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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, January, 2021

Course: Petroleum Geology

Program: M.Tech. PE

Course Code: PEGS 7001

Semester: I

Time: 3 hrs.

Max. Marks: 100

SECTION A Each Question carries 5 Marks		
Q.1	<p>Choose the most appropriate answer:</p> <p>(A) Which of the following is most abundant sedimentary rock found in the earth's crust:</p> <p>(a) Sandstone</p> <p>(b) Shale</p> <p>(c) Limestone</p> <p>(B) The process transforming sediment into rocks is called :</p> <p>(a) Lithification</p> <p>(b) Hydrolysis</p> <p>(c) Metamorphism</p> <p>(C) Reservoir rocks containing petroleum has</p> <p>(a) Low permeability</p> <p>(b) High permeability</p> <p>(c) High porosity</p>	CO2

	<p>(d) Both (b) and (c)</p> <p>(D) Which of the following statement is true?</p> <p>(a) Permeability decreases with grain size</p> <p>(b) Permeability increases as sorting becomes poorer</p> <p>(c) Tight packing favours lesser permeability</p> <p>(E) Which of the following is not possible in oil trap?</p> <p>(a) Anticline</p> <p>(b) Lake</p> <p>(c) Fold</p> <p>(d) Fault</p>	
Q.2	<p>Give the Full form of the following:</p> <p>(A) PSC</p> <p>(B) DGH</p> <p>(C) R/P</p> <p>(D) OVL</p> <p>(E) HELP</p>	CO1
Q.3	<p>Choose the most appropriate answer:</p> <p>(A) The arrangement of rock layers containing an accumulation of hydrocarbons where the formation prevents the hydrocarbons from rising to the surface is called</p> <p>(a) Trap</p> <p>(b) Fault</p> <p>(c) Fold</p>	CO2

(B) Which type of kerogen has potential mainly for oil ?

- (a) Type I
- (b) Type II
- (c) Type III
- (d) Type IV

(C) Oil, natural gas and coal are examples of

- (a) Fossil fuels
- (b) Hydrocarbon fuel
- (c) Nonrenewable resources
- (d) All of the above**

(D) Which of the following rock types would most likely be the best oil reservoir?

- (a) Granite
- (b) Shale
- (c) Sandstone**
- (d) Salt

(E) In over mature Kerogen,

- (a) Neither oil nor gas remains
- (b) Only gas remains
- (c) Only oil remains**
- (d) None of the above

Q.4	<p>State True or False</p> <p>(A) Recovery Factor is the ratio of producible oil resource to total oil in place for a given field.</p> <p>(B) Proven reserves are also known in the industry as 2P</p> <p>(C) Proven Undeveloped reserves require additional capital investment (e.g., drilling new wells) to bring the oil to the surface</p> <p>(D) Industry specialists refer to Probable Reserves as P50</p> <p>(E) Contingent resources are those quantities of oil & gas estimated on a given date to be potentially recoverable from known accumulations and are currently economic.</p>	CO5
Q.5	<p>(a) Calculate the API gravity of crude having specific gravity of 0.876.</p> <p>(b) Specify the variety of the crude based on API value</p>	CO3
Q.6	<p>State True or False</p> <p>(A) Benzene is saturated hydrocarbons</p> <p>(B) Since olefins are fully saturated, they are stable and remained unchanged over long period of geological time.</p> <p>(C) The Colour of hydrocarbons is mainly determined by Say bolt Calorimeter</p> <p>(D) Heavy oils are commercially more valuable</p> <p>(E) The API gravity of water at 60°F is 1.0</p>	CO3
<p>SECTION B</p> <p>1. Each question carries 10 marks</p> <p>2. Instruction: Write short / brief notes</p>		
Q.1	<p>(a) Name the natural forces that are responsible for hydrocarbon migration.</p> <p>(b) What are the five most important geologic factors that are required to be present for HC deposit to form?</p>	CO2

Q.2	Explain the mechanism of combination trap for hydrocarbon. Illustrate your answer with neat figure.	CO2
Q.3	Define the following terms in relation to hydrocarbons : (a) Pour Point (b) Dew Point (c) Boiling Point (d) Flash Point	CO3
Q.4	Classify the Indian sedimentary basins with appropriate examples.	CO1
Q.5	The process of Transformation from organic matter into hydrocarbon is divided into three stages ----- Describe these stages of maturation from primary organic material to kerogen to oil/ gas. OR, (a) What is the difference between kerogen and bitumen? (b) Describe the characteristics of various types of kerogen	CO2
	Section C 1. Each Question carries 20 Marks. 2. Instruction: Write long answer.	
Q.1	(a) Explain the term sedimentary basin. (b) Describe the mechanism of formation of sedimentary basin due to plate tectonic theory. (c) Compare the process of formation of Foreland, Fore arc and Back arc basin. Illustrate your answer with suitable examples and neat figure. OR, (a) Describe the geo synclinal theory for the formation of sedimentary basin. (b) Explain the types of divergent sedimentary basin. Illustrate your answer with suitable example and neat figure.	CO4
