SECTION I

40 marks
Attempts Questions 1-40
Allow about 40 minutes for this section

Instructions
- Answer the questions in the space provided. These spaces provide guidance for the expected length of response
- Show all relevant working in questions involving calculations.

1. A card is drawn from an ordinary deck. Find the probability of getting a 3 or a diamond.

2. When a single die is rolled, what is the probability of getting a number less than 7?

For numbers 3-6, study the data below and answer the questions that follows.

Hospital records indicated that knee replacement patients stayed in the hospital for the number of days shown in the distribution.

Number of days stayed	Frequency
3	15
4	32
5	56
6	19
7	5
	127

3. Find the probability that a patient stayed exactly 5 days

4. Find the probability that a patient stayed less than 6 days.

5. Find the probability that a patient stayed at most 4 days

6. Find the probability that a patient stayed at least 5 days.

7. A single card is drawn at random from ordinary deck of cards. Find the probability that it is either an ace or a black.

8. In a hospital unit there are 8 nurses and 5 physicians: 7 nurses and 3 physicians are females. If a staff person is selected, find the probability that the subject is a nurse or a male.

9. If a family has three children, find the probability that exactly two of the three children are girls.

For numbers 10-13, find the complements of each event.

10. Rolling a die and getting a 4.

11. Selecting a letter of the alphabet and getting a vowel.

12. Selecting a month and getting's a month that begins with a J

13. Selecting a day of the week and getting a weekday

14. When a single die is rolled, find the probability of getting a 9.

For numbers 15-18, study the problem below and answer the question that follows.

In a sample of 50 people, 21 had type A blood, 5 had type B blood and 2 had type AB blood. Find the probabilities that:

15. A person has type O blood

16. A person has type A blood or type B blood

17. A person has neither type A nor type O blood

18. A person does not have type AB blood.

19. The data represent the number of days off per year for a sample of individuals selected from nine different countries. Find the mean.

| 20 | 26 | 40 | 36 | 23 | 42 | 35 | 24 | 30 |

20. The number of rooms in the seven hotels in downtown Pittsburgh is 713, 300, 618, 595, 311, 401, and 292. Find the median.

21. Six customers purchased these numbers of magazines: 2, 8, 4, 5, 4, 3. Find the median.

22. The data show the number of licensed nuclear reactors in the United States for a recent 15-year period. Find the mode.

104	104	104	104	104
107	109	109	109	110
109	111	112	111	109

23. The data show the numbers of patients in a sample of six hospitals who acquired an infection while hospitalized. Find the mean.

110   76   29   38   105   31

24. A day of the week is selected at random. Find the probability that it is a weekend day.

25. If a probability that a person lives in an industrialized country of the world is $\frac{1}{5}$, find the probability that a person does not live in an industrialized country.

26. A city has 9 coffee shops: 3 coffee shop A, 2 coffee shop B, and 4 coffee shop C. If a person selects one shop at a random to buy 4 cups of coffee, find the probability that it is either Coffee shop A or Coffee shop C.

For number 27-29, analyze the situation below, answer the questions that follow.

Matt rolled two dice at the same time. The scores on the two dice are then added together

27. What is the probability of obtaining a score of 4?

28. What is the probability of obtaining a score greater than 4?

29. What is the probability of obtaining a score which is an even number?

30. Dianne got the following scores in her Science exams. Find the mean of her scores.

   45   35   42   44   38   41   36   47   41   40

31. Find the median of the following list of values

   13   21   14   16   13   14   13   18   13

32. Vinci has gotten the following grades on his test: 88, 95, 83, and 90. He wants an average of 90 or better for the course. Assuming all test are evenly weighted, what is the minimum grade he must get on the last test in order to achieve the overall average?

33. A card is taken at random from a full pack of 52 playing cards. What is the probability that it is a queen?

34. Rico was able to sell the number of concert tickets below in 5 days. Calculate the mean of his sale.

Day	Number
Monday	60
Tuesday	55
Wednesday	58
Thursday	75
Friday	70

35. Steve roll a fair dice 120 times. How many times would you expect to obtain a number less than 5.

36. A packet of sweet contains 18 red sweets, 12 green sweets, and 10 yellow sweets. A sweet is taken at random from the packet. What is the probability that the sweet is not green?

37. Consider the situation above. Calculate the probability that the sweet is green or yellow?

38. A card is taken at a random from a pack of 52 playing cards, and then replaced. A second card is then drawn at random from the pack. Determine the probability that at least one card is a diamond.

39. The given table below shows the score obtained by different players in a match. What is the mean of the given data?

NAME	SCORE
Vinci	80
Drei	52
Jeromy	40
Marcus	52
Lyle	70
Kyler	1
Prince	6

40. Find the median of the given of the following data:

90, 94, 53, 68, 79, 94, 53, 65, 87, 90, 70, 69, 65, 89, 85, 53, 47, 61, 27, 80