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UACE S101 General Paper section B: Logic Quiz 7

Study the following information carefully and answer the questions that follow (50marks)

There are families in the village of Zubanda: F1, F2, F3 and F4. Three of these families belong to different clans. F1 and F4 belong to the same clan. Each family has two children of about the same age group. The children's order of birth and sex classification are as follows.

Family	Identity of child	Order of birth	Sex classification
F1	A	1 st	Male
	B	2 nd	Female
F2	C	1 st	Female
	D	2 nd	Female
F3	E	1 st	Male
	F	2 nd	Male
F4	G	1 st	Female
	H	2 nd	Male

In twenty years' time the children have grown up and are about to get married. The cultural norms in Zubanda are such that:

- Marriage among children from the same clan are not permitted.
- Marriage between children of the same family is a taboo.
- Polygamous marriages are not allowed
- No male/female from one family are allowed to marry from the same family
- Homosexuality is strictly forbidden.

On the wedding occasion organised for all the children of the four families, two seater sofas were reserved for each family and the likely number of young married couples in that family.

It is known that the first born of F1, both males of F3 and the male in F4 are smokers.

Questions

- Determine the possible number of choices that can take place between children of the four families (08marks)
- State the likely number of choices each child can make for a partner (04 marks)
 - Giving reasons for your answer, identify the children and the families that have the

- highest
- least

number of choices of partners to make (04marks)

- (c) Calculate the maximum number of seats that should be reserved for the four families and their likely number of couples (14 marks)
- (d) If the habit of smoking is considered that no two smokers can get married, identify the children who will be:
- (i) Most,
 - (ii) Least
 - none

Disadvantaged in choosing partners (10marks)

SPGE

(10marks)

Suggested solution

Questions

- (a) Determine the possible number of choices that can take place between children of the four families (08marks)

10 (AC, AD, BE, BF, CE, CF, CH, DE, DF, DH, EG, FG)

- (b) (i) State the likely number of choices each child can make for a partner (04 marks)

A can make two choices (C or D)

B can make two choices (E or F)

C can make four choices (A, E, F or H)

D can make four choices (A, E F or H)

E can make four choices (B, C, D or G)

F can make four choices (B, C, D or G)

G can make two choices (E or F)

H can make two choices (C or D)

- (ii) Giving reasons for your answer, identify the children and the families that have the

- highest

F2 (C, D) and F3 (D, E) have few restrictions on the families from which to pick a partner

- least

F1 (A, B) and F2 (G, H) have are restricted from marrying from either family/have many restriction

number of choices of partners to make (04marks)

(c) Calculate the maximum number of seats that should be reserved for the four families and their likely number of couples (14 marks)

(d) Seats for the family = 4

(e) Seats for the couples (AD, BF, CH, GE or AD, BE, GF, CH) = 4

(f) Total = 8 seat reserved.

(g) If the habit of smoking is considered that no two smokers can get married, identify the children who will be:

(i) Most,

Since all the males are smoker then every child (A, B, C, D, E, F, G, H) will not get married

(ii) Least

None

Disadvantaged in choosing partners (10marks)

SPGE

(10marks)

Please say something or send your additions/ comments/corrections/suggestions in the comment section. Note that digitalteachers.co.ug is an academic website that thrives on accuracy of information.

Thank you

Dr. Bbosa Science