Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

VII SEMESTER B.TECH. (CHEMICAL ENGINEERING)

MAKE UP EXAMINATION, DEC 2016

SUBJECT: PETROLEUM REFINERY ENGINEERING [CHE 423]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 100

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitable assumed.

<table>
<tr><td>1.</td><td>Obtain equilibrium flash vaporization temperature for 30% and 70% volume distilled from given ASTM data
<table>
<tr><td>Volume percent distilled</td><td>5</td><td>10</td><td>30</td><td>50</td><td>70</td><td>90</td><td>95</td></tr>
<tr><td>ASTM temperature(^{0}F)</td><td>424</td><td>453</td><td>484</td><td>502</td><td>504</td><td>536</td><td>570</td></tr>
</table></td><td>20</td></tr>
<tr><td>2.</td><td>Briefly explain the purpose and feed stock of the basic operations in petroleum processing.</td><td>20</td></tr>
<tr><td>3.</td><td>With a neat diagram explain the i) principle ii) working and iii) features of atmospheric distillation unit.</td><td>20</td></tr>
<tr><td>4A.</td><td>Differentiate between a TBP curve and ASTM curve of any crude sample with a neat diagram.</td><td>4</td></tr>
<tr><td>4B.</td><td>Write notes on i) purpose and ii) working of catalytic reforming unit.</td><td>6</td></tr>
<tr><td>4C.</td><td>Draw a neat diagram of an FCC reactor and explain its purpose and working.</td><td>10</td></tr>
<tr><td>5A.</td><td>Write notes on hydro treating.</td><td>10</td></tr>
<tr><td>5B.</td><td>Explain the purpose, feedstock and principle of coking.</td><td>5</td></tr>
<tr><td>5C.</td><td>Define octane number. Discuss its importance?</td><td>5</td></tr>
<tr><td>6A.</td><td>Write notes on composition of crude oil</td><td>10</td></tr>
<tr><td>6B.</td><td>What is engine knocking? What are its consequences? How can it be prevented?</td><td>5</td></tr>
<tr><td>6C.</td><td>Discuss Bharat Stage norms.</td><td>5</td></tr>
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