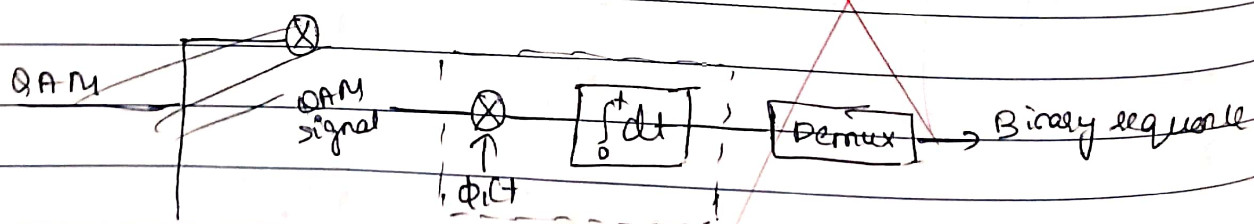
1(b) Generation of QAM:-




→ Binary sequence is fed into the Demultiplexer, the output of Demultiplex is fed into the product modulator and the output fed to the accumulator.

Detection of QAM



→ QAM signal is fed into the bank of correlator, the output is fed to the demultiplexer and Binary sequence is generated.

2(a) ~~the op~~ $P_e(m_i, x) = P(m_i \text{ not sent} | x)$
$= 1 - P(m_i \text{ sent} | x)$

The average probability of error exists only when there is a message and observation vector
thus optimum decision rule can be stated as $\hat{m} = m_i$
the decision rule ~~which~~ will be chosen according the below eqn
$\|x - S_k\|$ → This equation represents the difference between message signal and transmitted signal

2(b) BFSK = Binary Frequency Shift Keying.

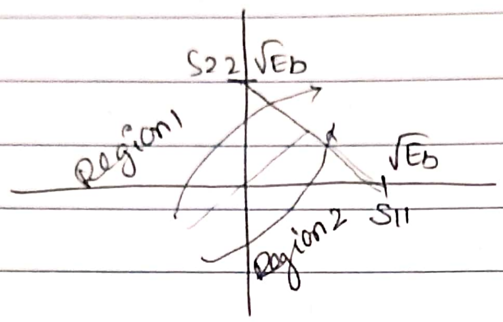
$$S(t) = \begin{cases} \sqrt{\frac{2E_b}{T_b}} \cos 2\pi f_1(t) & 0 \le t \le T_b \text{ for logic } 1 \\ \sqrt{\frac{2E_b}{T_b}} \cos 2\pi f_2(t) & 0 \le t \le T_b \text{ for logic } 0 \end{cases}$$

where $E_b$ = bit energy

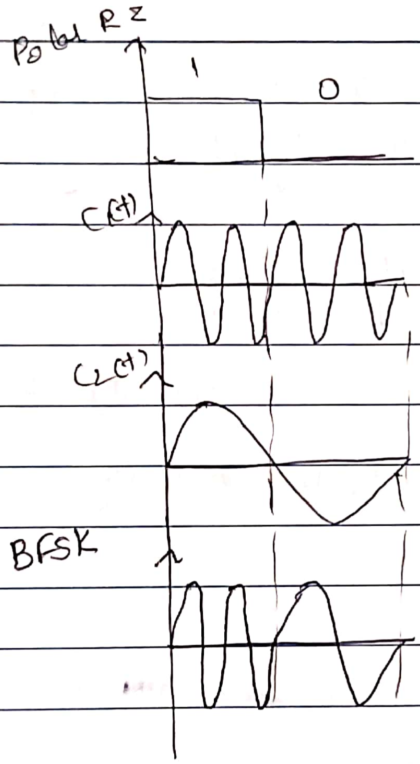
In terms of basis fuction

$$S(t) = \begin{cases} \sqrt{E_b}\, \phi_1(t) & 0 \le t \le T_b \text{ for } 1 \\ \sqrt{E_b}\, \phi_2(t) & 0 \le t \le T_b \text{ for } 0 \end{cases}$$

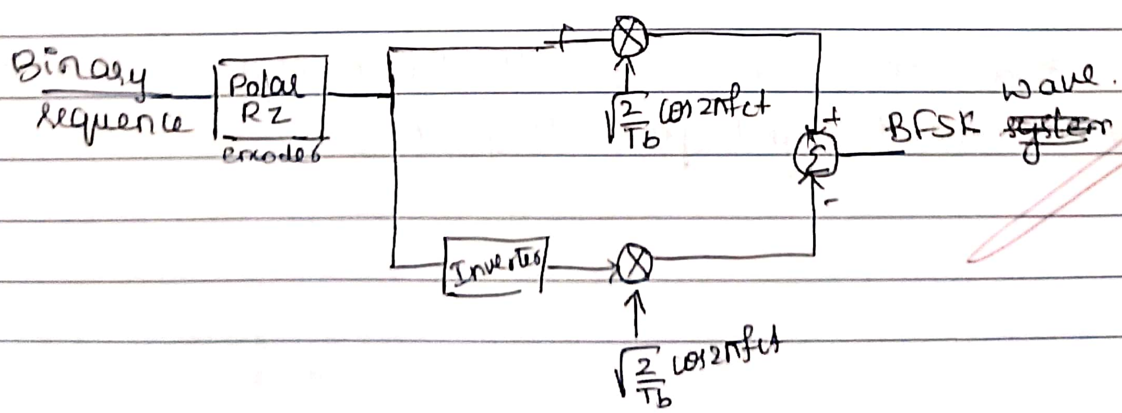
Since there are 2 basis $f^{ns}$ the BFSK system is charactrised by 2 Dimensional signal space diagram




where $S_{11}$ and $S_{22}$ are the message points
The decision boundary lies at the center of the distance between the two message points.



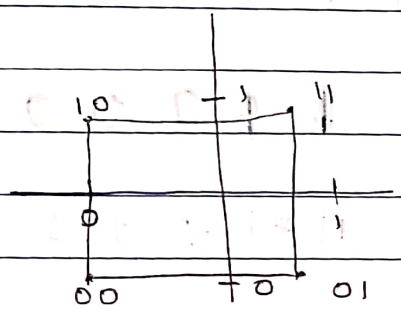

## Generation :-



The Binary sequence is fed into the polar RZ encoder, the output of encoder is fed to the product modulator and same output is fed to the inverter. Summing the outputs results in BFSK wave.

Non Coh

2(c)




4 M=2

| | a | b | c | |
|---|---|---|---|---|
| 1 | 5 | 0 | 5 | =10 |
| 2 | 3 | 3 | 1 | =7 |
| 3 | | | | |
| 4 | 5 | 5 | 3 | =13 |

20³/50

22/6/2022

# III Internals Assessment

2(a)

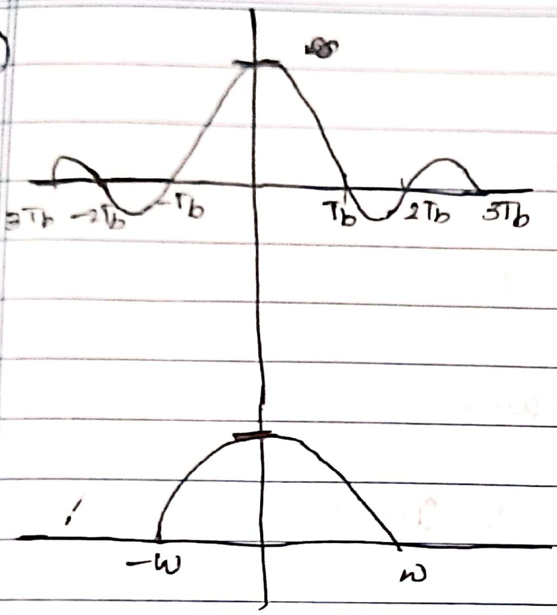
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Binary sequence | | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Precoded sequence {Pn} | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| Transmitted sequence {an} | -1 | 1 | 1 | 1 | 1 | -1 | +1 | +1 | -1 | -1 | -1 | +1 |
| {bn} | | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | -2 | -2 | 0 |
| decoded sequence | | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |

2(a)

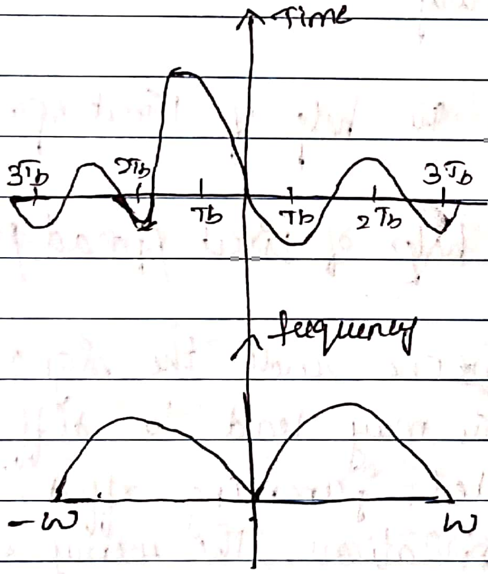
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Binary sequence | | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| Precoded sequence {Pn} | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| Transmitted sequence {an} | -1 | 1 | 1 | 1 | 1 | -1 | 1 | 1 | -1 | -1 | -1 | 1 |
| {bn} | | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | -2 | -2 | 0 |
| decoded sequence | | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |

5

2(b)




Time and frequency domain representation of duo-binary signals.




Time and frequency domain representation of modified duo binary signals.

Consider $H(f) = H_{Nyquist}(f)\left[1 + e^{-j2\pi fT}\right]$

$= H_{Nyquist}(f)\left[e^{-j\pi fT} e^{+j\pi fT} + e^{-j\pi fT} e^{-j\pi fT}\right]$

$= H_{Nyquist}(f)\, e^{-j\pi fT}\left[e^{+j\pi fT} + e^{-j\pi fT}\right]$

$= H_{Nyquist}(f)\, 2\cos \pi fT\, e^{-j\pi fT}$

$$H_{Nyquist}(f) = \begin{cases} \frac{1}{2B_0} & |f| \le B_0 \\ 0 & \text{otherwise} \end{cases}$$

$$H(f) = \begin{cases} \frac{1}{B_0} \cos \pi f t \, e^{-j\pi f t} & |f| \le B_0 \\ 0 & \text{otherwise} \end{cases}$$

2(c) ~~List~~ the applications of DSS-SS are :-

→ Antijamming with the help Direct Spread spectrum signals :-

→ Low probability detectablity

→ Multiple code Acces with the help of Direct spread spectrum.

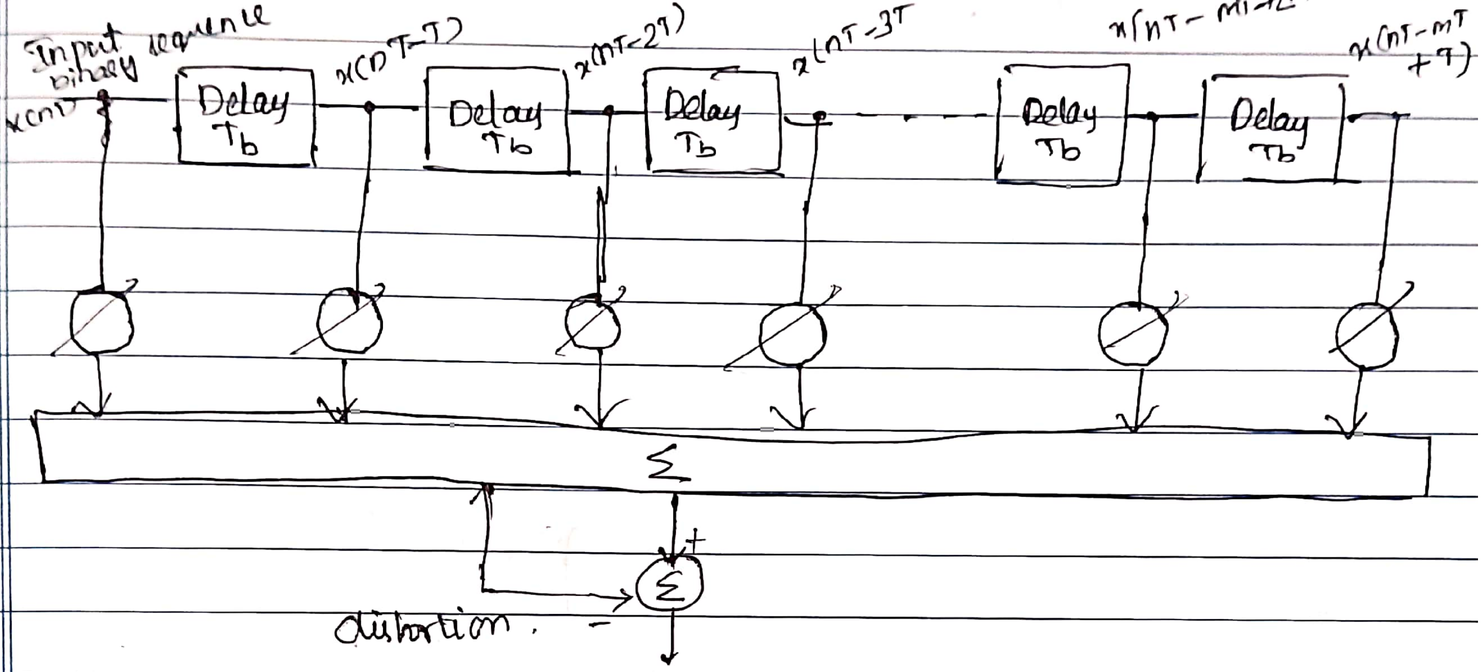
(1) Antijamming with the help of Direct spread spectrum signals :-

In frequency band someone sends the signals which interfere the required signals. This may lead to difficult to detect the signal. This is called jamming ~~effect~~. This mainly occurs in military applications. The enemy sends the frequency band this can be detected by spreading over the mid band.

(2) Low detectionability :- This ~~used~~ uses direct spread spectra signals method to detect the signals and frequencies. ~~This~~ using the processing gain and coding gain the enemies will not get information about the signals.

Part - B

4(b)




→ ~~If Equalign~~

→ Above diagram shows the block diagram of Adaptive equalization

→ It consists of delay blocks, summers.

→ Adaptive equalization refers to reducing the disortion of received data.

→ the cofficients of filters are changed continuously in such a way that the distortion is reduced.

→ There are 2 types of equalization :-

* Pre channel Equalization:- If equalization is done at the transmitter side then it is called pre channel equalizations. this requires feedback filters.

* Post-channel Equalisation :- If equalisation is done at the receiver side then it is called post channel equalization. This doesnot require feedback filter.

→ It is Adaptive equalization because the filter adapts to the diverses affects by themselves.

4(a) Channel Equalization :-

| | a | b | c | |
|---|---|---|---|---|
| 1 | | | | |
| 2 | 5 | 4 | 4 | =13 |
| 3 | | | | |
| 4 | 0 | 5 | | =5 |

13/30

1

13/7/202[illegible]

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# BLUE BOOK

**Name of the Student:** Prajwal .V

**Class / Sem :** VI **Branch:** EEE

**USN :** 1 K G 1 9 E E 0 0 4

**SUBJECT :** Computer aided electrial drawing **Subject Code :** 18EE 643

**MAXIMUM MARKS :** 30+10 = 40

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 17/05/22 | 17/6/22 | 15/07/22 | 29+10 = 39 |
| Marks Obtained | 30 | 28 | 27 | |
| Signature of the Student | Prajwal.V | Prajwal.V | Prajwal.V | Prajwal.V |
| Initials of Room Supervisor | Pr | Pr | Pr | |
| Initials of Faculty | Priya | Priya | Priya | Priya |

**NAME OF FACULTY :** Hemapriya R

**SIGNATURE :** Priya

**SIGNATURE OF H.O.D.**

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## First Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 20 | 1 | 3(a) | | | 1 | 20 |
| 1(b) | 9½ | 2 | 3(b) | | | | |
| 1(c) | | | 3(c) | | | 2 | 10 |
| OR | | | OR | | | | |
| 2(a) | | 1 | 4(a) | | | | |
| 2(b) | | 2 | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 30 |

## Second Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | 2 | 3(a) | | | 2 | 9½ |
| 1(b) | | 3 | 3(b) | | | | |
| 1(c) | | | 3(c) | | | 3 | 18 |
| OR | | | OR | | | | |
| 2(a) | 9½ | 2 | 4(a) | | | | |
| 2(b) | 18 | 3 | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 28 |

## Third Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 10 | 4 | 3(a) | | | 4 | 10 |
| 1(b) | 17 | 5 | 3(b) | | | | |
| 1(c) | | | 3(c) | | | 5 | 17 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 27 |

Priya

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# BLUE BOOK

**Name of the Student:** SHWETHA T.R

**Class / Sem :** II Semester **Branch:** MBA

**USN :**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | K | G | 2 | 1 | B | A | 0 | 3 | 8 |

**SUBJECT :** Research Methodology **Subject Code :** 20MBA23

**MAXIMUM MARKS :**

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 19/7/2022 | 17/08/2022 | 13/9/2022 | |
| Marks Obtained | 48 | 46 | 42 | |
| Signature of the Student | Shwetha T.R | Shwetha T.R | Shwetha T.R | |
| Initials of Room Supervisor | RB | RB | [illegible] | |
| Initials of Faculty | v.vidyashree | v.vidyashree | v.vidyashree | |

**NAME OF FACULTY :** V.VIDYASHREE

**SIGNATURE :** v.vidyashree **SIGNATURE OF H.O.D.**

# K S SCHOOL OF ENGINEERING AND MANAGEMENT

## First Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 3 | | 3(a) | 3 | | | |
| 1(b) | 7 | CO1 | 3(b) | 7 | CO2 | | |
| 1(c) | 10 | | 3(c) | 10 | | | |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 48 |

PART C → 8

## Second Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | 3 | | | |
| 1(b) | | | 3(b) | 7 | CO4 | | |
| 1(c) | | | 3(c) | 10 | | | |
| OR | | | OR | | | | |
| 2(a) | 3 | | 4(a) | | | | |
| 2(b) | 7 | CO3 | 4(b) | | | | |
| 2(c) | 8 | | 4(c) | | | Grand Total | 46 |

PART C → 8

## Third Internal test

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 3 | | 3(a) | | | | |
| 1(b) | 5 | CO5 | 3(b) | | | | |
| 1(c) | 10 | | 3(c) | | | | |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 2 | | | |
| 2(b) | | | 4(b) | 6 | CO6 | | |
| 2(c) | | | 4(c) | 8 | | Grand Total | 42 |

PART C → 8

V. Vidyashree

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# BLUE BOOK

Name of the Student: Dhanush. B

Class / Sem : 7th Sem Branch: EEE

USN : 1 K G 1 8 E E 0 0 2

SUBJECT : Energy & environment Subject Code : 18ME751

MAXIMUM MARKS :

| Test | I | II | III | Average Marks Obtained |
|---|---|---|---|---|
| Date | 19/11/2021 | 28/12/21 | 25/1/2022 | 24/30 + 10/10 |
| Marks Obtained | 20 | 23. | 28 | |
| Signature of the Student | Dhanush | Dhanush. B | Dhanush B | 34/40 |
| Initials of Room Supervisor | 19/11/21 | Priya | [illegible] | |
| Initials of Faculty | [illegible] | [illegible] | [illegible] | [illegible] |

NAME OF FACULTY : Vinod. A

SIGNATURE : [illegible]

SIGNATURE OF H.O.D.

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**First Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | | | 3(a) | 0 | CO1 | CO1 | 10 |
| 1(b) | | | 3(b) | 5 | CO1 | | |
| 1(c) | | | 3(c) | 5 | CO2 | CO2 | 10 |
| OR | | | OR | | | | |
| 2(a) | 5 | CO1 | 4(a) | | | | |
| 2(b) | 0 | CO1 | 4(b) | | | | |
| 2(c) | 5 | CO2 | 4(c) | | | Grand Total | 20. |

**Second Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 4 | CO2 | 3(a) | | | CO2 | 8 |
| 1(b) | 4 | CO3 | 3(b) | | | | |
| 1(c) | 2 | CO3 | 3(c) | | | CO3 | 15 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | 4 | CO2 | | |
| 2(b) | | | 4(b) | 4 | CO3 | | |
| 2(c) | | | 4(c) | 5 | CO3 | Grand Total | 23 |

**Third Internal test**

| Q. No | Marks | CO | Q. No | Marks | CO | CO | Total |
|---|---|---|---|---|---|---|---|
| 1(a) | 5 | 4 | 3(a) | 5 | 4 | 4 | 20 |
| 1(b) | 5 | 4 | 3(b) | 4 | 4 | | |
| 1(c) | 5 | 5 | 3(c) | 3 | 5 | 5 | 8 |
| OR | | | OR | | | | |
| 2(a) | | | 4(a) | | | | |
| 2(b) | | | 4(b) | | | | |
| 2(c) | | | 4(c) | | | Grand Total | 28 |

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