

DEPARTMENT OF INDUSTRIAL AND PRODUCTION ENGINEERING

**IPE 207 (PROBABILITY AND STATISTICS)**

**Class Test 3** (Nov 10, 2020), Time: 25 minutes, Total Marks: 20

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1. In a game a man is paid \$7 if he gets all heads or all tails when three coins are tossed and he will pay out \$4 if either one of two heads show. What is his expected gain? **08**

2. Given the joint density function **12**

$$f(x, y) = \begin{cases} \frac{x(1+3y^2)}{4}, & 0 < x < 2, 0 < y < 1. \\ 0, & \text{otherwise} \end{cases}$$

Find  $g(x)$ ,  $h(y)$ ,  $f(x|y)$ , and evaluate  $P(\frac{1}{4} < X < \frac{1}{2} | Y = \frac{1}{3})$ .