

Code No. : B-305(A)

Annual Examination - 2017

B.Com-I

BUSINESS MATHS

(GROUP-II)

Paper - II

BUSINESS MATHEMATICS

Max.Marks : 75

Min Marks : 25

Time : 3 Hrs.

ZaṭĀa-4. aṣyā ālaā j m oāāāāā šyā 2 wxē šyā j šyāwā- Auāk 920.25 Ūy. Nē ; āē yāōāē/ā Auāk 900 Ūy. Nēn oāāāāā mnā Auāk šyl. Āē Ōām šylāk¥ nī

The compound interest on a certain sum of money for two years is Rs. 920.25 and the simple interest is Rs. 900. Find the sum and rate percent of interest.

OR

5% yāōāē/ā Auāk šyl. Āē yç 9,240 Ūy. qālj wxē tē sāmaāā šylāç šy āv¥ āšymāā wāaxšy āšyōm j šyāāā qōōāā nī

What annual instalment will discharge debt of Rs. 9,240 due in 5 years at 5% simple interest?

ZaṭĀa-5. ¥šy ¥kççpāāšyā āršyl. qē 5% šytāāāā mnā ēōāē āršyl. qē 9% šytāāāā vqā Nēn uāā šyā ātvāšyē ēyçšyā āršyl. šyā 7 1/2% ātvā Nāç māç. Aāāāāā Zašyāē šyl. āršyl. šyā ; āāām Ōām šylāk¥ nī

An agent charges 5% commission on cash sales and 9% on credit sales. If his overall return is on the total sales, find the ratio between the two sales.

OR

j Ōām āç šyççp šy 1,000 1šyççp 30 Ūy. Zām 1šyççp šyl. Āē yç hēāç ; āē 25% šyā r 1šyççp Zām āšyā nī ēyāç 750 1šyççp šyççqñvçšy vāām tāu qē mnā ; āu 200 1šyççp sā ēyā tāu qē rj ççē mā rāā wāvç 1šyççp qē ēyç 20% ršp āāāā qōōāā nī uñ tāāçñvç āšy tāç 1šyççp šyççv 825 Ūy. tēār šyççç yāççēluwñāē qē vās šyā Zām tāā Ōām šylāk¥ nī

Akshat purchased 1,000 piece of cloth at the rate of Rs. 30 per piece and got a discount of 25%. He sold 750 pieces at cost price before discount and another 200 pieces at the same price but on these pieces he had to allow 20% discount. Assuming that the remaining pieces would be sold for Rs. 825 only, find the percentage of profit on the whole deal.

1ħç ß h'»p' ; ' tēAy ; āmvi āēā ZaṭĀa Nē āk ANēñv šylāç ; āāwāuēñēn h'»p'r' tē vi āēā ZaṭĀa mnā h'»p'y' tēāāi ēēūāēu ZaṭĀa Nēn h'»p' ; ' šyççyççqñvçñv šylēñ

Note : Section 'A' comprising of 10 very short answer type question, is compulsory. Section 'B' consists of short answer type questions and Section 'C' consists of long answer type questions. Section 'A' has to be solved first.

h'»p' ; '(Section-'A')

āāāāāšym ; ām vi ēūāēu ZaṭĀaāç šy ēūāē ¥šy uā āç wā' uāp tē āp nī (Answer the following very short-answer-type questions in one or two sentences) (1x10=10)

ZaṭĀa-1. tāā Ōām šylāk¥ (Find out the value of) ß

$$\frac{d}{dx} \log(ax + b) = ?$$

ZaṭĀa-2. āāāā yç uā šy yātālu vi āāāšy šy qāāā šyççāvāhç ß

Write down the characteristics of the common logarithm of : .00073

ZaṭĀa-3. šy tāā Ōām šylāk¥ uāā (Find the value of if) ß

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ZaṭĀa-4. mmau Sjt Sja cSjacē; aluā āvahŸ ñ

Write down the third order of unit matrix.

ZaṭĀa-5. Sja tāā Ōām SjlākŸ (Solve for ) :

ZaṭĀa-6. alāā vahm yā Sjl luā ūā SjlākŸ (Discuss the following formula) B

$$A = P \left[ 1 + \frac{R}{100} \right]^n$$

ZaṭĀa-7. Sja tāā Ōām SjlākŸ (Find the value of ) B

Average value (j āym tāu)

ZaṭĀa-8. 50 qəyç 25 Ūy. Sja āSjmāçZāmĪam Nè?

What percent is 50 paise of Rs. 25 ?

ZaṭĀa-9. ŸSj Ÿkç pSjçSjv ar Sjl qĒ 7% Sjl ĀĒ yç700 Ūy. Sjtāā at va ñ ar Sjl Sjl Ēālā rmacŸ ñ

An agent is entitled to a commission of Rs. 700@ 7% on turnover.

Find the turnover.

ZaṭĀa-10. r'p SjaçqĒ Sāxm SjlākŸ ñ

Define discount.

**hŸp-'r'(Section-'B')**

alāā āā Sjm vi ā ĒŪāĒau ZaṭĀaap Sç ĒŪāĒ 150-200

Īāā-yātā tĸApñ (Answer the following short-answer type questions with word limit 150-200) (5x5=25)

ZaṭĀa-1. Sç yaçqĒa; j wSjvç Ōām SjlākŸ B

Differentiate with respect to :

OR

tāā āā SjaçqĒ (Evaluate)B

ZaṭĀa-2. āy÷ SjlākŸ B

Prove that :

OR

alāā j aluā Sja Zāmvaç āā SjaçvŸ B

Compute the inverse of matrix :

$$\begin{bmatrix} 2 & 3 & 1 \\ 3 & 4 & 1 \\ 3 & 7 & 2 \end{bmatrix}$$

ZaṭĀa-3. alāā vahm uāmaam ytĸuā Sjaçluāam Īuu āvāo yçŸv SjlākŸ B

Solve the following transportation problem by lowest cost method :

$\begin{matrix} 20 & 12 & 13 & 20 \\ 40 & 6 & 7 & 20 \\ 42 & 2 & & \end{matrix}$	$\begin{matrix} q+r & r+p & =2 \\ p+q & & \\ l+m & m+n & n+l \end{matrix}$	$\begin{matrix} p & q & r \\ (Market) & & \\ l & m & n \end{matrix}$	M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	qāmē (Available)
W <sub>1</sub>			16	19	12	14
W <sub>2</sub>			22	13	19	16
W <sub>3</sub>			14	28	8	12
tāā (Demand)			10	15	17	42

OR

j ĒāvĀā j āĒ j Āāā Sjl j āuāp Īuuāp j āĒ rj māç Sç SjtĪāb j Āāçm 5:3, 8:5 mnā 2:1 Nēn uā Āāāç Sjl yluŸ rj m 3,600 Ūy. wāç Sç Ÿāçmāç Ēā Sjl tāySj j āu Ōām SjlākŸ ñ

The ratios of income, expenditure and savings of Arvind and Anurag are 5:3, 8:5 and 2:1 respectively. The joint savings of both of them are Rs. 3,600 in a year, find their monthly income.

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ZaTAA-2. mnà Sg tala rma; amasj; aluAl i ae ytala NaçkNab  
Find the value of and so that the matrices are equal where

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OR

alAAvahm yaEa/SyaSg tala Oam Sylak¥ B  
Evaluate the following determinants :

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Evaluate the following determinants :

ZaTAA-3. alAAvahm Eñau ZaSyt/a ytDuà Sja; aAy Syl avao yçNv Sylak¥ B  
Solve the following Linear Programming problem by graphical method:  
i aoSjmt Sylak¥ (maximise)  
kraSj (such that)

ZaTAA-3. alAAvahm Eñau ZaSyt/a ytDuà Sja; aAy Syl avao yçNv Sylak¥ B  
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kraSj (such that)

OR

qaEwNAA taSpv qE a'ñiq/aa avah¥ ñ  
Write short note on Transportation Model.

OR

qaEwNAA taSpv qE a'ñiq/aa avah¥ ñ  
Write short note on Transportation Model.

ZaTAA-4. 25,000 Úy. Sja 2 wxeSja j Sjwa- Auak yçatóoA 'ua Naçaa uaA EÚaEaE wxaçSyl. AE 4% ¥wp5% Zaam wxeNen  
How much will Rs. 25,000 amount to in 2 years at compound interest if the rates for the successive year be 4% and 5% per year.

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OR

2000 Ú. Sjl. 20 wxácmSý j vÁa;wávā wáaxSýl. Sja atóóÁa Óáam Sjlak¥, j Sýwá:- Áuak Sjl. ÁE 8% wáaxSý Nēn

Find the amount of an annuity of Rs.2000 for 20 years; the rate of compound interest is 8% per annum.

ZaTÁa-5. ¥Sý luáÓý ; qÁa táySý ; áu Sja i ÉwáSýauetøhj éSýÉma Nēn Táx Sja 30% Áala SýÉÁa;Sý rÁ Áyç1,750 Ú. Sjl. rj m Nāma Nēn ÉySýl táySý ; áu rmaç¥ ñ

A man spends of his monthly income on domestic affairs. He donates 30% of the balance leaving a balance of Rs. 1,750 as saving. Find out his monthly income.

OR

¥Sý ávSýma Sjaç8.55 Ú. Sý saw yçáSýmaçqáa rj Áa; j ááV¥ ákyycáSý 5% Sjl. ÁE yç85.50 Ú. Sja SýtalÁa at v ySý?

How many pens an agent need to sell at Rs. 8.55 each to earn a commission worth Rs. 85.50 at the commission rate of 5%?

h'p-'y'(Section-'C')

áalaÁaamSým Áai é ÉÚaÉau ZaTÁaap Sý ÉÚaÉ 300-350 TáA-yatā tøÁpñ (Answer the following long-answer type questions with word limit 300-350) (5x8=40)

ZaTÁa-1. uáA , áAháč¥ áSý

If  $u = x^2 + y^2 + z^2$ , show that .

OR

tÁa Óáam Sjlak¥ (Evaluate) B  $\frac{\sqrt{78.23} \times \sqrt[3]{0.024}}{(0.9694)^2}$

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$\frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} + z \frac{\partial u}{\partial z} = 2u$  How many pens an agent need to sell at Rs. 8.55 each to earn a commission worth Rs. 85.50 at the commission rate of 5%?

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