PSMOD(Quiz-1)

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TAKE HOME RE-EXAMINATION

TECHNOLOGY PARK MALAYSIA

PROBABILITY & STATISTICAL MODELLING(AQ077-32)

BSC.IT (3rd SEMESTER)

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INSTRUCTIONS TO CANDIDATES:

1. **This paper consists of 2 pages (excluding the cover page).**
2. **This paper consists of a section. (20 marks)**

   This section has 2 compulsory questions. Answer all questions.
3. **Write clearly and number the questions you attempt accordingly.**
4. **You must obtain 50% overall to pass this module.**

1. Solution:

Traded stock	Regularly (R)	Occasionally (O)	Never (N)	Total
Yes	9	5	2	17
No	8	16	10	34
Total	17	21	12	50

a. Solution:

Total no of subscriber n(U) = 50

Subscriber who never read traded stock n(T) and = 16

Now,

Probability of subscriber who never read traded stock $p(T) = \frac{n(T)}{n(u)}$

$= \frac{16}{50}$

$= 0.32$

b. Solution:

n(u) = 50

n(N) =12

n(T) = 34

Probability that the subscriber never read business section and had not traded stocks $P(N \cap T) = \frac{n(N)}{n(u)} \times \frac{n(T)}{n(u)}$

$P(N \cap T) = \frac{12}{50} \times \frac{34}{50}$

$= 0.1632$

Hence, Probability that the subscriber never read business section and had not traded stocks is 0.1632

c. Solution:

n(R) = 9

n(T) = 17

Probability that subscriber regularly read business section given that he/she had traded stocks = $\frac{n(R)}{n(T)}$

$= \frac{9}{17}$

= 0.5294

Hence, Probability that subscriber regularly read business section given that he/she had traded stocks is 0.5294

d. Solution:

Probability that subscriber occasionally read business section or never traded stocks P(O∪N) =?

n(O) = 21

n(N) = 34

n(U) = 50

n (O∩ N) = 16

P(O∪N) =P(O) + P(N) - P (O ∩ N)

$= \frac{21}{50} + \frac{34}{50} - \frac{16}{50}$

$= \frac{39}{50}$

= 0.78

Hence, Probability that subscriber occasionally read business section and never traded stocks is 0.78

2. Solution:

Given

Total number of students n(U) = 110

Number of students who joined rugby club n(R) = 27

Number of students who joined hockey club n(H) = 48

Number of students who joined tennis club n(T) = 45

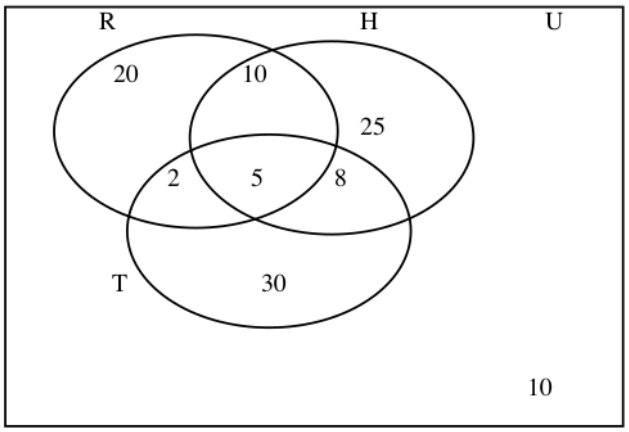
Number of students who joined rugby and hockey club $n(R \cap H) = 15$

Number of students who joined hockey and tennis club $n(H \cap T) = 13$

Number of students who joined rugby and tennis club $n(R \cap T) = 7$

Number of students who joined all three clubs $n(R \cap H \cap T) = 5$

a. Representing in Venn diagram



b. Solution:

Number of students who did not joined any three clubs $n(\overline{R \cup H \cup T})$

= 110 – (20 + 25 + 30 + 10 + 2 + 8 + 5)

=110 – 100

= 10

In percentage

$= \frac{10}{110} \times 100$

= 9.09 %

Hence, Percentage of students who did not joined any three clubs is 9.09 %

c. Solution:

Number of students who joined at least one club n (R ∪ H ∪ T)

= 20 + 25 + 30 + 10 + 2 + 8 + 5)

= 100

In percentage

$= \frac{100}{110} \times 100$

= 90.09 %

Hence, Percentage of students who joined at least one club is 90.09 %

d. Solution:

Number of students who joined only one club n_0(R ∪ H ∪ T)

$= n_0(R) + n_0(H) + n_0(T)$

= 20 + 25 + 30

= 75

In percentage

$= \frac{75}{110} \times 100$

= 68.16 %

Hence, Percentage of students who joined only one club is 68.16 %

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GRADEMARK REPORT

FINAL GRADE

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GENERAL COMMENTS

Instructor

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