

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2018

Course: Methods of Petroleum Exploration I (PTEG-7002)

Semester: I

Programme: M-Tech PE

Time: 03 hrs.

Max. Marks: 100

Instructions: All the questions are compulsory, wherever necessary draw neat sketch

Number of Pages: 03

SECTION A

S. No.	Question	Marks	CO
Q 1	Write a short note on following terms: a) Azimuth b) Pleochroism c) Effective porosity d) Hue and Saturation e) RSME	10	CO1
Q.2	Differentiate between the following terms: i) Geosynchronous satellite and Polar satellite ii) Geometric correction and Radiometric correction iii) Fracture and Tenacity iv) Isopach Map and Structural contour map v) Specular reflection and diffuse reflection	10	CO2

SECTION B

Q.3	Define stratigraphy?. Explain in brief different type of stratigraphy and their role in hydrocarbon prospecting.	10	CO3
Q.4	Describe in brief the principle, procedure and application of SEM & XRD data in Petroleum exploration.	10	CO4
Q.5	Describe in brief important physical, chemical and optical properties useful during core sample analysis and correlate with other analysis.	10	CO3
Q.6	i) Discuss in brief how these analyses are important in petroleum prospecting. a) Grain size analysis b) Rock-eval pyrolysis c) Vitrinite Reflectance OR ii) Write a short note on the role of; a) Datum b) Contour c) Facies maps d) Field photographs in hydrocarbon prospecting.	10	CO4 CO5

SECTION-C

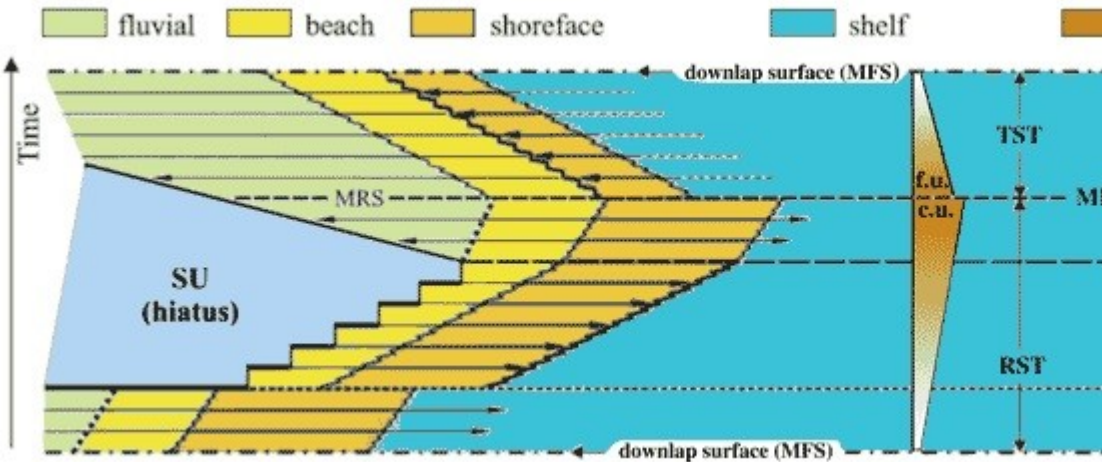
Q.7	a) Explain the importance of i) types of signals ii) types of resolution iii) electromagnetic spectrum in remote sensing analysis. b) In a banded sandstone quarry the following measurements are taken; the red color	12+5+3	CO5
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band shows apparent dip amount is 30° and direction is 220° and white color band shows apparent dip amount is 30° and direction is 150° . Find the direction of strike and true dip amount

c) The given strike and true dip of the outcrop is $N 65^\circ E, 35^\circ SE$. Determine the apparent dip in vertical section trending $S 50^\circ E$ by numerical method.

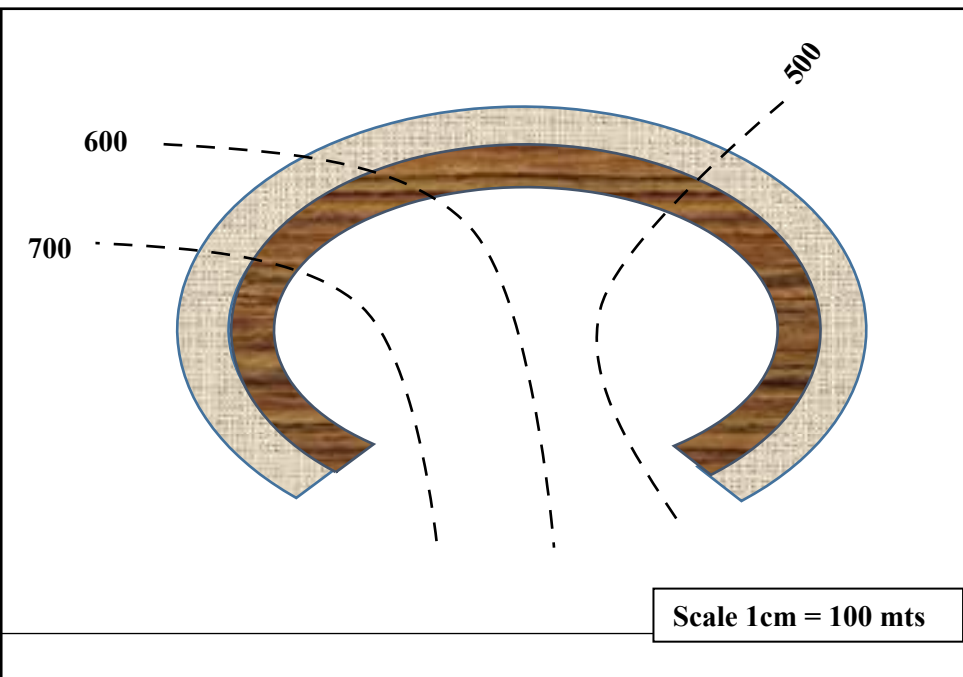
Q.8

- i) Explain and justify in brief the following abbreviation given in the diagram and their role in making sequence stratigraphy to understand the suitable hydrocarbon prospecting.



OR

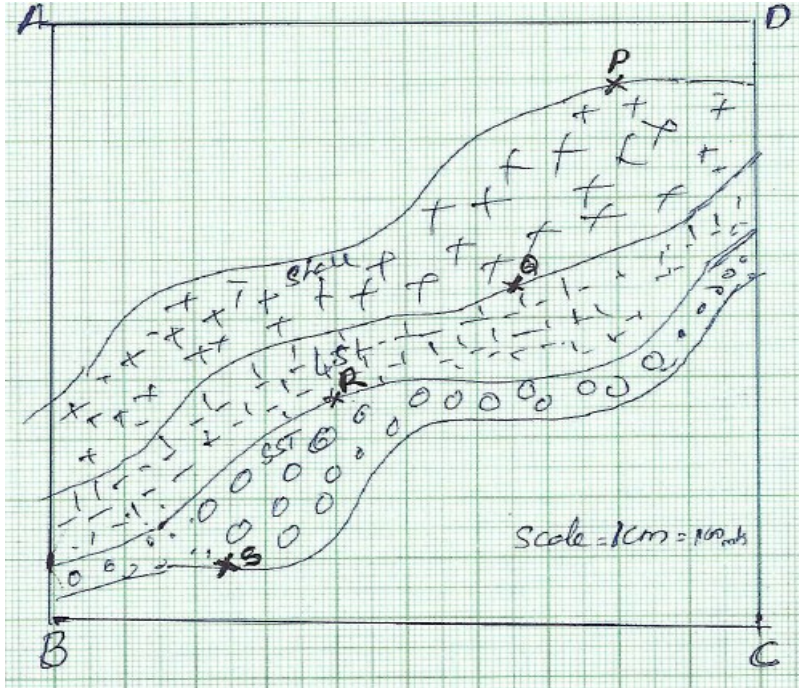
- ii) Find out the dip and strike for given map



20
OR
4+6+10

CO6
CO5

- iii) The outcrop ABCD is 1000 M on each side. The alternative layers of shale, limestone and sandstone are expose in the outcrop section. Two bore holes are drilled along the P to Q and R to S. The strike of the bed shale is N 35° E and bed sandstone strike is N 35°W. Find out the True Vertical Thickness and True Stratigraphic Thickness. Scale is 1cm=100m



- iv) Draw a suitable cross section for given map and plot the profile section and dip and strike direction for given beds in the cross section and find out geological structures. Scale 1cm=100m

