**IQRA NATIONAL UNIVERSITY**

**Mid Term Assignment**

**SUBJECT: Calculus**

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**Q1: The function g (t) is defined by**

**g(t) = 0 t < 0**

$t^{2}$ **0 ≤ t ≤ 3**

 **2t +3 3 < t ≤ 4**

 **12 t > 4**

1. **State any point of discontinuity**
2. **Find, if they exist**
3. $\lim\_{t\to 3}g$

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**Q2: Find the Maclaurin’s series for**

**Y(x) =** $x^{2}+ \sin(x)$

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**Q3 (a) Find y**$''$**given**

**1+xy =**$ x^{2}+ y^{2}$

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**(b) Find** $y^{'}$**by using logarithmic differentiation**

**Y =** $x^{3}(1+x)^{9}e^{6x}$

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