

**AGA KHAN UNIVERSITY EXAMINATION BOARD**

**HIGHER SECONDARY SCHOOL CERTIFICATE**

**CLASS XI EXAMINATION**

**APRIL/ MAY 2017**

**Business Mathematics Paper II**

**Time: 1 hour 30 minutes    Marks: 30**

**INSTRUCTIONS**

**Please read the following instructions carefully.**

1. Check your name and school information. Sign if it is accurate.

**I agree that this is my name and school.  
Candidate's signature**

2. RUBRIC. There are SIX questions. Answer ALL questions. Choices are specified inside the paper.
3. When answering the questions:  
  
Read each question carefully.  
Use a black pointer to write your answers. DO NOT write your answers in pencil.  
Use a black pencil for diagrams. DO NOT use coloured pencils.  
DO NOT use staples, paper clips, glue, correcting fluid or ink erasers.  
Complete your answer in the allocated space only. DO NOT write outside the answer box.
4. The marks for the questions are shown in brackets ( ).
5. You may use a scientific calculator if you wish.

Q.1.

(Total 5 Marks)

The time required to process an order of books at a bookshop varies directly with the number of books purchased and inversely with the number of salespersons allocated to fulfil the order.

If 5,000 books can be packed by 6 salespersons in 4.5 hours, then how long would it take 8 salespersons to pack 8,000 books?

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**(ATTEMPT EITHER PART a OR PART b OF Q.2.)**

Q.2.

(Total 5 Marks)

a.

- i. Amina deposited Rs 50,000 in a saving scheme on simple interest. After 30 months, the amount deposited becomes Rs 57,500, find the rate of simple interest. (4 Marks)

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- ii. What will be the interest after 6 years at the same rate as in part (i)? (1 Mark)

Example

- b. Sajjad is planning to buy a car of Rs 950,000 after two years. For this purpose, he invested in a saving scheme, which pays 6% interest compounded monthly. How much amount Sajjad should invest in the scheme today so that he would have Rs 950,000 after two years? Also find the compound interest earned by Sajjad during the two years. (5 Marks)
- (Note: Write your answer to two decimal places)

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**(ATTEMPT EITHER PART a OR PART b OF Q.3.)**

Q.3.

(Total 5 Marks)

- a. Convert  $(56667)_8$  to quinary number (number in base 5).

(**Note:** Write all necessary steps)

- b. Perform the following operations and write your answer in decimal number (number in base 10).

$$\{(4572)_8 + (3434)_5\} \times (101)_2$$

(**Note:** Write all necessary steps)

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**(ATTEMPT EITHER PART a OR PART b OF Q.4.)**

Q.4.

(Total 5 Marks)

- a. Fill the following table to sketch  $f(x) = -x^2 + 4$  on the given graph paper and locate its vertex.

<b><math>x</math></b>	-2	-1	0	1	2
<b><math>y</math></b>					

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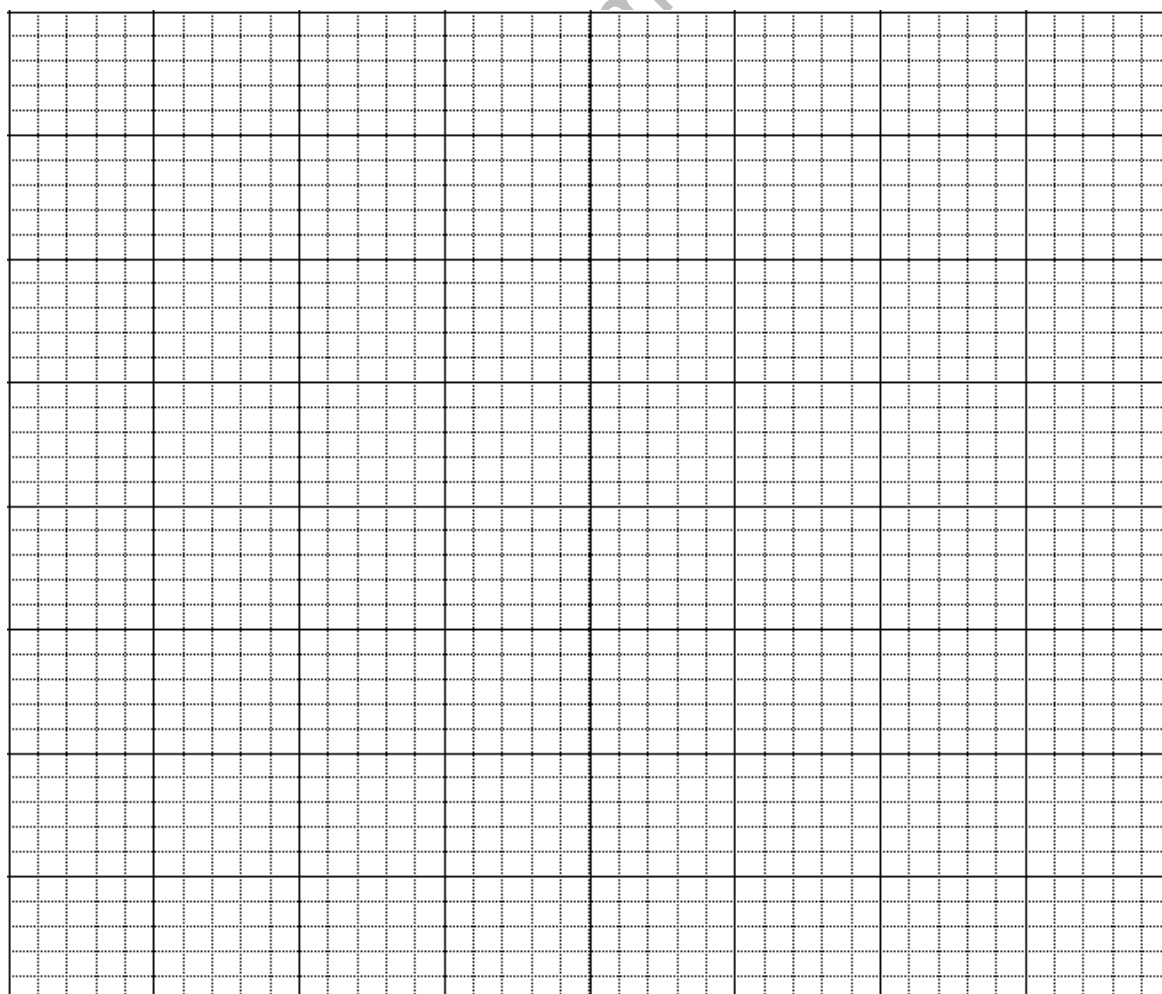
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**(ATTEMPT EITHER PART a OR PART b OF Q.4.)**

- b. Find the equation of the straight line passing through the points  $(4, 5)$  and  $(-4, -5)$  in the form  $ax + by + c = 0$ . Find its slope and y-intercept.

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Q.5. (Total 5 Marks)

Eliminate  $k$  from the given equations.

$$p = \frac{kb - a}{k - b}$$

$$h = \sqrt{k - 1}$$

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Q.6.

(Total 5 Marks)

Solve the following matrix equation for the matrix  $X$ .

$$\begin{bmatrix} 2 & 0 \\ 1 & 3 \\ 1 & 2 \end{bmatrix} \times \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix} - \begin{bmatrix} 2 & 4 & 6 \\ 3 & 5 & 9 \\ 1 & 2 & 3 \end{bmatrix} - 2X = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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