Assignment Questions

B.Sc Mathematics- II Semester

Foundations of Mathematics- MM1221

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1) Integrate the following

$\frac{1}{1+sinx}$

2) $\frac{sec_x^2}{\sqrt{x}}$

3) Evaluate $\int_{-3}^{2}\left(2+\sqrt{9-x^2}\right)dx$

4) Find all the values of x in the interval $[-\pi,\pi]$for$f(x)=sinx$

5) Evaluate $\int_1^{\pi/2} log(sinx)cosxdx$

II a) Find the area bounded by $y=x^2$and $x+y=2$

b) Find the volume of the solid generated by revolving $y=x^2$ between the ordinates $x=0\,,x=2\;about\;y=0$

c) By revolving the semicircle $x=cost, y=sint, 0\le t\le\pi$about the x-axis.Show that the surface area of a sphere of radius *r* is $4\pi r^2$

d) Show that the function $f(x)=x^4-2x^3$is not one to one on$(-\infty,\infty)$.

e) Expand the logarithm in terms of sums, difference and multiples of simple logarithm $log\left(10x\sqrt{x-3}\right)$

III a) Evaluate $\int_{e^{-6}}^{e^6}\frac{\sqrt{36-(logx)^2}}{x}dx$

b)Use the given derivative to find all critical numbers of fand at each i critical numbers determine whether a relative minimum ,a relative minimum,or neither occurs

$f'(x)=xe^{-x}$ Type equation here.

c) Evaluate $\int_1^2\frac{1}{\sqrt{x}\sqrt{4-x}}dx$

d) Find $\frac{dy}{dx}\;for\;y=sinh^{-1}(tanhx)$

e) Find $\lim_{x\to0+}\frac{xsin\,1/x}{sinx}\;if\;it\;exists$

IV a) Evaluate $\int_0^{\pi}(x + xcosx)dx$

b) Evaluate $\int_0^{\pi/2} sin^4 3xcos^3 3xdx$

c) Evaluate $\int_{\sqrt{2}}^{2} \frac{dx}{x^2\sqrt{x^2-1}}$

d) $\int \frac{dx}{x(x^2-1)}$

e) Find the rectangular co-ordinates of the points whose polar co—ordinates are given by $\left(-6, -5\pi/6\right)$

V a)Find the arc length of the entire circle $r = 2acos\theta$

b) Find the area of the region enclosed by the cardiod $r = 1 + sin\theta$

c) Name and describe the orientation of the conic $r = \frac{2}{3+3cos\theta}$

d) Given $\lim_{x\to 4} x^2 = 16 \quad , with\ \varepsilon = 0.001$.Find the corresponding δ

e) Show that $\lim_{x\to\infty} \frac{4x-1}{2x+5} = 2$

VI a) Find the orders of the non zero elements of $Z/11Z$

b) Find the order of$[32] in\ Z/17Z$

c) Prove that $\sum_{d/n} \varphi(d) = n$ for

$i)\ n = 16$,ii) $n = 15,$ $iii) n = 45$

Complementary IV- Random variables

1) $f(x) = \frac{x}{15}$,where $x = 1,2,3,4,5$ and

=0,elsewhere is the density function of the random variable X.Find the distribution function .Find $p(1 < X < 2) and\ p\left({}^{1}/_{2} \leq X \leq {}^{5}/_{2}\right)$

2) Determine K such that the joint probability density function of the pair $(X, Y)$of random variable is $f(x, y) = K(xy + 2x + 3y + 6), 0 \leq x, y \leq 1,$

Examine whether X and Yare independent.

3)Find the m.g.f of the distribution with $f(x) = 2x, 0 < x < 1\ and\ hence$ determine the mean and variance.

4) For the data given below ,find the equation to the best fitting exponential curve of the form

$y = ae^{bx}$

x	1	3	4	5	6
y	16	13.8	40.2	125	300

5)The following table gives the data concerning the savings bank deposits and the number of strikes and lockouts over a period of 7 years. Calculate the correlation coefficient and regression lines

Deposit in Lakh of Rs(X)	51	54	55	59	65	60	70
No of strikes &lockouts(y)	38	44	33	36	33	23	10

Advanced Financial Accounting

1. Write short note on

a) Marshelling of Balance sheet

b) IERS

c) Error of omition

d) Sacrificing Ratio

e) Outstanding expense

2) The receipts and payments account of Navkas Football club for the year ended 31 st March 2018

Receipts	Rs	payments	Rs
To, Balance b/d(1/42017)	48000	By,purchase of balls	8000
To ,Subscriptions received	2,46,000	By, Tournment Fees	10,000
To,Interest	2,000	By Rent of playground	5,000
To Sale of furniture	10,000	By refreshment expense	4000
To,Donation for club building	60,000	By,Travelling expense	30,000
		By,Investments purchased at face value	100,000
		By,salary	12,000
		By miscellaneous Expense	8000
		By,Balance c/d(31/3/2018	1,15,000
	3,66,000		3,66,000

Prepare the clubs income and Expense account for the year ended 31st march 2018, and the balance sheet as on that date, after taking the following information into account.

1) The subscriptions received include Rs.10000 outstanding subscription of the year 2016-17. Subscription of the year 2017-18 amounting to Rs16000 is still outstanding from members. Some members have paid subscription of the year 2018-19 amounting to Rs8000 which is included in the subscriptions received.

2) Interest accrued but not received: Rs.500

3) The book value of the furniture sold wasRs.14000

4) The rent of playground Rs 6,000 and salary Rs.5000 of the year 2017-18 are still out sanding and rent of playground of the year 2017-18 :Rs1000 has been paid during this year

5)There is a stock of balls with the club valued at Rs .4000as on 31st march ,2018

.3)A and B are partners sharing profits in the ratio 7:3.A surrenders $1/7$ th of his share and B surrenders $1/3$ rd of his shares in favor of C in the new partner. What is the new ratio and what is the new ratio and what is the sacrificing ratio?

4) Distinguish between Trial balance and Balance sheet.

5) Following are the extracts from the trial balance of the firm.

Trial balance as on 31/3/2018

Particulars	Rs.
Sundry Debtors	30000
Bad depts.	5000

Additional Information

1) After preparing the Trial Balance it is learnt that a debtor Ramesh has become insolvent and therefore the entire amount of Rs.3000/- from him was irrecoverable.

2) Create 10% provision for bad and doubtful debts.

You are required to pass necessary adjusting entries and show how the item will appear in the firms's Balance sheet .
