



**ALLAMA IQBAL OPEN UNIVERSITY**  
Semester Terminal Exam Autumn 2020

Program /level:	B. Ed	Maximum Marks	100
Title /Course Code	<b>Mathematics-III (6448)</b>	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	For $y^2 = 16x$ find the focus, vertex and directrix of the parabola sketch its graph.	(13+10+10)
b.	Convert the conic $r = \frac{1}{5-5\sin\theta}$ to rectangular form.	
c.	Find the point of inflection of the curve $y = \frac{2}{x} - \frac{4}{x^2}$ .	
Q.2a	Find the pedal equations of $r = \frac{a}{\theta}$	(9+15+9)
b.	Form the differential equations of: (i). Circles of radius a (ii). Circles which pass through the origin	
c.	Solve the initial value problem $\frac{dy}{dx} = \frac{x+y}{x}$ ; $y(1) = 2$	
Q.3a	Solve the following differential equation $x \frac{dy}{dx} - 4y = x^6 e^x$	(10+12+12)
b.	Solve the differential equation $y'' + y' + y = 2\sin 3x$ to find the particular solution.	
c.	Use the Laplace transform to solve the differential equation $y' + 4y = e^{-4t}$ , $y(0)=2$	