Reg. No…….. Name…… **17U352**

B.C.A. DEGREE END SEMESTER EXAMINATION OCTOBER 2017

SEMESTER – 3: BACHELOR OF COMPUTER APPLICATIONS (CORE COURSE)

COURSE: 16U3CRBCA7, BASIC STATISTICS

(For Regular - 2016 Admission)

Time: Three Hours Max Marks: 75

Part A

(Answer ***all*** questions, Each question carries **1** mark.)

1. Define simple random sampling.
2. Distinguish between probability sampling and non-probability sampling.
3. What do you mean by qualitative classification?
4. What is a Box- plot?
5. Calculate mean deviation and mode for the following values.
   5, 86, 92, 45, 36, 26, 35, 45, 36, 85, 36
6. State the addition theorem of probability for three arbitrary events.
7. If A and B are two independent events with P (A) =1/6, P (B) = 1/2. Find P (AUB).
8. What is a pie- chart?
9. Distinguish between simple index number and weighted index number.
10. Explain time reversal test of index numbers. (1 x 10 = 10)

Part B

(Answer any ***eight*** questions. Each question carries ***2*** marks.)

11. Series I represents the pulse rate of a group of men with mean 79 beats/minute with standard deviation of 13.1 beats/minute. Series II represents the weights with a mean 65 kgs and a standard deviation of 3.6 kgs. Which series shows more consisitency?
12. P(AUB)=5/6 P(A∩B) = 1/3 P(A')=1/2 . Determine P (A) and P (B). Are A and B independent?
13. Calculate the 45th percentile for the following values.
    65, 70, 100, 33, 85, 52, 45, 17, 2
14. State the multiplication theorem for probability.
15. Distinguish between primary and secondary data with examples.
16. If the sum of the current year prices and base year prices of a set of commodities are $\sum P_k = 205$ and $\sum P_0 = 175$ respectively . Find the simple aggregate index number.
17. What is stratified sampling?
18. Define exhaustive events.
19. Explain the advantages of sampling over census.
20. What is a frequency polygon?

21. The following are the marks of 20 students . Construct a stem and leaf graph.
    65, 80, 85, 100, 96, 82, 95, 90, 91, 80, 85, 86, 98, 80, 82, 52, 84, 85, 82, 88
22. What is the importance of index numbers? (2 x 8 = 16)

Part C

(Answer any ***five*** questions. Each question carries ***5***marks.)

23. If P(A)=0.3 P(B)= 0.2 P(A∩B)= 0.1 . Find the probabilities of
    (a) atleast one of the events occur.
    (b) Exactly one of the events occur.
    (c) None of the events occur.
24. Define coefficient of variation. The scores of two batsmen A and B in eight innings during a certain match are as follows. Which of the two is more consistent in scoring? Who is the most efficient batsman?
    Batsman A : 10 12 80 70 60 100 0 4
    Batsman B : 8 9 7 10 5 9 10 8
25. Explain the method of constructing cost of living index numbers.
26. State and prove the addition theorem of probability for two events. Explain the terms
    (a) Complementary events (b) Independent events
27. The following table gives the direct and indirect taxes levied in India in 4 years. Represent it by a multiple bar diagram.

Year	Direct taxes (in crores)	Indirect taxes (in crores)
1995	1200	2300
1998	2250	4100
2001	2500	6300
2004	3500	10,000

28. Find the missing frequencies in the following frequency distribution.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	15	20	10	-----	13	10	------	6

    It is known that median is 32.27 and total frequency is 100.
29. If A and B are independent , Prove that
    (1) A and B' are independent
    (2) A' and B' are independent
    (3) Each of the three guns has a probability 0.4 for hitting a target. What is the probability that all of them will hit the target? (5 x 5 = 25)

Part D

(Answer any ***two*** questions. Each question carries ***12*** marks.)

30. Calculate Arithmetic mean and Standard deviation for the data on scores given below.

Scores	:	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	:	10	15	25	25	10	10	5

31. For the data below examine whether (1) Fisher's formula (2) Laspayer's formula satisfy factor reversal test.

Commodity	2005		2008	
	Price	Quantity	Price	Quantity
A	2	3	3	2
B	8	2	9	3
C	5	5	6	5
D	4	2	5	3
E	3	4	4	2

32. (a) State Baye's theorem.

(b) There are 4 boys and 2 girls in room no. 1 and 5 boys and 3 girls in room no. 2 . A girl from one of the rooms laughed loudly . What is the probability the girl who laughed loudly was from room no. 2

33. (a) Distinguish between absolute and relative measures of dispersion.

(b) Obtain the quartile measure of dispersion and its coefficient for the following data.

Age	:	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of persons	:	15	30	53	75	100	110	115	125

(12 x 2 = 24)

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