Please stick the barcode label here.

TUTGATHER PRACTICE PAPER

HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION 2027

MATHEMATICS Compulsory Part
PAPER 1

Question-Answer Book

Candidate Number

TUTGATHER
PRACTICE PAPER · NOT AN OFFICIAL HKEAA PAPER

1 hour 5 minutes

This paper must be answered in English

Topic practice: Permutations and Combinations

INSTRUCTIONS

(1) This paper consists of THREE sections, A(1), A(2) and B.

(2) Attempt ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book. Do not write in the margins.

(3) Unless otherwise specified, all working must be clearly shown.

(4) Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.

(5) The diagrams in this paper are not necessarily drawn to scale.

(6) Calculators and mathematical drawing instruments may be used.

(7) The marks for each question are shown in brackets.

(8) No extra time will be given after the 'Time is up' announcement.

TUTGATHER

SECTION A(1) (16 marks)

1. A school offers 4 different science subjects and 3 different arts subjects. A student must choose exactly one science subject and exactly one arts subject. In how many ways can the student make the choice? **(3 marks)**

2. In how many ways can 5 distinct books be arranged in a row on a shelf? **(3 marks)**

3. A committee of 3 people is to be chosen from 8 people. In how many ways can the committee be chosen? **(4 marks)**

Answers written in the margins will not be marked.

Answers written in the margins will not be marked.

TUTGATHER

4. A password consists of 4 distinct letters chosen from the 26 letters of the alphabet. **(6 marks)**
(a) How many such passwords are possible? (3 marks) (b) How many of these passwords contain the letter A? (3 marks)

Answers written in the margins will not be marked.

Answers written in the margins will not be marked.

TUTGATHER

SECTION A(2) (24 marks)

5. A class has 10 boys and 8 girls. A committee of 4 students is to be formed. (a) How many committees can be formed? (2 marks) (b) How many committees contain exactly 2 boys and 2 girls? (3 marks) (c) How many committees contain at least 1 boy? (2 marks) **(7 marks)**

6. Five distinct books are to be arranged in a row on a shelf. (a) How many arrangements are possible? (2 marks) (b) How many arrangements have the two mathematics books next to each other? (3 marks) (c) How many arrangements have the two mathematics books separated? (3 marks) **(8 marks)**

Answers written in the margins will not be marked.
Answers written in the margins will not be marked.
TUTGATHER

7. A team of 5 students is to be selected from 6 boys and 4 girls. (a) How many teams can be formed? (2 marks) (b) How many teams contain at least 2 girls? (4 marks) (c) How many teams contain more boys than girls? (3 marks) **(9 marks)**

Answers written in the margins will not be marked.

Answers written in the margins will not be marked.

TUTGATHER

SECTION B (10 marks)

8. Six distinct books are to be arranged in a row on a shelf. Among them, 3 are mathematics books and 3 are science books. (a) How many arrangements are possible? (2 marks) (b) How many arrangements have all the mathematics books together? (3 marks) (c) How many arrangements have no two mathematics books adjacent? (5 marks) **(10 marks)**

END OF PAPER

Answers written in the margins will not be marked.

Answers written in the margins will not be marked.

TUTGATHER