

2.3.1: STUDENT CENTRIC METHODS, SUCH AS EXPERIENTIAL LEARNING, PARTICIPATIVE LEARNING AND PROBLEM SOLVING METHODOLOGIES ARE USED FOR ENHANCING LEARNING EXPERIENCE

PROBLEM SOLVING

SL.NO	DOCUMENT	PAGE NO.
1	ACTIVITY BASED LEARNING	02-08
2	CODING AND DECODING	09-21
3	ONLINE QUIZ	22-25
4	QUESTION BANK	26-33
5	WORKSHEET	34-47



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FIRST GRADE COLLEGE**

Dr. N.S.A.M First Grade College

Krishnarajapura Village, Bangalore-89

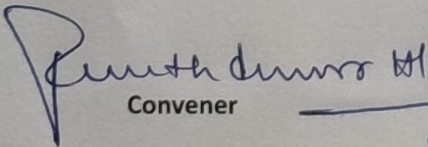
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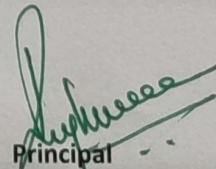
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2022-23

Activity based learning report

Topic	Do you Know who you are?
Date	16 th September 2022
Day	Friday
Convener	Mr. Punith Kumar H S
Total No. of Participants	30
Target Class/ Course	1 st Sem B. Com Data Analytics
Highlights of the Event	<ul style="list-style-type: none">• For First year BDA Students conducted an activity-based learning "Do you know who you are"• The activity mainly conducted to know what their friends think about them i.e. one positive and one negative of each.• The students enjoyed and learned to make swot analysis and also, they got to know about their strength weakness.


Convener


Principal
PRINCIPAL
Dr. N.S.A.M. First Grade College
Sy. No. 21, Krishnarajapura Village,
Shivakote (P) Hesaraghatta Hobli,
Bangalore-560 089



Signature
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Sy. No. 21, Krishnarajapura Village,
Shivakote (P) Hesaraghatta Hobli,
Bangalore-560 089

Participation List

Sl No	Reg No	Name of the Student
1	U18CM22C000 2	RAVIKUMAR V
2	U18CM22C000 3	KUSHAL R
3	U18CM22C000 4	HAFEEZA B
4	U18CM22C000 5	PRIYANKA
5	U18CM22C000 6	BHAGYASHREE J
6	U18CM22C000 7	MEGHANA P H
7	U18CM22C000 8	KAVANA B R
8	U18CM22C000 9	DIVYASHRREE B P
9	U18CM22C001 0	PUNITHA N
10	U18CM22C001 1	SHARAN B S
11	U18CM22C001 2	MONISHA H S
12	U18CM22C001 3	NAYANA N B
13	U18CM22C001 4	RAKSHITHA N
14	U18CM22C001 5	G V UJWAL
15	U18CM22C001 6	BALAJI K S
16	U18CM22C001 7	DEEKSHAN A
17	U18CM22C001 8	RAKSHITHA B
18	U18CM22C001 9	AKASH B R
19	U18CM22C002 0	LIKHITH K N
20	U18CM22C002 1	BHOOMIKA BATNI
21	U18CM22C002 2	CHANDRA K
22	U18CM22C002 3	TEJAS K A
23	U18CM22C002 4	YOGANANDAN G
24	U18CM22C002 5	G NAVYA



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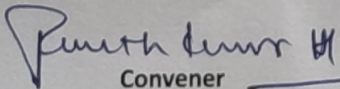
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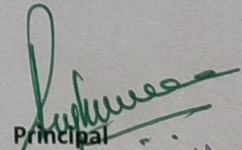
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2022-23

Activity based learning report

Topic	Ted Talk
Date	20 th September 2022
Day	Friday
Convener	Mr. Punith Kumar H S
Total No. of Participants	30
Target Class/ Course	1 st Sem B. Com Data Analytics
Highlights of the Event	<ul style="list-style-type: none">• The Platform been provided to students talk about Journey of 18 Years• The student named Nithin and Meghana came up by taking initiative to discuss about their journey of 18 years of life, their friends, relatives parents, their challenges, Their learnings in front of their classmates


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2	U18CM22C000 3	KUSHAL R
3	U18CM22C000 4	HAFEEZA B
4	U18CM22C000 5	PRIYANKA
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22	U18CM22C002 3	TEJAS K A
23	U18CM22C002 4	YOGANANDAN G
24	U18CM22C002 5	G NAVYA

25	U18CM22C002 6	CHETAN B
26	U18CM22C002 7	ANUSHA S
27	U18CM22C002 8	VARUN KUMAR A
28	U18CM22C002 9	S NITHIN
29	U18CM22C023 2	MADESH GOWDA R
30		YASHASWINI



Radhika
PRINCIPAL
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Bangalore-560 089



**DR. N.S.A.M
FIRST GRADE COLLEGE**
(Affiliated to Bengaluru City University)

Dr. N.S.A.M FIRST GRADE COLLEGE

Krishnarajapura Village, Bengaluru – 560089.

In Association with
DEPARTMENT OF COMPUTER APPLICATIONS

BCA forum – “TECHNOSAPIENS” Presents

“Coding & Decoding”



Date: 19/07/2023, Wednesday

Time: 01:30 PM to 03:30 PM

Venue: Shakuntala Devi Computer Lab

ALL ARE CORDIALLY INVITED



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BCA Forum 'Technosapiens'
Circular

Date:

17th July, 2023

Circular No.

05

Content of the Circular

This is to inform all the 1st Year students of BCA of Dr. N.S.A.M First Grade College that **BCA Forum "Technosapiens"** is conducting Coding and Decoding competition on **19th July, 2023 at 01:30 PM in Shakuntala Devi Computer Lab 2nd floor.**

The teachers accompanying are:

1. Mr. Naveen Kumar
2. Mr. Mohan S.T

Student Coordinators: 1. Keerthana 2. Vignesh

If any queries contact Mr. Mohan S.T, Convener

Convener

Principal
17/07/23



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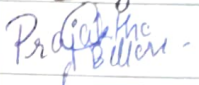


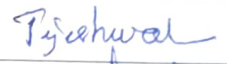

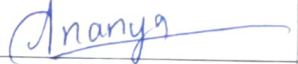





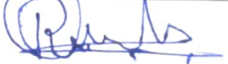




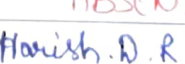



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BCA Forum 'Technosapiens' Registration form

Name of the Event	Coding and Debugging				
Date	19/05/23	Day	Wednesday	Timings	1:55PM
				Venue	Computer lab.
Name of the Jury Member	Naveen Kumar				

Sl No	Name of the Participant	Signature
1	MOHITH S	Mohith S.
2	DRUPAD U	Drupad
3	SUJAY U	Sujay U.
4	ABHISHEK NAYAK	Abhishek
5	DEVIKA M N	Devika
6	SHALINI N	Shalini
7	KEERTHANA R	Keerthana
8	BHARATH B	Bharath
9	KARTHIK B	Karthik B.
10	MEGHANA A	Meghana A.
11	SOWMYA S B	ABSENT

12	SHASHANK R	
13	HARI KRISHNA M	
14	DIVYASHREE V	
15	PRAJAKTHA C BELLARE	
16	JENIFER A	
17	BHAVAN M	
18	MACHANI TEJESHWAR	
19	B A NANDINI	
20	ANANYA BIJU	
21	THARUN KUMAR R	
22	VIGNESH K	
23	SAI CHANDANA K M	
24	SREESHA N	
25	SUPREETHA S	
26	RICHITHA S	
27	DHANUJA SANTHOSH	
28	NANDAN P	
29	ZAHID AHMED	
30	PRIYA S	
31	HARISH D R	
32	NISHA A	
33	HARSHITHA S	
34	GANGOTHRI S	

-ABSENT

35	V SHRIKANT	
36	BHARATH KUMAR RAJU Y N	- ABSENT
37	MAHENDRA DAS	- ABSENT
38	NAMIT S	
39	SHAHID AFRID	- ABSENT
40	TEJAS V	



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BCA Forum 'Technosapiens' Judgement Sheet

Name of the Event	Coding and Debugging						
Date	19/7/23	Day	Wednesday	Timings	1:45PM	Venue	Computer Lab
Name of the Jury Member	Naveen Kumar.						

Sl No	Name of the Participant	Class and Section	Criteria			Total
1	Keerthana R	BCA	03			18
2	Bhavan m	BCA	03			
3	Sujay.v	BCA	04			
4	Shankar	BCA	05			
5	Meghana	BCA	03			
6	Namith	BCA	04			13
7	Bharath B	BCA	03			
8	Karthik	BCA	03			
9	Supretha S	BCA	03			
10						

11	V. Shriparithi	BCA	03			}	
12	Dhanuja	BCA	05				[8]
13							
14							
15							

16	Nondan.P	BCA	02			}	
17	Sreelasha.N	BCA	03				
18	Richidha	BCA	03				[13]
19	Ananya	BCA	03				
20	Harish	BCA	02				

21	Mohith S	BCA	03			}	
22	Jamifber	BCA	03				
23	Shelini	BCA	05				[15]
24	Devika	BCA	04				
25							

26	Vignesh.k	BCA	04			}	
27	Nandini	BCA	05				
28	Abhishek	BCA	02				
29	Tejeshwar	BCA	04				[18]
30	Divya shree	BCA	03				

31	Nisha. A	BCA	03			}
32	Harshitha	BCA	04			
33	Tejas. V	BCA	02			
34	Zahid	BCA	02			
35						
36	Prajaktha. C	BCA	04			}
37	Harikrishna. M	BCA	03			
38	Iharunkumar. R	BCA	03			
39	Sai Chandana	BCA	04			
40	Drupad. U	BCA	04			

11

18

•Compiling P1.C:

Error P1.C 9: Declaration syntax error
Error P1.C 13: Undefined symbol 'PI'
Error P1.C 14: Undefined symbol 'circum'
Warning P1.C 18: Code has no effect
Error P1.C 18: Statement missing ;
Error P1.C 18: Compound statement missing }

Compiling P2.C:

•Error P2.C 3: Bad file name format in include directive
Error P2.C 4: Invalid macro argument separator
Error P2.C 8: Declaration syntax error
Error P2.C 12: Function call missing)
Error P2.C 13: Undefined symbol 'L2'

Compiling P18.C:

•Error P18.C 9: Undefined symbol 'n1'
Error P18.C 9: Undefined symbol 'n2'
Error P18.C 13: Undefined symbol 'swapping'
Error P18.C 14: Undefined symbol 'tep'
Warning P18.C 15: Nonportable pointer conversion
Error P18.C 16: Invalid indirection
Warning P18.C 19: 'ptr1' is assigned a value that is never used



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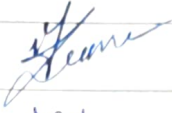

2022-23

BCA Forum 'Technosapiens' Winners List

Name of the Event	CODING & DECODING					
Date	Day	19-07-2023	Timings	1:30PM 3:30PM	Venue	SHAKUNTALA DEVI COMPUTER LAB 2 ND FLOOR
Members in the	PROF. NAVEEN KUMAR					
Jury Panel	PROF. MOHAN S T					

Sl No	Name of the Participant	Class and Section	Place secured
TEAM 01	KEERTHANA R	II B.C.A	I PRIZE
	BHAVAN M	II B.C.A	
	SUJAY	II B.C.A	
	MEGHANA	II B.C.A	
	SHASHANK	II B.C.A	
TEAM 02	PRAJAKTHA C BELLARE	II B.C.A	II PRIZE
	HARI KRISHNA	II B.C.A	
	SAI CHANDANA	II B.C.A	
	DRUPAD U	II B.C.A	
	THARUN KUMAR R	II B.C.A	

TEAM 03	VIGNESH	II B.C.A	III PRIZE
	NANDINI	II B.C.A	
	ABHISHEK NAIK	II B.C.A	
	TEJESHWAR	II B.C.A	

Name of the Jury Member	Signature of the Jury Member	Date
PROF. NAVEEN KUMAR		19/07/23
PROF. MOHAN S T		19/07/2023



Event Coordinator/ Convener



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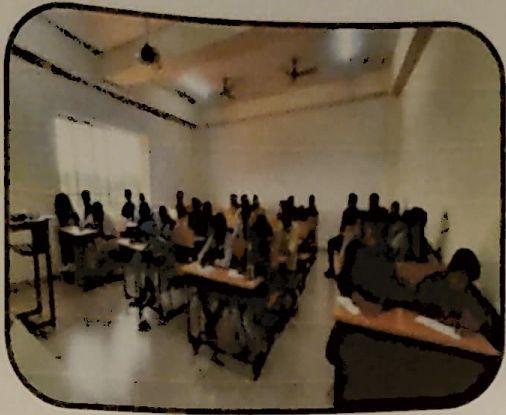
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2022-23

**BCA Forum 'Technosapiens'
Report of the Event**

Name of the Event	CODING AND DECODING
Date	19 - JULY - 2023
Day	Wednesday
Members in Jury	PROF.NAVEEN KUMAR
	PROF. MOHAN S T
Total No. of Participants	34
Target Class/ Course	BCA
Highlights of the Event	<p>All the Students actively participated in the event. The event is conducted in two rounds, they are Writing a code for the given questions and in the next round it is informed the students to identify the errors in the given code. It helped the Students to improve their programming skills and implement their own code.</p> <p>This event was conducted by forming teams among the students. It helps the students to get a platform to enhance their knowledge in program also creates interest among them to learn new programming languages.</p>
Suggestions for Improvement (If any)	<p>Judges suggested to conduct the event as inter class competition with including programming languages that comes under University Syllabus.</p>



MBC

Event Coordinator/Convener

Shivwase
Principal



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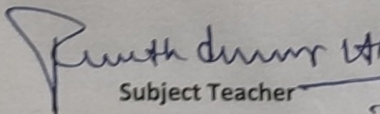
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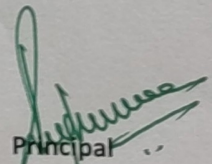
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2022-23

Report on Online Quiz

Topic	Digital Fluency
Date	2nd March 2023
Members Accompanied the students	Mr. Punith Kumar H S
Total No. of Participants	22
Target Class/ Course	1st Sem B. Com A Section
Highlights of the Event	<ul style="list-style-type: none">• An online quiz been organized based on the subject• Students by using their smart phone played the quiz• Total 15 questions are been created using the application.• The students enjoyed and learnt the concept through Quiz mode.


Subject Teacher

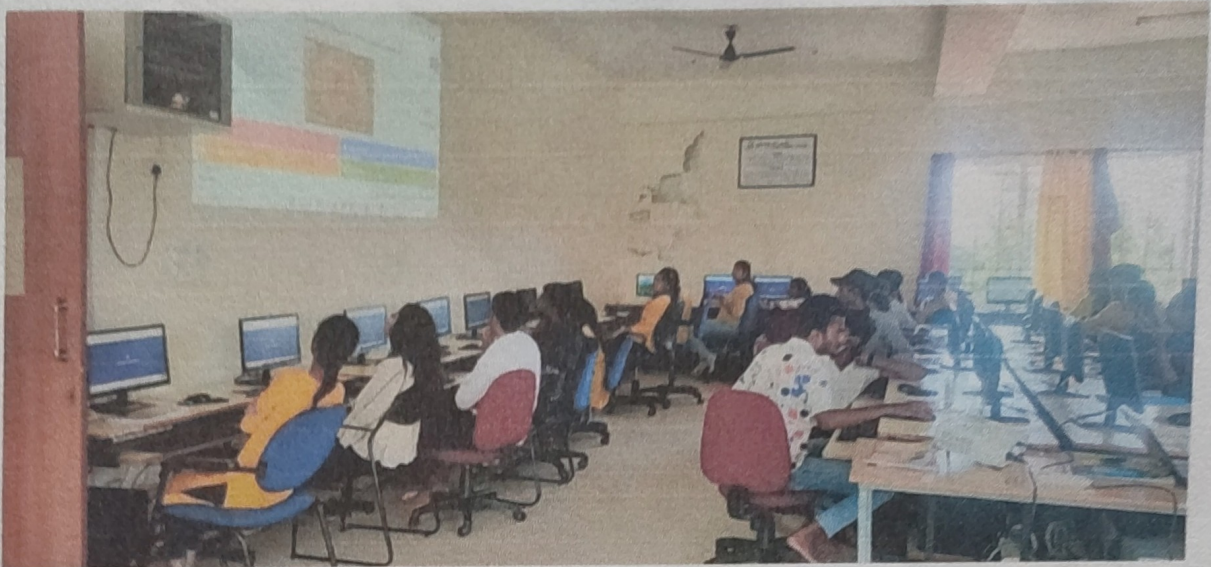

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Digital Fluency Part 1

Students list & their Final Scores

Rank	Player	Total Score (points)	Correct Answers	Incorrect Answers
1	Mythri, Manya	10012	12	3
2	Vandana Gagana	8552	10	5
3	YASHU□	8132	10	5
4	Nisha payal	8125	9	6
5	Koushik , Shara	7716	9	6
6	Palani, Rakesh	7560	9	6
7	Koushi darshi	6854	8	7
8	Raksha,kavya	6638	8	7
9	Chandana, vaish	6514	8	7
10	Anvi Ammu	6411	7	8
11	Usha Bhavya	6114	7	8
12	Chandan varun	5994	7	8
13	Akash,tejas	5985	8	7
14	Darshan kv	4481	6	9
15	Pavan jeevan	4306	6	9
16	Akash	0	0	15
17	Akash yashwanth	0	0	15
18	Chandana. M	0	0	15
19	Koushi darshi	0	0	15
20	Pavan and jeeva	0	0	15
21	Tejas	0	0	15
22	Vaishu chandu	0	0	15



[Handwritten Signature]
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Digital Fluency Part 1

Played on	2 Mar 2023
Hosted by	Mr Punith Kumar HS
Played with	22 players

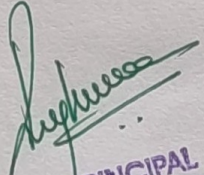
Overall Performance

Total correct answers (%)	37.58%
Total incorrect answers (%)	62.42%
Average score (points)	4699.73 points

Feedback

Number of responses	22		
How fun was it? (out of 5)	4.00 out of 5		
Did you learn something?	90.00% Yes	10.00% No	
Do you recommend it?	97.00% Yes	3.00% No	
How do you feel?	<input checked="" type="radio"/> 85.00% Positive	<input checked="" type="radio"/> 10.00% Neutral	<input checked="" type="radio"/> 5.00% Negative

Switch tabs/pages to view other result breakdown


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Financial Management

Time : 2 hour

Marks : 60

I. Answer any five of the following

1. What is the profit maximisation

Profit maximisation is also called as a Earning per share maximisation it leads to maximise the business operation for profit maximisation

2. State any two importance of a financial management

financial planning

proper use of funds

3. What is discounting

the inverse of the compounding process is discounting technique the process of determining the present value of a future cash flow is called discounting

4. What is payback period

Payback period The time required to recover the initial investment in a project

5. What is the cost of debt

cost of debt is after tax cost of long term funds through borrowings

6. What is working capital management policy

working capital management formulates policies to manage and handle efficiently for that purpose the management established three policies based on the relationship between sales and working capital

II. Answer any four of the following

1. What are the factors affecting capital structure

cost of capital

degree of capital

government policies

trading on equity

degree of control

choice of investors

capital market condition.

Financing cost

financing stability of sales

flexibility of financial plan

size of a company

2. Vikas Receives 3000 after ten years at discounted rate of 10% per annum find out the present value

Present Value = Future Value

$(1+i)^n$

= 3,000

$(1+0.1)^{10}$

32. MNO Company has a Equity share of Rs. 5,00,000 it decided to Rise its capital of Rs 1,00,000 by the following

- A) Rs 30,000 5% Preference Share remaining in Equity share
- B) All in Equity share
- C) All in 20% Debenture
- D) Rs 40,000 in Equity share Remaining in 10% Preference Share
- EBIT 1,00,000 with tax bracket 30% Calculate EPS and Comment

Calculation Of EPS

Particulars	I	II	III	IV
EBIT	1,00,000	1,00,000	1,00,000	1,00,000
- Interest	-	-	20,000	-
EBT	1,00,000	1,00,000	80,000	1,00,000
- Tax	30,000	30,000	24,000	30,000
	70,000	70,000	56,000	70,000
- Dividend	15,000	-	-	1500
No of share	55,000	70,000	56,000	68,500
EPS	5700	6000	5000	5400
	9.6	11.66	11.2	12.68

Case Study

Calculation of NPV

Calculation of EPS

Calculation of Working Capital

Which project is preferable at calculation of NPV problem

Ans : Identifying NPV The higher NPV is suitable

Which Plan is preferable in EPS calculation

Ans :- After calculation Highest EPS is suitable to select plan

$$= 3,000$$

$$2.5937$$

$$= 1157$$

3. Vikas makes deposit of Rs 20,000 in a bank which pays 10% interest compounded annually for 10 years you are required to calculate the future value

$$\text{Future Value} = \text{Present Value} (1+i)^n$$

$$= 20,000 (1+0.1)^{10}$$

$$= 20,000 (1.1)^{10}$$

$$= 20,000 (2.5937)$$

$$= 51874$$

4. A company have the following information in its books of account using the information calculate weighted average cost of capital

Equity share	Rs 10,00,000	5%
Preference share	Rs 5,00,000	10%
Debenture	Rs 2,00,000	4%
Retained Earning	Rs 4,00,000	6%

Source of fund	Capital	Cost	Weighted cost
Equity share	10,00,000	5%	50,000
Preference share	5,00,000	10%	50,000
Debenture	2,00,000	4%	8,000
Retained Earnings	4,00,000	6%	24,000
	<u>21,00,000</u>		<u>1,32,000</u>

$$\text{WACC} = \frac{\text{Total weighted cost}}{\text{total weight of capital}} * 100$$

$$= \frac{1,32,000}{21,00,000} * 100$$

$$= 6.28$$

5. Akshay receives Rs 3000 after 4 years at 6% quarterly interest rate find out present value

Present Value = Future Value

$$(1+i)^{n \cdot m} = 3,000$$

$$(1+0.015)^{4 \cdot 4} = 3,000$$

$$(1.015)^8 = 3,000$$
$$1.1264 = 2663$$

Sl. No	Name of the faculty
1	Dr. R. Shp
2.	Dr.
3	

Answer any three of the following

- 1. What are the objectives of a financial management**
 - ensure adequate and regular supply of funds to the business
 - provide a fair rate of return to the suppliers of capital
 - ensure efficient utilisation of capital according to the principles of profitability
 - devise a defined system for internal investment and finance
 - minimise cost of capital by developing a economical combination of corporate securities
 - coordinate the activities of the finance department with the activities of other department of the
- 2. Explain the important significance of capital budgeting**
 - calculation of a future cash flows
 - helps in the long term goals of the organisation
 - control of expenditure
 - helps in permanent decision making
 - wealth maximisation
 - flow of inflation within the department
 - protection to the large funds involved
 - protection against funds risk
 - new opportunities in the market
 - understanding the complications of the project
- 3. MNO Company has a Equity share of Rs 5,00,000 it decided to Rise its capital of Rs 1,00,000 by the following**
 - A) Rs 30,000 5% Preference Share remaining in Equity share
 - B) All in Equity share
 - C) All in 20% Debenture
 - D) Rs 40,000 in Equity share Remaining in 10% Preference Share

AT 1,00,000 with tax bracket 30% Calculate EPS and Comment

Calculation Of EPS

Particulars	I	II	III	IV
-BIT	1,00,000	1,00,000	1,00,000	1,00,000
- Interest	-	-	20,000	-
EBT	1,00,000	1,00,000	80,000	1,00,000
- Tax	30,000	30,000	24,000	30,000
	70,000	70,000	56,000	70,000
- Dividend	15,000	-	-	1500
No of share	55,000	70,000	56,000	68,500
EPS	5700	6000	5000	5400
	9.6	11.66	11.2	12.68

Compulsory Question (CASE STUDY)

4. A Performa cost sheet of a company provides the following particulars
 estimated costs
 material 35%
 direct labour 25%
 overhead 20%

Other details are as below

It is maintained that level of activity 2,50,000 units

selling price ₹10 per unit

raw material are to remain in store and average period of one month

Finished goods are required to be in stock for an average period of a month

credit allowed to debtors three months

credit allowed by suppliers two months

you are required to prepare statement showing working capital requirements

Calculation of Working Capital

Particulars	Rs
Current Assets	72917
Raw Material (2,50,000*10*35/100*1/12)	
Work In Progress (2,50,000*10*80/100*0.5/12)	83,333
Finished Goods (2,50,000*10*80/100*1/12)	1,66,667

Debtors ($2,50,000 \times 10 \times 80 / 100 \times 3 / 12$)	5,00,000
Current Liability Creditors ($2,50,000 \times 10 \times 35 / 100 \times 2 / 12$)	1,45,833
	6,77,084

Financial Management

Time : 2 hour

Marks : 60

I. Answer any five of the following

1. What is financial management

Financial management is an integral part of overall management it is concerned with the duties of the financial managers in the business firm it deals with procurement of funds and their effective utilisation in the business

2. State any two importance of a financial management

financial planning
proper use of funds

3. What is multiple cash inflow

multiple cash inflow are the series of cash flows may be annuities or mixed streams of cash inflows which are generated from the project over the entire life of the asset

4. State any two reasons of time value of money

risk and uncertainty
inflation

5. What is the capital structure

capital structure is a specified combination of debt and equity of a company required to fund its overall growth and operations

6. What is the cost of capital

cost of capital is the rate of return that a firm must earn on its project investments to maintain its market value and attract funds

II. Answer any four of the following

1. What are the importance of a financial management

financial planning
acquisition of funds
proper use of funds
financial decision
improve profitability

increase the value of the firm
 promoting savings
What are the source of capital financing
 equity financing
 internal or external funds
 short term internal sources
 personal funds
 family and friends
 alternative banks

3. Naveen deposits 12,000 in a bank which pays 12% interest quarterly for 2 year you are required to calculate the future value

$$\begin{aligned}
 \text{Future Value} &= \text{Present Value} (1+i)^{n \times m} \\
 &= 12,000 (1+0.03)^{2 \times 4} \\
 &= 12,000 (1.03)^{2 \times 4} \\
 &= 12,000 (1.03)^8 \\
 &= 12,000(1.2667) \\
 &= 15200
 \end{aligned}$$

4. Certain requires an initial cash outflow of rupees 25,000 the cash inflows for six years are Rs 5000 8000 10,000 12,000 7000 3000 calculate the payback period

Year	Cash inflow	Cumulative Cash inflow
1	5,000	5,000
2	8,000	13,000
3	10,000	23,000
4	12,000	35,000
5	7,000	42,000
6	3,000	45,000

The above calculation shows in first three year 23,000 The balance of 2,000 will be collected $(2,000/12,000 \times 12)$ 2 months
 Pay back period 3 year 2 months

5. A company issues 10,000 equity shares of 100 each at a premium of 10% the company has been paying 20% dividend to equity shareholders for the past five years calculate cost of equity capital

$$\begin{aligned}
 K_e &= \frac{D}{FV} \times 100 \\
 &= \frac{20}{110} \times 100 = 18.18
 \end{aligned}$$

D= dividend 20
 FV= Face Value=100 each+ 10 Premium

- A) all in equity shares of Rs 100 each
 B) Rs 5,00,000 in 10% Debenture and remaining in equity share
 C) Rs 8,00,000 in 10% Preference share remaining in cash
 D) Rs 3,00,000 in 5% Debenture and Rs 4,00,000 10% Preference share remaining in equity share
 The company expected EBIT of Rs 3,00,000 Tax charges 20%
 Calculate EPS and Comment

Calculation Of EPS

Particulars	I	II	III	IV
EBIT	3,00,000	3,00,000	3,00,000	3,00,000
- Interest	-	50,000	-	15,000
EBT	3,00,000	2,50,000	3,00,000	2,85,000
- Tax	60,000	50,000	60,000	57,000
EAT	2,40,000	2,00,000	2,40,000	2,28,000
Dividend	-	-	80,000	40,000
	2,40,000	2,00,000	1,60,000	1,88,000
No of equity share	10000	5000	2000	3000
EPS = Net Profit/No of Equity share	24	40	80	62.66


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BUSINESS STATISTICS.

Sonu T.M
Sem 1st

CHAPTER-4.

MEASURES OF CENTRAL TENDENCY

[WORK SHEET]

Section - A

1) find mode if $AM = 38.2$, median = 41.6 .

$$\begin{aligned} \text{A: mode} &= 3 \text{ median} - 2 \text{ mean} \\ &= 3(41.6) - 2(38.2) \\ &= 124.8 - 76.4 \end{aligned}$$

$$\text{mode} = 48.4$$

2) Define the term mode.

A: According to A.M. title, "mode is the value which has the greatest frequency density in its immediate neighborhood."

3. If $Z = 38.82$ and $m = 40$ find \bar{x}

$$\text{mode} = 3 \text{ median} - 2 \text{ mean}$$

$$38.82 = 3(40) - 2(\bar{x})$$

$$38.82 = 120 - 2\bar{x}$$

$$2\bar{x} = 120 - 38.82$$

$$2\bar{x} = 81.18$$

$$\bar{x} = \frac{81.18}{2}$$

$$\bar{x} = 40.59$$

4 find median, if $\sum Am = 12$ and $Z = 13$.

sol: mode = 3 median - 2 mean.

$$13 = 3(\text{median}) - 2(12).$$

$$13 = 3 \text{ median} - 24.$$

$$3 \text{ median} = 13 + 24.$$

$$3 \text{ median} = 11$$

$$\text{median} = \frac{11}{3}$$

$$\text{median} = 3.6$$

5] If $\bar{x} = 12$, $Z = 13$ find median.

sol: mode = 3 median - 2 mean

$$13 = 3(\text{median}) - 2(12).$$

$$13 = 3 \text{ median} - 24$$

$$3 \text{ median} = 13 + 24$$

$$3 \text{ median} = 11$$

$$\text{median} = \frac{11}{3}$$

$$\text{median} = 3.6$$

6] If $m = 42$, $Z = 40$ find \bar{x}

sol: mode = 3 median - 2 mean

$$40 = 3(42) - 2 \text{ mean}$$

$$40 = 126 - 2 \text{ mean}.$$

$$2 \text{ mean} = 126 - 40$$

$$2 \text{ mean} = 86$$

$$\text{mean} = \frac{86}{2}$$

$$\text{mean} = 43$$

Section - B.

(3)

1. Calculate the median from the following data.

Size.	8	10	12	14	16	18	20
frequency	3	7	12	28	10	9	6

Ans Calculation of median.

x	f	cf
8	3	3
10	7	10
12	12	22
14	28	50
16	10	60
18	9	69
20	6	75

$\Sigma f = 75$

Median is the size of $\left(\frac{N+1}{2}\right)^{th}$ item.

$\left(\frac{75+1}{2}\right)^{th}$ item.

$\left(\frac{76}{2}\right)^{th}$ item.

38^{th} item lies in 50 and its corresponding.

value of x is 14

Median = 14

2) Calculate Arithmetic mean.

marks	0-10	10-20	30-60	60-100
Students	7	13	22	8

Calculation of A.M

C.I	f	$\sum fx$
0-10	7	35
10-20	13	260
30-60	22	990
60-100	8	640

$N = 50$

$\sum fx = 1925$

$\bar{x} = \frac{\sum fx}{\sum f} = \frac{1925}{50} = 38.5$

3) Calculate median from the following series.

C.I	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39
f	5	13	23	35	26	18	15	8

Calculation of median.

C.I	f	Cf
0-4	5	5
5-9	13	18
10-14	23	41
15-19	35	76
20-24	26	108
25-29	18	120
30-34	15	135
35-39	8	143

$N = 143$

Median is the size of $\frac{N}{2}$ item

$\frac{143}{2} = 71.5$ item

71.5th item lies in 76 and its corresponding median class is 15-19

Median = $L + \left(\frac{\frac{N}{2} - Cf}{f} \right) \times i$

$= 14.5 + \left(\frac{71.5 - 41}{35} \right) \times 5$

$= 14.5 + \left(\frac{30.5 \times 5}{35} \right)$

$$= 14.5 + \left(\frac{152.5}{35} \right)$$

$$= 14.5 + 4.35$$

$$\text{median} = 18.85$$

Calculate arithmetic mean from the following distribution.

marks	10-20	20-30	30-40	40-50	50-60	60-70
no. of students	5	11	18	12	8	4

Calculation of arithmetic mean.

C.I	f	m _x	fx
0-20	5	15	75
20-30	11	25	275
30-40	18	35	630
40-50	12	45	540
50-60	8	55	440
60-70	4	65	260
	$\Sigma f = 58$		$\Sigma fx = 2220$

$$\bar{X} = \frac{\Sigma fx}{\Sigma f} = \frac{2220}{58} = 38.2258$$

Compute mean wages of workers from the following data.

wages (₹)	48-56	56-64	64-72	72-80	80-88	88-96	96-100
no. of workers	8	3	11	14	5	7	2

Calculate of mean wages of workers.

C.I	f	m _x	fx
48-56	8	52	416
56-64	3	60	180
64-72	11	68	748

72-80	14	76	1084
80-88	5	84	420
88-96	7	92	644
96-100	2	98	196

$\Sigma f = 30$
 $\bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{2668}{30} = 88.93$

6] calculate mode from the following data.

x	0-9	10-19	20-29	30-39	40-49	50-59	60-69
f	720	720	664	598	524	378	244

Ans

C.I	f
0-9	678
10-19	720
20-29	664
30-39	598
40-49	524
50-59	378
60-69	244

$$Z = d + \left[\frac{b_1 - f_0}{2f_1 - f_0 - b_2} \right] x_1$$

$$Z = 9.5 + \left[\frac{664 - 598}{2(664) - 720 - 598} \right] \times 9$$

$$= 9.5 + \left[\frac{66}{1328 - 720 - 548} \right] \times 9$$

$$= 9.5 + \left[\frac{66}{10} \right] \times 9$$

$$= 9.5 + (6.6) \times 9$$

$$= 9.5 + 59.4$$

$$Z = 68.9$$

- f₀ = 720.
- b₁ = 664
- b₂ = 598
- f = 9.5
- f = 9.

SECTION - C.

(7)

1. Calculate mean, median and mode from the following data.

Distribution
(in terms)

No. of employees

2000-400	400-600	600-800	800-1000	1000-1800
6	9	11	14	20
1200-1400	1400-1600	1600-1800	1800-2000	
15	10	8	7	

C.I	f	xc	fx	cf
2000-400	6	300	1800	6
400-600	9	500	4500	15
600-800	11	700	7700	26
800-1000	14	900	12600	40
1000-1200	20	1100	22000	60
1200-1400	15	1300	19500	75
1400-1600	10	1500	15000	85
1600-1800	8	1700	13600	93
1800-2000	7	1900	13300	100
	$\Sigma f = 100$		$\Sigma fx = 110000$	

$$\bar{x} = \frac{\Sigma fx}{N} = \frac{110000}{100} = 1100$$

n is the size of $\frac{n}{2}$ item

$$= \frac{100}{2} \text{ item}$$

$$= 50^{\text{th}} \text{ item}$$

50th item lies in 60th if and its corresponding median class is

$$i = 200$$

$$1000 - 1200$$

$$m = L + \left(\frac{\frac{N}{2} - cf}{f} \right) \times i$$

$$= 1000 + \left(\frac{50 - 40}{20} \right) \times 200$$

$$= 1000 + \left(\frac{10 \times 200}{20} \right)$$

$$= 1000 + \frac{2000}{10}$$

$$m = 1000 + 200 = 1200$$

Median class = 1000 - 1200

$$z = L + \left(\frac{\frac{N}{2} - f_0}{f_1 - f_0 - f_2} \right) \times i$$

$$= 1000 + \left(\frac{20 - 14}{20 - 14 - 15} \right) \times 200$$

$$= 1000 + \left(\frac{6 \times 200}{40 - 29} \right)$$

$$= 1000 + \frac{1200}{11}$$

$$= 1000 + 109.09$$

$$\approx 1109.09$$

2. Calculate median from the following data.

Marks.	50	40	30	20	10
Frequency.	10	40	20	12	16

DL	f	CF	f ₂
10	16	16	160
20	12	28	240
30	26	48	600
40	40	88	1600
50	10	98	500

N = 98, $\Sigma f x = 3100$

mean $\bar{x} = \frac{\Sigma f x}{N} = \frac{3100}{98} = 31.6326$

median = $(\frac{N+1}{2})^{th}$ item.

$(\frac{98+1}{2})^{th}$ item
 = 49.5th item.

49.5th item lies in 88 cf and its corresponding value of DL is 40 median = 40.

mode - The corresponding 'x' value of the highest frequency. as the highest frequency is 40, the corresponding value of x is 40 mode is 40.

3) calculate median and mode of the following data -

x less than	10	20	30	40	50	60	70	80
frequency	4	16	40	70	96	112	110	123

C.I	f	C.f	X
0-10	4	4	5
10-20	12	16	15
20-30	24	40	25
30-40	36	76	35
40-50	20	96	45
50-60	10	112	55
60-70	8	120	65
70-80	5	125	75
	125		

median is the size of $\frac{N}{2}$ item

$\frac{125}{2}$
62.5th item.

62.5th item lies in 76.7 and its corresponding median class is

30-40 $i=10$

$$m = 2 + \left(\frac{\frac{N}{2} - C.f}{f} \right) \times i$$

$$= 30 + \left(\frac{62.5 - 40}{36} \right) \times 10$$

mode:

median class = 30-40

$$= L + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) \times i$$

$$= 30 + \left(\frac{35 - 25}{2(35) - 25 - 45} \right) \times 10$$

$$= 30 + \left(\frac{22.5}{36} \right) \times 10$$

$$= 30 + \left(\frac{22.5 \times 10}{36} \right)$$

$$= 30 + \left(\frac{10}{70 - 25 - 45} \right) \times 10$$

$$= 30 + \left(\frac{22.5}{36} \right)$$

$$= 30 + \left(\frac{10}{50} \right) \times 10$$

$$= 30 + 6.25$$

$$= 30 + \left(\frac{10 \times 10}{50} \right)$$

$$= 36.25 \text{ is median.}$$

$$= 30 + \left(\frac{100}{50} \right)$$

$$= 30 + 2$$

= 32 is mode.

find mean, median and mode from the following data.

Bin	4-7	8-11	12-15	16-19	20-23	24-27	28-31	32-35	36-39
No. of comp	6	10	18	30	15	12	10	6	2

C.I	F	$\sum fx$	$\sum cf$
4-7	6	5.5	33
8-11	10	9.5	95
12-15	18	12.5	243
16-19	30	17.5	525
20-23	15	21.5	322.5
24-27	12	25.5	306
28-31	10	29.5	295
32-35	6	33.5	201
36-39	2	37.5	75
	109		2095.5

mean -

$$\bar{X} = \frac{\sum fx}{n} = \frac{2095.5}{109} = 19.22$$

median

$n/2$ is the size of $(\frac{109}{2})^{th}$ item

size of $(\frac{109}{2})^{th}$ item

54.5th item

its corresponding median class is 16-19

$$M = L + \frac{\left(\frac{n}{2} - cf\right)}{f} \times h$$

$$= 15.5 + \frac{(54.5 - 24)}{30} \times 4$$

The Highest frequency is 30 and its corresponding modal class is 16-19 = 15.5 - 19.5

$$Z = L + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) \times d$$

$$15.5 + \left(\frac{30 - 18}{2(30) - 18 - 15} \right) \times 4$$

$$15.5 + \left(\frac{12 \times 4}{60 + 33} \right)$$

$$= 15.5 + \left(\frac{48}{93} \right)$$

$$= 15.5 + 1.79$$

$$= 17.27$$

5. Calculation made and median from the following data:

X	0-10	10-20	20-30	30-50	50-70	70-100
f	5	10	17	40	62	60

X	f	m.v X	ff	cf
0-10	5	5	25	5
10-20	10	15	150	15
20-30	17	25	425	32
30-50	40	80	3200	72
50-70	62	125	7440	134
70-100	60	170	10200	194

median.

m is the size of $\left(\frac{n}{2}\right)^{th}$ item.

size of $\left(\frac{194}{2}\right)^{th}$ item.

97th item

97th item lies in 134 of and its corresponding method class is 50-70 =

$$m = L + \left(\frac{\frac{n}{2} - (f)}{f} \right) \times i$$

$$50 + \left(\frac{97 - 72}{62} \right) \times 2$$

$$50 + \left(\frac{25}{62} \right) \times 2$$

$$50 + \left(\frac{25 \times 2}{62} \right)$$

$$= 50 + 0.8064$$

$$= 50.8064$$

mode

$$z = L + \left(\frac{f_i - f_0}{2f_i - f_0 - f_c} \right) \times i$$

$$= 50 + \left(\frac{134 - 72}{2(134) - 72 - 194} \right) \times 2$$

$$= 50 + \left(\frac{62}{268 - 72 - 194} \right) \times 2$$

$$50 + \left(\frac{62}{2} \right) \times 2$$

$$50 + \left(\frac{62 \times 2}{2} \right)$$

$$50 + \left(\frac{124}{2} \right)$$

$$50 + 62$$

$$= 112$$

g) Calculate mean median and mode from the following data.

Central Size	10	15	20	25	30	35	40	45
frequency	10	25	40	50	25	17	8	5

9/3/23

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x	f	fx	cf
10	10	100	10
15	25	375	35
20	40	800	75
25	50	1250	125
30	25	750	150
35	17	595	167
40	8	320	175
45	5	225	180

$\Sigma x = 180$ $\Sigma fx = 4415$

mean -

$$\bar{x} = \frac{\Sigma fx}{\Sigma x} = \frac{4415}{180} = 24.5273$$

median -

n - is the size of $\left(\frac{n+1}{2}\right)^{th}$ item.

$$\left(\frac{180+1}{2}\right)^{th} \text{ item.}$$

$$\left(\frac{181}{2}\right)^{th} \text{ item.}$$

$$90.5^{th} \text{ item.}$$

9.5th item lies in 125 . CF and its corresponding value of x is 25 median = 25.

mode -

mode - The corresponding x value of highest frequency at the highest frequency is 50 the corresponding value of

x is 25

$$\text{mode} = 25 //$$