Karnataka Sangha's

MANJUNATHA COLLEGE OF COMMERCE & JUNIOR COLLEGE OF COMMERCE

IST SEM – 2016-17

SUB: Mathematics

Class: F.Y.J.C **Time : 2hrs**

Date: 24-11-2016 **Marks : 50**

Q.1. Attempt Any Four **8**

i. Find Modules & amplitude of $\sqrt{3}$-i

ii. Let f & g are two real valued function defined by f (x)=x+1, g (x)=2x-3 find f+ g &$\frac{f}{g}$

iii. Let A{1,2,3},& B = { 2,4} then state the elements of (AxB) ∩ (BxA)

iv. Convert 120° into radian and $-\frac{2\pi^c}{9}$ into degree

v. Represent the complex number 2+3i,-2+3i,-2-3i & 2-3i in Argands diagram.

vi. Find the value of $sin^2\ 0+sin^2\ \frac{11^c}{6}+ sin^2\frac{\pi^c}{3} + sin^2\frac{\pi^c}{2}$

Q.2.A Attempt Any two **6**

i. Show that $\left(-1+\sqrt{3i}\ \right)^3$ is a real number

ii. The perimeter of a sector of a circle of area $64\,\pi\ sqcm\ is\ 56cm$. Then find the area of sector

iii. Prove that $\sqrt{\frac{1-cosA}{1+cosA}}$ = cosec A- Cot A

Q.2.B. Attempt any one **4**

i. One angle of a quadrilateral has measure $\frac{2\pi^c}{5}$ and the measures of other three angles in the ratio 2:3:4. Find their measures in degree.

ii. If sinθ=$\frac{-4}{5}$, $\pi < \theta < \frac{3\pi}{2}$ then find the value of sin 2 θ

Q.3.A Attempt Any One **3**

i. If A,B,C are the sets of the letters in words 'college', 'marriage' and 'luggage' respectively, then verify that $[A-(BUC)] = [(A-B)\cap(A-C)]$

ii. Find the value of x^3+ $2x^2$- 3x +21 if x=1+2i

Q.3.B Attempt any one **4**

i. If f (x)=$\frac{2x+3}{3x-2}$, x ≠ $\frac{2}{3}$ prove that fof is identity function.

ii. prove that $\frac{\cot A.cot4A+1}{\cot A.cot4A-1} = \frac{cos3A}{\cos 5A}$

SECTION - II

Q.4. Attempt Any Four **8**

i. Find remaining class frequencies if N= 1600, (A)=300, (AB)=140, $(\propto B) = 1100$.

ii. Write 8^3=512 into logarithmic form and $\log_2(1/4)$ =-2 into exponential form

iii. The heights (in cm) of 10 students are given below :
148,171,158,151,154,159,152,163,171,145

iv. Evaluate $\frac{\log_2 5}{\log_2 11} - \frac{\log_4 5}{\log_4 11}$

v. check whether given data is correct if (A)=416 (AB) = 280,$(\propto B) = 92, N = 500$

vi. The following frequency distribution in the houses of particulars area of city

No. of rooms	3	4	5	6	7	8	Total
No. of houses	34	650	310	42	12	2	1050

Calculate D_5

Q.5 A Attempt any two **6**

i. If x = $\log_5 7$, y = $\log_7 27$, z = $\log_3 5$. Show that xyz = 3

ii. Examine the type of association between attributes A & B given that N = 500, (A) = 235, (B) = 310, (AB) = 160

iii. For the following data of daily expenditure of families (in Rs), compute the expenditure below which 25% of families have their expenditure.

Daily expenditure (in Rs)	360	450	550	650	750
No. of Families	16	19	24	28	13

B. Attempt Any One **4**

i. If log $(\frac{a+b}{2}) = \frac{1}{2}$ (log a + log b) then show that a=b

ii. Calculate P_{80} for the following distribution

Length in inches	0-20	20-40	40-60	60-80	80-100	100-120
No.of Units	1	14	35	85	90	15

Q.6.A. Attempt Any One **3**

i Solve for x if log (3x+2) - log (3x-2)=log5

ii Test whether attributes A&B are independent given that (AB)=30, (Aβ)=90, ($\propto B$) =120, ($\propto \beta$) =360,

B. Attempt Any One **4**

i Out of 400 students, 160 were married, Among 120 students who failed 48 were married. Find yule's coefficient of association between the attributes marriage & Failure in the examination. Comment on your result.

ii For the following frequency distribution, value of Q_2 is 22 Find the missing frequency

Class	Frequency
0-10	5
10-20	8
20-30	?
30-40	4
40-50	3

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