DEPARTMENT OF MANAGEMENT
SCHOOL OF MANAGEMENT &BUSINESS STUDIES
JAMIA HAMDARD

Odd Semester Examination (Online) March 2021

BBA – Integrated-[I-Semester]

Subject Name: Business Mathematics MM: 75

Subject Code: BBA(I)-S-01 Time: 03Hours

Email Id of the Examiner: bmintegrated032021@gmail.com

Email Id of the Assistant Superintendent of Exams: firstsembbaexamjh@gmail.com

Email Id of Dean: deanmanagement@jamiahamdard.ac.in

Note:

- Students have to submit the **Scannedhand written solutions**to the Examiner, Assistant Superintendent of Examination and Dean on the email ids as mentioned above.
- Students shall use **ruled white paper & blue ink** to write the solution. Each page must have a **serial number and the signature** of the student.
- An additional ½ an hour will be given to the examinees to scan the answer sheets, convert it into single PDF and upload it on the id's given on the question papers.
- If any two copies are found to be similar then both the copies shall be cancelled. Such students will be considered/ tried for unfair means.
- The attachedPDF shall be named as follows – Roll No- Full Name-Enrollment Number-Course-Semester-Subject Abbreviation(Example: 9334032-Rabia Shaheen-2017-334-032-BBA-V-QTM)and students shall also mention the same in subject line of the email& his/her answer copy also.
- Answer All Questions, each carry equal marks.

Q1. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 5 \\ -3 & 2 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 6 & 2 & 1 \\ -1 & 2 & 5 \\ 1 & 2 & 3 \end{bmatrix}$ $I = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

Solve the following:

(a) A*I [3 Marks]

(b) A*B+B*A [6 Marks]

(c) $A^{-1} * A^{T}$ [6 Marks]

Q2. Solve the following using Gaussian Elimination Method. [15 Marks]

$3x + 2y + 3z = 16$
$-2x + 3y + 5z = 19$
$x - 4y - 2z = -13$

Q3(a) $2/3^{rd}$ of a bottle is filled with water. Ravi drains ½ of the water (300 ml) and adds another 300 ml milk in the bottle. What percentage of the bottle is filled? What is the ratio of milk to water in the bottle? What is the total capacity of the bottle? [3+3+3=9 marks]

Q3(b) Mr A invests Rs 10,000 in a scheme that guarantees a return of 5% every 2 months compounded every 4 months. What amount will Mr A accumulate at the end of 5 years? [6 marks]

Q4. There are 5 different balls (Red, Blue, Green, Yellow, Black) that need to be put in 3 different boxes (Box 1, Box 2 & Box 3)

(a) In how many ways can you put 5 different balls in three different boxes? [3 Marks]
(b) In how many ways can you put 5 different balls so that box 1 always gets the green ball? [3 Marks]
(c) In how many ways can you put 5 different balls so that Box 1 gets 2 balls, box 2 gets 2 balls & box 3 gets 1 ball? [3 Marks]
(d) In how many ways can you put 5 different balls so that there is at least 1 ball in each box. [6 Marks]

Q5(a) The total cost function of a firm is $C(x) = 1000000 + 500x^2 + 250x$. What is the Average cost function? what is the marginal cost function? at what value of x is the average cost minimized? [2+2+3 = 7 Marks]

Q5(b) A company's marginal revenue function is given as $MR(x) = 5000 - 100x$. Find the total revenue function and the total revenue maximizing output. [3 + 5 = 8 marks]

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