

GOVERNMENT ZIRTIRI RESIDENTIAL SCIENCE COLLEGE

SUBJECT : GEOLOGY

Name of Paper : Fuel Geology & Mineral Exploration

PAPER – XII

VI SEMESTER

A : Choose the correct answers : (25 Marks)

- If the API gravity is greater than 10, it is
 - Lighter and floats on water; if less than 10, it is heavier and sinks
 - Heavier and sinks on water; if less than 10, it is lighter and floats
 - Heavier and sinks
 - Both (a) and (c)
- The general formula of saturated hydrocarbons alkanes are
 - C_nH_{2n+2}
 - C_nH_{2n}
 - C_nH_{2n-6}
 - C_nH_{2n+1}
- The correct sequence of refined crude oil in fractional distillation from low temperature to high temperature is
 - Butane, petrol, kerosene, diesel, fuel oil & Asphalt
 - Butane, kerosene, petrol, diesel, fuel oil & Asphalt
 - Butane, kerosene, diesel, petrol, fuel oil & Asphalt
 - None of the above
- As on 31 March 2018, India had estimated crude oil reserves of
 - 594 million tonnes
 - 700 million tonnes
 - 456 million tonnes
 - 802 million tonnes
- Organization of the petroleum exporting countries (OPEC) is an intergovernmental organization of 13 nations, founded on
 - 14 September 1960 in Baghdad
 - 14 September 1960 in Kuwait
 - 14 September 1960 in Tehran
 - 14 September 1960 in Riyadh
- The best quality of coal is
 - Bituminous
 - Anthracite
 - Peat
 - Lignite
- Neyvelli lignite in Tamil Nadu belongs to the age of
 - Paleocene
 - Oligocene
 - Eocene
 - Miocene

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8. Coal with volatile content between 22% and 33% on unit coal basis are called
- i) Primary coking coal
 - ii) Medium coking coal
 - iii) Semi coking coal
 - iv) All of the above
9. Raniganj coal field is located in
- i) Orissa
 - ii) Bihar
 - iii) West Bengal
 - iv) Jharkand
10. A thin bands in coal which is characterized by bright colour and silky lustre are called
- i) Vitrain
 - ii) Clarain
 - iii) Durain
 - iv) Fusain
11. In the principles of exploration, the first survey carried out is
- i) Geological
 - ii) Geochemical
 - iii) Geophysical
 - iv) Petrographic
12. Hydrothermal deposits ranges between (in °c)
- i) 5-100
 - ii) 100-200
 - iii) 300-500
 - iv) 250-900
13. Geological maps are not used for
- i) Mineral prospecting
 - ii) Civil engineering
 - iii) Mining
 - iv) Offshore drilling
14. The highest category of confidence category of reserve estimate is
- i) proved ore reserve
 - ii) probable reserves
 - iii) estimated reserves
 - iv) measured reserves
15. This method is not part of a drilling method
- i) percussion
 - ii) jetting
 - iii) sludging
 - iv) reconnaissance
16. Geochemical processes operate only because of
- (i) Presence of various chemical on the earth's crust
 - (ii) Water circulation system
 - (iii) A flow of energy from a higher to a lower potential or intensity
 - (iv) High pressure in the crust
17. The probable upper or lower limit of the background value at some statistically precise confidence level
- (i) Threshold value
 - (ii) Background values
 - (iii) Pathfinder
 - (iv) Dispersion

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18. In pedo-geochemical survey, The soil profile can be classified into
(i) two broad groups (ii) three broad groups
(iii) four broad groups (iv) five broad groups
19. The geochemical envelope, which is an expression of alteration and zoning condition surrounding metalliferous deposit, is called
(i) Threshold value (ii) Pathfinder
(iii) Secondary dispersion halo (iv) Primary dispersion halo
20. For Wolframite-tin deposits, pathfinder element is
(i) As (ii) Mo
(iii) Hg (iv) Fe
21. The first stage of geological analysis is
i) prospecting ii) exploration
iii) drilling iv) extraction
22. The gravity method of geophysical exploration measures which operative physical property?
i) resistivity ii) density
iii) conductivity iv) magnetic susceptibility
23. For density calculations, we use
i) spontaneous potential log ii) gamma log
iii) density and neutron log iv) resistivity log
24. Which among the following will have the least amount of resistivity (ohm-meters)
i) shaly sand ii) dense limestone
iii) shale iv) fresh water
25. Spontaneous potential log is measure of the electrical potential difference between borehole electrode and
i) surface electrode ii) borehole electrode
iii) current electrode iv) all of the above

B : Fill up the blanks : (15 Marks)

1. Components of petroleum are separated using a technique called _____
2. The alkanes from pentane (C_5H_{12}) to octane (C_8H_{18}) are refined into _____
3. _____ is a sticky, black, and highly viscous liquid or semi-solid form of petroleum
4. The amount of heat that the unit weight of coal would produce on burning is _____

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5. Lower Gondwana Coal fields are found in _____ age.
6. In Jammu & Kashmir coal is extracted from coal fields in _____ and Kalakot area.
7. A contour line is a line on a map showing the same _____.
8. In unconsolidated materials, _____ drilling method is used.
9. The hole made for the core sample is called the _____.
10. _____ are characterized by the normal range of concentration of elements in regional perspective rather than localized mineral occurrences.
11. People suffering from arsenosis indicate presence of trace elements of _____ in the surrounding area
12. _____ is the dispersed remnants of mineralization caused by surface processes of chemical and physical weathering and redistribution of primary patterns.
13. A _____ is a reading that exceeds the average magnetic field strength.
14. If you go to the poles of the Earth, your body weight will be _____ there than at the equator.
15. Sir Isaac Newton's universal law of gravitation is denoted by _____.

Key Answers (MCQ) :

- | | | | | |
|-----------|-----------|-----------|-----------|----------|
| 1. (i) | 2. (i) | 3. (i) | 4. (i) | 5. (i) |
| 6. (ii) | 7. (iv) | 8. (i) | 9. (iii) | 10. (ii) |
| 11. (i) | 12. (iii) | 13. (iv) | 14. (i) | 15. (iv) |
| 16. (iii) | 17. (i) | 18. (ii) | 19. (iv) | 20. (ii) |
| 21. (i) | 22. (ii) | 23. (iii) | 24. (iii) | 25. (i) |

Key Answers (Fill up the blanks)

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|-------------------------------|-------------|-------------------------------|
| 1. Fractional distillation | 2. Gasoline | 3. Asphalt/Bitumen |
| 4. Calorific value | 5. Permian | 6. Udhampur |
| 7. Elevation | 8. Auger | 9. Core |
| 10. Background values | 11. As | 12. Secondary dispersion halo |
| 13. positive magnetic anomaly | 14. Greater | 15. $F = (G)(m_1)(m_2) / r^2$ |