SOMAIYA
VIDYAVIHAR UNIVERSITY

Dr. Shantilal K. Somaiya School of Commerce and Business Studies

QUESTION PAPERS

BRANCH: Bachelor of Commerce (Data Analytics)	**SEM: III**
	NOV-2024

Sr. No.	Subject	Available
1.	131U76K301 – Statistical Techniques (A), (B)	
2.	231U760303 – Digital Marketing	
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

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VIDYAVIHAR UNIVERSITY

Semester (July 2024 to Oct. 2024)
Examination: End Semester Examination Nov. 2024 (UG Programmes)

Programme code: 77 **Programme: Bcom Data Science**	**Class:** SY	**Semester:** III
Name of the Constituent College: **S K Somaiya College**	**Name of the Department** Commerce	
Course Code: 131U76K301	**Name of the Course: Statistical Techniques**	
Duration : 2 Hrs.	**Maximum Marks : 60**	

Instructions: 1) Figures to the right indicate maximum marks. 2) Use of calculator is allowed. 3) Graph papers will be provided on request.

Question No.		**Max. Marks**	**Co Attainment**
Q.1	For following data find x when y=62 also find y when x=53	15	CO2

x	54	65	75	82	57	59	60	64	58	62
y	58	67	76	80	60	64	65	65	60	70

OR

Question No.		**Max. Marks**	**Co Attainment**
Q.1 a)	For following bivariate data find y when x=63 also find x when y=50 Mean value of x=65 Mean value of y=53 Standard deviation of x=4.7 Standard deviation of y=5.2 Coefficient of correlation=0.78	10	CO2
Q.1 b)	For the two regression lines 2x-3y+14=0 and 3x-y-42=0 find Mean values of x and y.	05	CO2
Q.2	Find Laspeyres, Paasches, Fishers and Dorbish-Bowley Index numbers for following data,	15	CO3

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	200	53	230	64
B	30	20	205	31
C	90	110	103	95
D	140	55	106	58
E	48	150	62	200

<table>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>Q.2 a)</td><td>Calculate 5 yearly moving averages and plot data graphically,
<table>
<tr><td>year</td><td>No. of units</td></tr>
<tr><td>1997</td><td>243</td></tr>
<tr><td>1998</td><td>251</td></tr>
<tr><td>1999</td><td>254</td></tr>
<tr><td>2000</td><td>256</td></tr>
<tr><td>2001</td><td>256</td></tr>
<tr><td>2002</td><td>245</td></tr>
<tr><td>2003</td><td>250</td></tr>
<tr><td>2004</td><td>254</td></tr>
<tr><td>2005</td><td>258</td></tr>
<tr><td>2006</td><td>260</td></tr>
</table></td><td>10</td><td>CO3</td></tr>
<tr><td>Q.2 b)</td><td>Find cost of living index number for following data
<table>
<tr><td>Commodity</td><td colspan="2">Price</td><td></td></tr>
<tr><td></td><td>2003</td><td>2004</td><td>weights</td></tr>
<tr><td>A</td><td>3</td><td>4</td><td>15</td></tr>
<tr><td>B</td><td>2</td><td>3</td><td>18</td></tr>
<tr><td>C</td><td>5</td><td>6</td><td>12</td></tr>
<tr><td>D</td><td>4</td><td>5</td><td>8</td></tr>
<tr><td>E</td><td>10</td><td>12</td><td>5</td></tr>
<tr><td>F</td><td>3</td><td>4</td><td>10</td></tr>
</table></td><td>05</td><td>CO3</td></tr>
<tr><td>Q.3</td><td>For a binomial variable x, n=8, P(x=2)= 16 P(x=6), determine the values of p and q also find,
a) P(x=4)
b) P(x<=3)
c) P(x>=5)
d) Mean
e) Variance</td><td>15</td><td>CO1</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>Q.3 a)</td><td>A committee of 5 persons is to be formed from a group of 8 boys and 7 girls. What is the probability that the committee consists of,
a) All boys
b) Exactly one girl
c) Atleast 2 boys
d) No boys</td><td>10</td><td>CO1</td></tr>
<tr><td>Q.3 b)</td><td>A box contains 5 red and 4 blue balls another box contains 4 red and 7 blue balls. A ball is selected at random from the box and without noting the colour put in the other. A ball is then drawn from the second box. What is the probability that it is blue.</td><td>05</td><td>CO1</td></tr>
<tr><td>Q.4)</td><td>Answer the following</td><td>15</td><td>CO1,2,3</td></tr>
<tr><td>1.</td><td>Define seasonal indices with example.</td><td></td><td></td></tr>
<tr><td>2.</td><td>Illustrate the word “mutually exclusive events” with example.</td><td></td><td></td></tr>
<tr><td>3.</td><td>Illustrate properties of Normal curve.</td><td></td><td></td></tr>
<tr><td>4.</td><td>Define sample space and sample points with example.</td><td></td><td></td></tr>
<tr><td>5.</td><td>Explain in brief various methods of constructing index number.</td><td></td><td></td></tr>
</table>

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B.com DS Sem III
Stat Tech.

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Semester (July 2024 to Oct. 2024)
Examination: End Semester Examination Nov. 2024 (UG Programmes)

Programme code: 77 **Programme: Bcom Data Science**	**Class:** SY	**Semester:** III
Name of the Constituent College: **S K Somaiya College**	**Name of the Department** Commerce	
Course Code: 131U76K301	**Name of the Course: Statistical Techniques**	
Duration : 2 Hrs.	**Maximum Marks : 60**	

Instructions: 1) Figures to the right indicate maximum marks. 2) Use of calculator is allowed. 3) Graph papers will be provided on request.

Question No.		Max. Marks	Co Attainment
Q.1	Find regression line for following data,	15	CO2

Y	10	12	11	14	12	10	13
X1	8	9	5	7	9	4	9
X2	8	7	9	3	8	5	6

OR

Q.1 a)	Regression equations of two series are 2x-y-15=0 and 3x-4y+25=0 find coefficient of correlation also find averages for x and y.	10	CO2
Q.1 b)	Estimate y when x=18 for following data,	05	CO2

x	9	5	11	15	10	13	16
y	11	8	14	20	13	15	22

Q.2	Calculate 4 yearly moving averages and plot data graphically also estimate 3 yearly moving averages for following data,	15	CO3

Year	Sales (in thousand units)
1998	60
1999	69
2000	81
2001	86
2002	78
2003	93
2004	102
2005	107
2006	100
2007	109

OR

Q.2 a)	Fit a straight-line trend using Least square method for the following data, also estimate trend value for the year 2008.	10	CO3

Year	2000	2001	2002	2003	2004
Assets	105	118	125	130	150

<table>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Q.2 b)</td><td>If cost of living index number = 278.75 find missing term,<table><tr><td>Commodity</td><td>Index number</td><td>Weights</td></tr><tr><td>Food</td><td>----</td><td>48</td></tr><tr><td>Fuel</td><td>220</td><td>12</td></tr><tr><td>Clothing</td><td>230</td><td>9</td></tr><tr><td>Rent</td><td>160</td><td>12</td></tr><tr><td>Miscellaneous</td><td>190</td><td>15</td></tr></table></td><td>05</td><td>CO3</td></tr>
<tr><td>Q.3</td><td>Assume a normal distribution with mean= 16 and standard deviation = 2.5,
a) What percentage of distribution is greater than 19?
b) What percentage of distribution is less than 14?
c) What percentage of distribution is between 12 and 17?
d) Estimate probability of distribution greater than 13
e) Estimate Probability of distribution between 11 and 15</td><td>15</td><td>CO1</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>Q.3 a)</td><td>From a well shuffled pack of cards two cards are drawn one after the other without replacement, find probability that:
a) The first card is king and the other is queen.
b) Both cards are of the same colour.
c) The first card is club and other is diamond.
d) Atleast one of them is king card.</td><td>10</td><td>CO1</td></tr>
<tr><td>Q.3 b)</td><td>A box contains 10 tickets numbered from 1 to 10, a ticket is drawn at random from the box, give probability distribution of x also find E(x) and V(x)</td><td>05</td><td>CO1</td></tr>
<tr><td>Q.4)</td><td>Answer the following</td><td>15</td><td>CO1,2, 3</td></tr>
<tr><td>1.</td><td>Define mutually exclusive and exhaustive events.</td><td></td><td></td></tr>
<tr><td>2.</td><td>Illustrate the word “Time series” with example.</td><td></td><td></td></tr>
<tr><td>3.</td><td>Write a note on types of Index numbers.</td><td></td><td></td></tr>
<tr><td>4.</td><td>Define probability with example.</td><td></td><td></td></tr>
<tr><td>5.</td><td>Describe the word “Conditional probability” with example.</td><td></td><td></td></tr>
</table>

B.Com DS
Sem III
Digi Mkt

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Semester (July 2024 to Oct. 2024)
Examination: End Semester Examination Nov. 2024 (UG Programmes)

Programme code: 01 **Programme: BCOM DS**	**Class:** SY	**Semester:** III
Name of the Constituent College: S K Somaiya college	**Name of the Department** Commerce	
Course Code: 231U760303	**Name of the Course: Digital marketing**	
Duration : 1Hr	**Maximum Marks : 20**	

Instructions: 1)Draw neat diagrams 2)Assume suitable data if necessary 3) Figures to right indicate full marks.

Question No.		**Max. Marks**	**Co Attainment**
Q.1	Pay-per-click (PPC) advertising is all around us. Whether you're conducting a Google search or scrolling through social media, there are PPC ads. Pay-per-click marketing is a form of digital advertising where businesses display ads on sites like Google (paid search) and Facebook (paid social) and only pay when someone clicks on the said ad. Google or Facebook charge a fee each time someone clicks on their ad. Because businesses only pay a fee (known as the cost-per-click or CPC) when a user clicks on their ad, it is regarded as a very cost-effective form of marketing that generally yields a good return on investment. Google Ads (*previously Google AdWords*) is the largest PPC platform in the World by some distance, and in our opinion it's the best. It's the default search engine used by 92% of the World across all devices, and on top of that, their display advertising network runs banner & video adverts across a mammoth swathe of the internet as well. This is why most advertisers prefer to start with Google Ads as their number 1 platform, because the sheer scope and scale of Google means that paid advertisers can reach pretty much their entire audience. • Ad Formats - Text, Video, Image, Email. They also have Performance Max which uses AI to cover all 4 of these! • Strengths - The biggest and most intelligent advertising platform in the World for a reason. Their ad technology is pretty incredible.	10	CO 1

- Weaknesses - Arguably not the best PPC advertising platform if your goal is to generate new demand, with other platforms like Instagram and TikTok providing a more engaging experience. Additionally, some of the Google reps can be annoying.
- Pricing - Google Ads cost around $3.67 per click on average, but varies massively depending on industry and ad type.

Google Ads provides robust advertising solutions for businesses in every industry, and different campaign types allow you to deliver ads that match the way people consume content in your market. Advanced targeting lets you reach people who are interested in what your business has to offer.

Optimize campaigns and drive on average two times higher conversion rates1 by ensuring that your current web campaigns, including your Search and Performance Max campaigns, direct traffic to your app with Web to App Connect, if a user has it installed. And then, with a holistic view into your data, you can do more to improve business strategy and serve your customers, including improve profitability, reduce customer service costs, increase average order value (AOV), and maintain highest possible customer sentiment. Merchant Center product feeds allow you to upload your product information and convert them into ads for your Shopping campaigns. Your product information also informs targeting, so your ads appear for people with those specific product interests, at exactly the time that they're looking for that information. Performance Max campaigns let you easily access all Google Ads inventory from a single campaign across YouTube, Display, Search, Discover, Gmail, and Maps.

With the help of Google AI and Smart Bidding, it helps you maximize performance and deliver results against the goals that matter most to you across Google's full range of channels, inventory, and formats.

Optimize campaigns and drive on average two times higher conversion rates1 by ensuring that your current web campaigns, including your Search and Performance Max campaigns, direct traffic to your app with Web to App Connect, if a user has it installed. And then, with a holistic view into your data, you can do more to improve business strategy and serve your customers, including improve profitability, reduce customer service costs, increase average order value (AOV), and maintain highest

	possible customer sentiment. Use business data feeds with Display campaigns to create dynamic remarketing ads— which include products or services that people have viewed on your website or app—customized for highest relevance. Video campaigns let you show video ads on their own or within other streaming video content on YouTube and across the Google Display Network. Performance Max campaigns let the businesses easily access all Google Ads inventory from a single campaign across You Tube, Display, Search, Discover, Gmail and Maps. Video sequencing: With video ad sequencing ads within Video campaigns, you can show a series of videos to tell stories about your educational institution or service. Performance Max campaigns let you easily access all Google Ads inventory from a single campaign across YouTube, Display, Search, Discover, Gmail, and Maps. Performance Max campaigns let you easily access all Google Ads inventory from a single campaign across YouTube, Display, Search, Discover, Gmail, and Maps. Hotel campaigns create dynamic ads that appear when a traveler searches for a hotel on Google Search, Google Maps, or the Google Assistant. Display campaigns show ads on the Google Display Network, so that you can reach people while they're browsing their favorite website, checking their Gmail account, using their mobile devices and apps, or viewing and sharing YouTube videos. Questions: [each carries 5 marks] 1. Describe various types of campaigns to be done on Google Ads and how they are helpful to the businesses. 2. Explain the advantages and disadvantages of pay per click advertising and its scope in future.		
Q.2	Coca-Cola, one of the world's most recognized brands, has successfully established itself in the B2C (business-to-consumer) marketing space through innovative strategies that emphasize brand loyalty, emotional connection, and consumer engagement. This case study explores	10	CO 2

Coca-Cola's B2C marketing strategies, notable campaigns, and their impact on consumer perception and sales.

Coca-Cola's marketing campaigns often focus on creating emotional connections with consumers. By associating its products with happiness, togetherness, and shared experiences, the brand builds a strong emotional bond with its audience. Coca-Cola employs a multi-channel approach, integrating traditional media (TV, print) with digital platforms (social media, websites) to ensure consistent messaging. Campaigns are designed to engage consumers across multiple touchpoints. Launched in several countries, **"Share a Coke"**campaign encouraged consumers to find bottles with their names on them, promoting personalization and encouraging sharing. This not only increased sales but also drove social media engagement as consumers shared photos of their personalized bottles. Coca-Cola's holiday-themed advertisements, such as the iconic Christmas trucks and Santa Claus, reinforce its association with festive celebrations and family gatherings. Coca-Cola actively engages consumers on social media platforms, using interactive content, contests, and user-generated content to foster community and brand loyalty. Their campaigns often invite consumers to share their experiences and stories related to Coca-Cola products. Coca-Cola has incorporated sustainability into its B2C marketing by promoting initiatives such as recycling and water conservation. Campaigns that highlight their commitment to the environment resonate with consumers, especially younger audiences who prioritize sustainability. Understanding regional preferences, Coca-Cola tailors its marketing strategies to resonate with local cultures and tastes. This includes adapting flavors and promotional strategies to align with local traditions and festivities.

Coca-Cola's focus on emotional connections and community engagement has resulted in a loyal customer base, leading to repeat purchases and sustained brand affinity. Campaigns like "Share a Coke" have led to significant spikes in sales and consumer interaction, demonstrating the effectiveness of personalized marketing strategies. Coca-Cola's engaging content and campaigns have bolstered its presence on social media, increasing brand visibility and consumer interaction. Initiatives promoting sustainability and community engagement have strengthened Coca-Cola's brand image, appealing to socially conscious consumers.

Coca-Cola's B2C marketing strategies showcase the power of emotional branding, integrated communication, and community engagement. By leveraging innovative campaigns and adapting to consumer preferences, Coca-Cola continues to maintain its position as a leader in the beverage industry.

Questions: [each carries 5 marks]

1. How does Coca-Cola's use of emotional branding in its marketing campaigns contribute to consumer loyalty and brand perception?
2. In what ways has Coca-Cola adapted its marketing strategies to incorporate digital engagement and sustainability, and how has this affected its overall brand image?