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SARDAR PATEL UNIVERSITY.
B.B.A(GEN) (SEM-III) EXAMINATION
Friday,8th January,2021
10.00 A.M. TO 12.00 P.M.
**UM03DBBA52 – Statistics For Management-I**

**Total Marks: 70**

*Note: All questions carry equal marks.*

*Attempt any four questions from the following.*

**Q:01** (a) Explain source of secondary data

(b) From the following two products decide which product is more stable, why ?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Product X | 15 | 19 | 12 | 30 | 25 | 22 | 31 |
| Product Y | 59 | 75 | 28 | 63 | 27 | 28 | 56 |

**Q:02** (a) Define (i) Variable (ii) Constants (iii) Primary data (iv) Secondary data

(b) Find $Q_1$, $Q_3$ and Z from the following data.

| x | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 | 60 – 70 | 70 – 80 |
|---|---|---|---|---|---|---|---|---|
| f | 5 | 9 | 8 | 11 | 13 | 10 | 3 | 1 |

**Q:03** (a) What is correlation ? Explain rank correlation co-efficient method of Spearman.

(b) Calculate correlation co-efficient from the following data.

| X | 500 | 600 | 700 | 800 | 900 |
|---|---|---|---|---|---|
| y | 1000 | 2000 | 3000 | 4000 | 5000 |

**Q:04** (a) Calculate Karl Pearson's correlation co-efficient from the following data.
$n = 10$, $\sum x = 200$, $\sum y = 225$, $\sum(x-10)^2 = 1100$, $\sum(y-15)^2 = 1200$,
$\sum(x-10)(y-15) = 850$.

(b) From the following data find Spearman's correlation co-efficient.

| X | 23 | 20 | 25 | 26 | 24 | 25 | 20 | 18 |
|---|---|---|---|---|---|---|---|---|
| y | 11 | 13 | 15 | 13 | 9 | 10 | 11 | 8 |

**Q:05** (a)Explain properties of regression co-efficient.

(b) Obtain equations of regression lines from the following data.
$n = 10$, $\sum x = 265$, $\sum y = 219$, $\sum(x-27)^2 = 115$, $\sum(y-22)^2 = 121$ and
$\sum(x-27)(y-22) = 88$

**Q:06** (a) Obtain two equations of regression lines for the following data and estimate the value of y when x = 140 and x when y = 100.

$n = 50$, $\sum x = 12000$, $\sum y = 9800$, $\sigma_x = 60$, $\sigma_y = 20$ and $r = 0.60$

(b) $8x - 10y + 66 = 0$ and $40x - 18y = 214$ are the two regression lines, variance of x is 9 then find $\bar{x}$, $\bar{y}$, r and $\sigma_y$.

**Q:07** (a) Explain components of time series.

(b) Fit a straight line to the following data and estimate the price for the year 2019.

| year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| price | 4 | 6 | 7 | 8 | 10 | 11 | 11 | 10 | 9 |

**Q:08** (a) For the following data compute seasonal indices by simple average method.

| year | Season | | |
|---|---|---|---|
| | I | II | III |
| 2015 | 21 | 30 | 15 |
| 2016 | 18 | 33 | 18 |
| 2017 | 30 | 27 | 21 |

(b) Find trend using 3 yearly and 5 yearly moving average methods for the following data.

| year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|
| Sale | 112 | 104 | 108 | 121 | 116 | 111 | 133 | 125 | 129 |
| year | 2014 | 2015 | | | | | | | |
| Sale | 139 | 131 | | | | | | | |