Business Decision Making Sample Exam Paper Set 1 (Final Answers)

1. a. (i)   Quantitative, discrete; ratio
        (ii)   Qualitative; nominal
        (iii) Quantitative, continuous; ratio
        (iv)   Qualitative; ordinal
    b. (i)   Dependent variable – selling price.
               Independent variable – age of car.
        (ii)   Line of best fit: $y' = 12.607 - 0.679x$
        (iii) $6,496

2. a. List of probability sampling techniques commonly used (any 3):
        - Random sampling
        - Systematic sampling
        - Stratified sampling
        - Cluster sampling
        Description – refer to slides (Chap 1)

    b. (i)

Class Limits		Class Boundaries			Class Midpoints	Frequency	Relative Freq	Cumulative Frequency	Cum Rel Freq
4	-	5	3.5	-	5.5	4.5	3	0.15	3	0.15
6	-	7	5.5	-	7.5	6.5	4	0.20	7	0.35
8	-	9	7.5	-	9.5	8.5	7	0.35	14	0.70
10	-	11	9.5	-	11.5	10.5	4	0.20	18	0.90
12	-	13	11.5	-	13.5	12.5	1	0.05	19	0.95
14	-	15	13.5	-	15.5	14.5	1	0.05	20	1.00
Total							20	100		

        (ii)   Essential elements:
               -   The distribution is slightly skewed to the right.
               -   35% of the stocks were held for 8 to 9 years.
               -   90% of the stocks were held for 4 to 11 years.
               -   Only 2 stocks were held for 12 to 15 years.

3. a. (i)   0.68
        (ii)   0.08
    b. (i)   0.125
        (ii)   0.375
        (iii) 0.875
    c. H_1: $\mu < 200$
        CV: $t = -1.711$

        Test value: $t = -1.00$

        Decision: do not reject H_0.

4. a. Binomial distribution:
        (i)   0.194
        (ii) 0.736
        (iii) $\mu = 9$; $\sigma = 0.949$

    b. (i)   linear, positive and (moderately) strong.
        (ii) $r^2 = 0.518$
              51.8% of the variation in the selling price is explained by the variation in the size of a house.

5. a. H_1: One's major and the response are dependent
        CV: $\chi 2 = 7.815$
        Test value: $\chi 2 = 5.909$
        Decision: do not reject H_0.

    b. (i)   0.6554
        (ii) 0.9918
        (iii) 0.9836

6. a. (i)   0.48
        (ii) 0.35
        (iii) 0.30
        (iv) 0.65
        (v)   not mutually exclusive

    b. (i)   Sample mean = 6 years
        (ii) $5.5 < \mu < 6.5$ years
        (iii) We are 95% confident that the population mean is somewhere between 5.5 and 6.5 years.
        (iv) The interval will be wider.

7. a. (i)   19
        (ii) 19
        (iii) none
        (iv) 13
        (v)   4.73

    b. H_1: $\mu > 3$
        CV: $z = 1.65$
        Test value: $z = 2.19$
        Decision: reject H_0.