Pokhara University

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| Level: Bachelor | Semester: Spring | Year : 2014 |
| Programme: Architecture | | Full Marks: 100 |
| Course: Architecture Mathematics I | | Pass Marks: 45 |
| Time : 3hrs. |

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| *Candidates are required to give their answers in their own words as far as practicable.* |
| *The figures in the margin indicate full marks.* |
| Attempt all the questions. |

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|  | 1. Examine the continuity and differentiability of *f* (*x*) at *x* = 1, where *f* (*x*) is defined as   f(x) = x2 + 1for 0 < x <1  = x + 1 for 1 ≤ x ≤ 2   1. Find of the given functions:   (i) y =  (ii)  (iii) (x + y)8 = x5y3. (iv) . | 7  8 |
|  | 1. Integrate any three of the following   (ii)  (iii) iv)  (by summation method) | 5\*3=15 |
|  | 1. Show that. 2. Approximate  by Trapezoidal and Simpson’s rule with   n = 4 and compare the result with exact value | 7  8 |
|  | 1. Evaluate.   OR  Find all the asymptotes of y3+x2y+2xy2-y +1 =0   1. The strength of a beam varies as its breadth and the square of the depth. Find the dimensions of the strongest beam that can be cut from a circular wooden log of radius a   OR  State Euler’s theorem for homogeneous function for two variables in x and y. If u=show that | 7  8 |
|  | 1. Classify conic section. Find the equation of the hyperbola in it’s in its standard form. 2. Find the equation the tangent at (x1, y1) of the ellipse . | 8  7 |
|  | 1. Find the area bounded by y = x2 + 1 and the line y = –x + 3. 2. The area bounded by y=xand. y = x2is revolved about y axis. Find the volume thus generated | 7  8 |
|  | Attempt all the questions   1. Find the vertex, equation of directrix and line of symmetry of the parabola (x – 3)2 = 4(y – 2). 2. Evaluate 3. = x3 + x2y then verify that   d) Find the center and radius of the circle x2 + y2 + 4y + 2x – 4= 0.  e) Evaluate | 2×5 |