Department: Arts and Sciences
Program: B. Sc in Computer Science and Engineering

Exam Name: Quiz#3 (Section C)   **Semester: Fall, 21**
Year: 2nd   **Semester: 2nd**
Course Number: Math 2203   **Course Name: Mathematics IV**
Total Marks: 20   **Time: 25 Minutes**

Answer all the following questions:	Marks
1. Apply Divergence theorem to evaluate $\iint_S \vec{A}.\overrightarrow{ds}$, where $\vec{A} = 4x\,\hat{\imath} - 2y^2\hat{\jmath} + z^2\hat{k}$ and S is the surface bounding the region $x^2 + y^2 = 25,\ z = 0\ and\ z = 6$.	10
2. State the Stoke's theorem. Apply Stoke's theorem to evaluate $\int_c \vec{F}.\overrightarrow{dr}$, where $\vec{F} = (2x - y)\hat{\imath} - yz^2\,\hat{\jmath} - y^2z\,\hat{k}$ and C is the circle $x^2 + y^2 = 16$ corresponding to the surface of sphere.	10

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Total Marks: 20   **Time: 25 Minutes**

Answer all the following questions:	Marks
1. Apply Divergence theorem to evaluate $\iint_S \vec{A}.\overrightarrow{ds}$, where $\vec{A} = x^3\hat{\imath} + y^3\hat{\jmath} + z^3\hat{k}$ and S is the surface of the sphere $x^2 + y^2 + z^2 = 16$.	10
2. State the Green's theorem. Apply Green's theorem to evaluate $\int_c \vec{F}.\overrightarrow{dr}$ in the plane where $\vec{F} = (xy + y^2)\hat{\imath} + x^2\,\hat{\jmath}$ and C is the closed curve of the region bounded by $y = 2x\ and\ y = 2x^2$.	10