

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, July 2020

Course Name: B.Tech. APE UP
Program: Applied Micropaleontology
Course Code: PEGS 3006

Semester: VI
Time: 03 hrs.
Max. Marks: 100

Instructions

1. Read the instruction carefully before attempting.
2. This question paper has two section, Section A and Section B.
3. There are total of Sixty-Two questions in this question paper. **Fifty seven** in **Section A** and **Ten** in **Section B**
4. **Section A** consist of multiple choice based questions and has the total weightage of 60%.
5. **Section A** will be conducted online on BB Collaborate platform
6. **Section B** consist of long answer based questions and has the total weightage of 40%.
7. The maximum time allocated to **Section A** is two Hrs.
8. **Section B** to be submitted within 24 hrs from the scheduled time (*exceptional provision due extraordinary circumstance due to COVID-19 and due to internet connectivity issues in the far-flung areas*).
9. No submission of **Section B** shall be entertained after 24 Hrs.
10. **Section B** should be attempted after **Section A**
11. **The section B** should be attempted in blank white sheets (hand written) with all the details like programme, semester, course name, course code, name of the student, Sapid at the top (as in the format) and signature at the bottom (right hand side bottom corner)

SECTION A (60 Marks)

Attempt all questions

Q1 to 54 = 54 (54*1) Marks; Q55 to 57 = 6 (3*1) Marks

S. No.		Marks	CO
Q. 1	Please select the correct answer among the following- <ol style="list-style-type: none"> I. Which of the following modes of preservation of fossils is rare? <ol style="list-style-type: none"> a. Entire organism b. Hard parts c. Original forms d. Alteration of hard parts II. Jelly fishes and worms are mostly preserved by <ol style="list-style-type: none"> a. Silicification b. Carbonizatio c. Petrification d. Pyritization III. Petrification is a type of fossilization where 	10 (1*10)	1

	<ul style="list-style-type: none"> a. Original form is preserved b. Original form and structure are preserved c. Entire organism is preserved d. Only the hard parts are preserved <p>IV. The most favourable environment for the preservation of fossils is</p> <ul style="list-style-type: none"> a. Terrestrial b. Lacustrine c. Fluvial d. Marine <p>V. The term is 'Living Fossil' refers to</p> <ul style="list-style-type: none"> a. A species which was thought to be extinct but which is fact living b. A species which has acquired the characters of its predecessors c. A species which has retained all the primitive characters of its ancestors and has survived much longer than its counterparts d. A species which is at its acme of evolution <p>VI. Superficial similarities in the morphology of members of different Phyla is described as</p> <ul style="list-style-type: none"> a. Homology b. Homeomorphy c. Homomorphy d. Paedomorphosis <p>VII. Study of Trace fossils is known as</p> <ul style="list-style-type: none"> a. Paleo-ecology b. Synecology c. Ichthyology d. Ichnology <p>VIII. The fauna which comprises exclusively of active swimmers is described as</p> <ul style="list-style-type: none"> a. Plankton b. Nekton c. Benthic d. Pelagic <p>IX. Information one can get from the study of stromatolites is/are</p> <ul style="list-style-type: none"> a. Rate of sedimentation b. Flow direction c. Change in sea-level d. All of the above <p>X. The Foraminifers belong to the class</p> <ul style="list-style-type: none"> a. Sarcodina b. Saprozoa c. Flagellata d. Mastigophora 		
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<p>Q. 2</p>	<p>Please select the correct answer among the following-</p> <ol style="list-style-type: none"> I. In some Foraminifers the shell is provided with perforations in order to facilitate <ol style="list-style-type: none"> a. Breathing of the organism b. Passage of pseudopodia c. Disposal of organic wastes d. Exchange of constituents between the body fluids and water II. In which of the following foraminifers, the shell consists of numerous chambers arranged in the form of concentric rings. <ol style="list-style-type: none"> a. Textularia b. Globigerina c. Orbitolites d. Nummulites III. In Globigerina the chambers of the shell are arranged in the form of <ol style="list-style-type: none"> a. Planospiral b. Helicoid spiral c. Conical spiral d. Irregular IV. Nummulites were the abundant rock-building formation during <ol style="list-style-type: none"> a. Silurian b. Devonian c. Carboniferous d. Eocene V. The optimum temperature under which the reef-building corals thrive ranges from <ol style="list-style-type: none"> a. 27oC – 29oC b. 22oC – 27oC c. 29 oC - 33 oC d. 14 oC - 22 oC VI. The dominant forms of microfossils in the abyssal region are <ol style="list-style-type: none"> a. Diatoms b. Ostracods c. Foraminifers d. Radiolarians VII. Which of the following is called ‘the Age of Mammals’? <ol style="list-style-type: none"> a. Paleozoic b. Mesozoic c. Cenozoic d. None of the above 	<p style="text-align: center;">7 (1*7)</p>	<p style="text-align: center;">2</p>
<p>Q. 3</p>	<p>Please select the correct answer among the following-</p> <ol style="list-style-type: none"> I. The term fossil derived from the Latin word which means Ancient 	<p style="text-align: center;">10 (1*10)</p>	<p style="text-align: center;">3</p>

	<p>To dig up Oil Rock deposits</p> <p>II. Dissimilar assemblages of fossils which are controlled by environment are restricted to certain sedimentary environment are known as Pseudo fossils Remanic fossils Facies fossils Derived fossils</p> <p>III. A body of strata in which the maximum abundance of a particular species is found is called. Assemblage zone Range zone Acme zone Interval zone</p> <p>IV. Fossils which have limited geological range but have a very wide geographical range is known as Index fossils Trace fossils Body fossils Living fossils</p> <p>V. Which of the following is the correct order of the division Families, Orders, Genera, Classes, Phylum, Kingdom Genera Families Orders Classes Phylum Kingdom Kingdom Families Genera Classes Phylum Orders Genera Kingdom Order Families Classes Phylum</p> <p>VI. The age of Globigerina is Miocene to recent Oligocene to Miocene Cretaceous to recent Palaeocene to recent</p> <p>VII. The most favorable environment for the preservation of fossils is Marine Lacustrine Fluvial Terrestrial</p> <p>VIII. Index fossils have- Wide geographical distribution and short geological range Wide geographical distribution and wide geological range Short geographical distribution and short geological range Short geographical distribution and wide geological range</p> <p>IX. The earliest known fossil bird is</p>		
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	<p>Hesperonis Pterosaurs Archaeopteryx Pteranodon</p> <p>X. Which of the following periods is known as 'age of fish'</p> <p>Carboniferous Triassic Ordovician Devonian</p>		
Q. 4	<p>Please select the correct answer among the following-</p> <p>I. Which of the following periods was the 'Age of coal plant'.</p> <p>a. Devonian b. Carboniferous c. Permian d. Triassic</p> <p>II. Which is called the 'Age of Reptiles'.</p> <p>a. Proterozoic Era b. Palaeozoic Era c. Mesozoic Era d. Cenozoic Era</p> <p>III. Conodonts are</p> <p>a. Mega fossils b. Mega fossils found in marine environment c. Phosphatic tooth like marine microfossils d. Trace fossils</p> <p>IV. The Shell/skeleton of radiolarian is-</p> <p>a. Calcareous b. Siliceous c. Chitinous d. Gelatinous</p> <p>V. The earliest fossils of foraminifera are found in-</p> <p>a. Permian rocks b. Carboniferous rocks c. Silurian rocks d. Upper Cambrian rocks</p> <p>VI. The common forms of foraminifera test in size from-</p> <p>a. to 0.1 mm b. to 0.3 mm c. to 2 mm d. to 5mm</p> <p>VII. The study of radiolarian may be used to get information about-</p> <p>a. Ancient water temperature</p>	<p>11 (1*11)</p>	<p>4</p>

	<ul style="list-style-type: none"> b. Oceanic depths c. Age of water masses d. All of the above <p>VIII. Which character of the Conodonts, make it an important criterion in hydrocarbon exploration-</p> <ul style="list-style-type: none"> a. Colour alteration characteristic b. Migration c. Changes in shape and size d. None of these <p>IX. Trace fossils are also known</p> <ul style="list-style-type: none"> a. Organicofossils b. Ichnofossils c. Ripple fossils d. None of these <p>X. Microfossils without ornamentation (spines) are called</p> <ul style="list-style-type: none"> a. sphaeromorphs b. acanthomorphs c. Priscogalea d. None of these <p>XI. An acritarch with polar symmetry also known as diacromorph</p> <ul style="list-style-type: none"> a. TRUE b. FALSE 		
Q. 5	<p>Please select the correct answer among the following-</p> <ul style="list-style-type: none"> I. Organic-walled microfossils can be permineralized/preserved in <ul style="list-style-type: none"> a. Cherts b. Fine grained Shale c. Siltstone d. All of these II. The process of an organism's hard part dissolve and replaced by other minerals, like calcite, silica, pyrite or iron called <ul style="list-style-type: none"> a. Permineralization b. Replacement c. Recrystallization d. Carbonization III. Interval biozones based on highest occurrence of taxa called FADs <ul style="list-style-type: none"> a. TRUE b. FALSE IV. LADs are not the interval biozone based on lowest occurrence of taxa <ul style="list-style-type: none"> a. TRUE b. FALSE V. How much the average biochronological stratigraphical resolution <ul style="list-style-type: none"> a. 1M Years b. 2M Years 	<p>9 (1*9)</p>	<p>5</p>

	<p>c. 3 M Years d. 4M Years</p> <p>VI. Typical uncertainty range of radiometric dating is a. 1-5 % b. 1-10% c. 1-20% d. 1-7%</p> <p>VII. According to Shaw's method, what is the relationship equation between relative rate of sedimentation at two different sites a. Equation of Line b. Equation of Parabola c. Equation of Sine d. No relation</p> <p>VIII. Polymorphs are microfossils defined as a. organic walled, size range- 5 to 100 micrometer b. Inorganic walled, size range- 5 to 500 micrometer c. Inorganic walled, size range- 5 to 100 micrometer d. organic walled, size range- 5 to 500 micrometer</p> <p>IX. For the formation of black shale the sediments must contain organic matter more than a. 1% b. 5% c. 10% d. 15%</p>		
Q. 6	<p>Please select the correct answer among the following-</p> <p>I. What would be the nature of hydrocarbon formed by Type II Kerogen, if Huminite-vitrinite reflectance R_o is 1.75 (1 Mark) a. Oil b. Dry Gas Zone c. Condensate and wet gas zone d. Immature</p> <p>II. What is/are the applications of conodonts (1 Mark) a. in biostratigraphy b. in Palaeoecology c. in hydrocarbon exploration d. All the above</p> <p>III. Stromatolites are preserved only in (2 Marks) a. Shale b. Sandstones c. Carbonates d. Coal</p> <p>IV. The most critical factors affecting chronostratigraphic significance in biostratigraphy are (Select all correct options) (3 Marks)</p>	<p>13 (1+1+2+3*3)</p>	<p>6</p>

	<ul style="list-style-type: none"> a. Evolution b. Migration c. Extinction d. Environment <p>V. Please select the correct option of the paleoenvironmental interpretation with the help of Globorotalia Truncatulinoides (3 Marks)</p> <ul style="list-style-type: none"> a. Umbilical View-Left Coiling- Cold Environment b. Umbilical View-Right Coiling-Cold Environment c. Umbilical View-Right Coiling-Warm Environment d. Umbilical View-Left Coiling-Warm Environment <p>VI. Variation or errors in virinite reflectance measurements may be caused by the following (Select all possible answers) (3 Marks)</p> <ul style="list-style-type: none"> a. Oxidation b. Drilling mud additives c. Anisotropy d. Vitrinite composition 		
<p>SECTION-B 40 Marks Attempt all questions Maximum 200 words</p>			
Q 7	'Microfossils are superior to Magafossils in correlations' comments on the statement.	10	CO1
Q 8	Describe the significance of microfossils in petroleum exploration.	10	CO2
Q 9	What are the prerequisites for a fossil to be a useful in biostratigraphy?	10	CO5
Q 10	Generation of 'Megalospheric' and 'Microspheric' tests in foraminifers.	10	CO3