BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BTECH
BRANCH: ALL

SEMESTER: BL
SESSION : SP/2020

SUBJECT : MA203 NUMERICAL METHODS

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

			CO	BL
Q1	Derive the general error formula. How accurately should the length of vibration of a pendulum be measured in order that the computed value of g is correct to 0.001%.	[5]	1	1,2 & 3
Q2	Find the smallest positive root of $x^2+2x-2=0$ using the Newton-Raphson method, correct to 5 significant figures.	[5]	1	1 & 3
Q3	Solve by Gauss Jordan method the following simultaneous equations: $2x+8y+2z=14; 6x+6y-z=13; 2x-y+2z=5$	[5]	2	1 & 3
Q4	Find the missing term in the following table:	[5]	3	1 & 3

x	0	5	10	15	20	25
f(x)	1	-	38	82	-	260

Q5	Using Newton's divided difference formula, find a cubic polynomial y(x) which takes the following data, and hence calculate y(2).				[5]	3	1 & 3

x	0	1	4	5
y(x)	8	11	68	123

::::: 04/03/2020 ::::::M