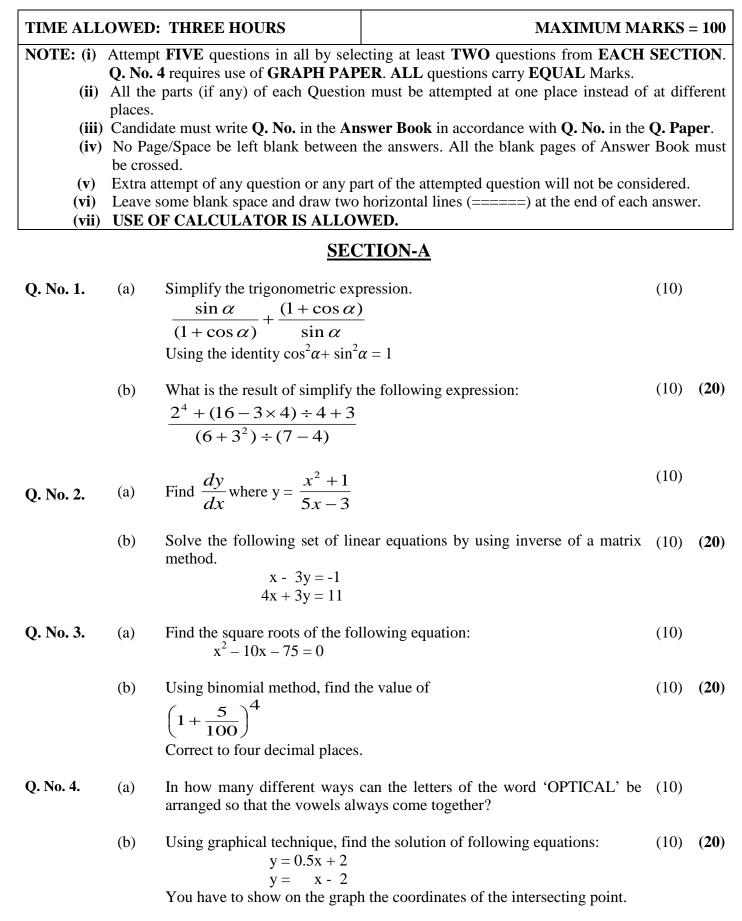


FEDERAL PUBLIC SERVICE COMMISSION SECTION OFFICERS PROMOTIONAL EXAMINATION - 2017

Roll Number

BASIC MATHEMATICS & STATISTICS



BASIC MATHEMATICS & STATISTICS

SECTION-B

Q. No. 5. (a) A sociologist selected 300 students at random from each of the two (10) schools and asked each student how many siblings he or she had. The results are shown in the table below:

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Number of siblings	City school	Beaconhouse school					
0	50	75					
1	80	80					
2	45	20					
3	100	40					
4	25	85					

- (i) What is the median and mode number of siblings for City school?
- (ii) What is the median and mode number of siblings for Beaconhouse school?
- (iii) What is the overall median and mode number of siblings for the survey?
- (b) In a town, 45% of all households have a pet and 35% have children. 40% (10) of all households with children have a pet. A household is chosen at random. Find the probabilities of a, b and c.
 - (i) Having no children but a pet.
 - (ii) Having neither children nor a pet.
 - (iv) Having children, but no pet.
- Q. No. 6. (a) In a certain hospital, records show that 75% of the patients suffering from (10) dengue fever die.

 Using binomial distribution find the probability that out of 6 randomly

Using binomial distribution find the probability that out of 6 randomly selected patients, 4 will recover.

- (b) What is a Chi-Square Test and what are its two type? Write down its (10) (20) formula and explain it.
- **Q. No. 7.** (a) How do you define simple regression and what are the key terms in the (10) regression equation?

 $Y = \alpha + \beta X + e$

(b) The values of x and their corresponding values of y are shown in the table (10) (20) below:

X	0	1	2	3	4
у	2	3	5	4	6

(i) Find the regression line:

 $y = \alpha + \beta x$

- (ii) Estimate the value of y when x = 10.
- Q. No. 8. (a) In a school the students were asked to select one out of the five games. (10 136 liked badminton, 180 liked basketball, 84 liked hockey, 212 liked soccer and 108 liked table-tennis.

You have to represent this data using a pie chart and show angle of each sector.

(b) 72 college students were asked to select a place they would like to visit in (10) (20) holidays. The table shows the result.

Place		Swat	Kaghan	Murree	Chitral	Sakardu
Number	of	15	24	19	9	5
students						

Use a bar graph to represent this data.