|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Roll No |  |  |  |  |  |  |  |  |  |  |  |

PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION - JULY 2024

|  |  |
| --- | --- |
| **Semester : VII** | **Date : 02/07/24** |
| **Course Code : PET 217** | **Time : 9:30 AM to 12:30 PM** |
| **Course Name : Petroleum Refining and Petrochemicals** | **Max Marks : 100** |
| **Program : B.Tech** | **Weightage : 50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

|  |  |  |  |
| --- | --- | --- | --- |
| **PART A** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 5M=20M** | | | |
| 1 | Describe the first-generation intermediates produced in petrochemical industries. | (CO 1) | [Knowledge] |
|  | | | |
| 2 | List some important variable parameters used in petrochemical industries. | (CO 1) | [Knowledge] |
|  | | | |
| 3 | Describe production of Ammonia by Heber’s Process. | (CO 2) | [Knowledge] |
|  | | | |
| 4 | Describe the production of diesel in petrochemical refinery in details. Also discuss the properties of diesel. | (CO 2) | [Knowledge] |
|  | | | |
| 5 | Define Naptha and its uses. Describe production of Naptha by steam cracking unit. | (CO 3) | [Knowledge] |
|  | | | |
| 6 | Describe the properties and uses of jet/aviation fuel. | (CO 4) | [Knowledge] |
|  | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 7 | "Propylene, a key building block in the petrochemical industry, is primarily produced through steam cracking process." Based on the following statement describe the manufacturing process of propylene used in the petrochemical industry. | (CO 2) | [Comprehension] |
|  | | | |
| 8 | "Ammonia is the main raw material for the production of urea". Explain the following statement. | (CO 2) | [Comprehension] |
|  | | | |
| 9 | "Steam Methane Reforming (SMR) is a chemical process used in the gas manufacturing industry to produce hydrogen on a large scale." Based on the following statement explain hydrogen production by using the SMR process. | (CO 3) | [Comprehension] |
|  | | | |
| 10 | "The Indian petrochemical industry plays a crucial role in the country's economic landscape". Based on the statement explain the Key Segments in the Indian Petrochemical industry. | (CO 3) | [Comprehension] |
|  | | | |
| 11 | http://guqbms.inpods.com:57953/api/v1/downloadFile?fileId=33060&tenantid=13  With the help of the following flow diagram, discuss the production methodology of LPG. | (CO 4) | [Comprehension] |
|  | | | |
| 12 | "Gasoline is typically a blend of various refinery streams." With the help of the statement discuss the methodology of gasoline production. | (CO 4) | [Comprehension] |
|  |  |  |  |
| 13 | “Naphtha is a flammable liquid hydrocarbon mixture. Generally, it is a fraction of crude oil, but it can also be produced from natural gas condensates”. Based on the statement explain the production process of Naphtha from natural gas. Also discuss few uses of naphtha in daily life. | (CO 4) | [Comprehension] |
|  | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | Imagine a people brought a Innova to carry passengers. As a petroleum engineer explain all the tests to be conducted on the fuel of his car. Assume that car is running by gasoline. | (CO 2) | [Application] |
|  | | | |
| 15 | Consider the transportation and storage of a crude oil fuel product from UP to Bengaluru using various means. Explain all the testing to be conducted that is required for the storage and transportation of the product of crude oil. | (CO 3) | [Application] |
|  | | | |
| 16 | The distillate obtained from crude oil for secondary processing revealed an undesirable occurrence: when temperatures exceeded 450˚C, coke formation occurred, which is undesired in the process. Explain the type of mild thermal cracking process which can be operated on the crude feed for optimum results. | (CO 4) | [Application] |