



ALLAMA IQBAL OPEN UNIVERSITY
Semester Terminal Exam Autumn 2020

Program /level:	B. Ed	Maximum Marks	100
Title /Course Code	Mathematics-I (6446)	Pass marks	50

Instructions for Exams:

1. Attempt All Questions.
2. Write answers in your own words and avoid copying from an internet source or any book.
3. Be precise, avoid unnecessary details, answer to each question must be between 600-800 words.
4. Students are advised to upload their answer sheets/solutions on LMS portal as soon as they complete their answers and not to wait for 8:30 PM.
5. Submissions after due date & time will not be entertained. Attach undertaking with each course code which were allowed to attempt in Urdu.
6. If plagiarism found, Student may be declared fail.

Q. No.	Questions	Marks
Q.1a	Find area of the triangle, determine by the points P, Q and R where P(0,0,0), Q(2,3,2) and R(-1,1,4)	(8+17+8)
b.	Discuss in detail vector triple product by providing examples. Also evaluate $(a \times b) \times c$ when $a = [2, 3, -1]$, $b = [3, -2, 4]$ and $c = [2, 1, 5]$	
c.	Write the vector \overrightarrow{PQ} in the form $x\hat{i} + y\hat{j}$ when P=(2,3), Q=(6,-2)	
Q.2a	State and explain Newton's 1 st , 2 nd and 3 rd laws. Also derive the relation of 1 st , 2 nd and 3 rd laws.	(15+10+8)
b.	If $\varphi(x) = 4x^3 - 5x^2 + 5x - 1$ then verify $(D + 1)(D - 1) = (D^2 - 1)$	
c.	Find r from the equation $\frac{d^2r}{dt^2} = at^2 + bt + c$ given that r and $\frac{dr}{dt}$ vanishes at t=0	
Q.3a	State and prove the Lamy's theorem.	
b.	Do you know about What is composition of couples? Also discuss condition of equilibrium of couples in detail.	(12+12+10)
c.	Define Friction, its types also explain Laws of Friction by taking examples from everyday life.	