

Name:

Enrolment No:



UPES

End Semester Examination, May- 2023

Course Name: Fuel Geology

Programme Name: B. Sc, Geology (Hons)

Course Code: PEGS3035D

Semester: VI

Time: 03 hrs

Max. Marks: 100

SECTION A

(5Qx 4M = 20 Marks)

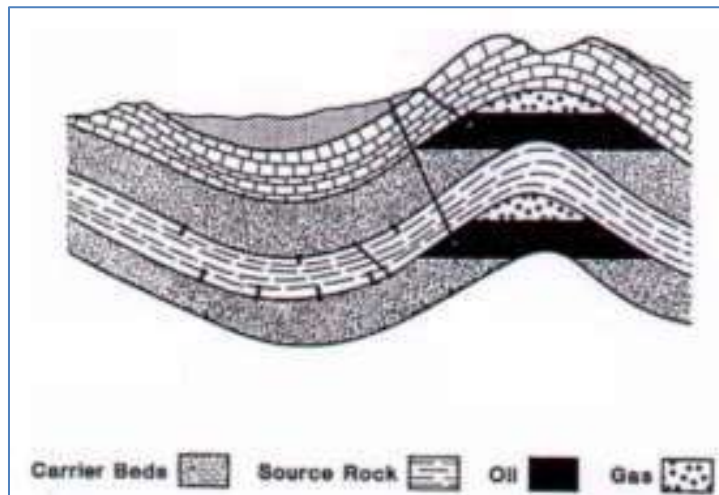
Q 1	Discuss the role of Capillary and buoyancy force on oil migration.	04	CO1
Q 2	List down the Unconventional gas reservoirs and arrange them in ascending order of permeability and matrix porosity.	04	CO1
Q 3	Differentiate between Type II & II S kerogen	04	CO2
Q 4	Discuss the evidence of oil migration	04	CO3
Q 5	Define 3Ps in oil Reserves	04	CO3

SECTION B

(4Qx10M = 40 Marks)

Q 6 On the figure shown label and define the following processes/ elements

- i. Primary migration
- ii. Secondary migration
- iii. Accumulation
- iv. Oil-Gas contact
- v. Seal



Q 7	Using Flow chart, illustrate the formation of Coal	<b>10</b>	<b>CO2</b>
Q 8	Explain India's position as regards to oil & gas as future prospects	<b>10</b>	<b>CO2</b>
Q 9	Describe the stratigraphy, tectonic setting and hydrocarbon potential of Cambay basin. <b>Or</b> Define Reservoir Trap and discuss its types, emphasizing structural traps	<b>10</b>	<b>CO2</b>
<b>SECTION C</b> (2Qx20M = 40 Marks)			
Q 10	Each question carries 10 marks  i. Discuss various techniques for porosity measurement. Using Gas expansion technique, measure the porosity of rock.  ii. Using Van Krevelan Diagram, assess the origin and maturity of kerogen and petroleum. <b>OR</b> 1.1 gms of sample heated in silica crucible covered with vented lid at a temperature of $925 \pm 25^\circ\text{C}$ for 7 minutes. After cooling, weight of residue found to be 0.725 gms. Moisture % is 3%. Compute the fixed carbon	<b>10*2 =20</b>        <b>20</b>	<b>CO3</b>        <b>CO4</b>
Q 11	Calculate the Hydrogen, Carbon, and sulphur % from following observations for coal sample.  2.1 gms of coal sample burnt in combustion tube. The increase in weight of anhydrous $\text{CaCl}_2$ was 0.53 gms and the increase in weight of KOH tube is 5.73 gms.  Washing of bomb pot when 1.9 gms of coal sample was treated in Bomb calorimeter experiment treated with $\text{BaCl}_2$ solution to give 0.41 gms of $\text{BaSO}_4$ .	<b>20</b>	<b>CO4</b>