



SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code : ENGINEERING GEOLOGY(13A01506)

Course & Branch: B.Tech - CE

Year & Sem: III-B.Tech & I-Sem

Regulation: R13

UNIT –IV

GEOPHYSICAL STUDIES

- 1) What is vertical electrical sounding? Describe the field work and interpretation of field data involved in sounding method. 10M
- 2) a) Explain briefly about geothermal method. 10M
b) Describe the grouting technique for site improvement.
- 3) a) Explain about the radio metric method. 10M
b) Describe the Magnetic method of survey.
- 4) Write shorts notes on: 10M
a) Electrical method
b) Ground penetrating radar method.
- 5) What are the objects of geophysical investigations? Enumerate the various geophysical methods of subsurface investigations? Discuss the usefulness of various surface techniques? 10M
- 6) a) Explain the importance of geophysical studies? 10M
b) Explain the principles of geo physical study by Gravity method?
- 7) Explain the various types Seismic Methods and its advantages and limitations? 10M
- 8) Explain magnetic method and their advantages and limitations? 10M
- 9) Describe the principle of gravity method with the help of a neat sketch? What are the different parameters measured? Also explain the different kinds of gravity methods that are followed during the investigations? 10M
- 10) a) What is seismic method? 2M
b) Write on Wenner and Schlumberger types of electrode configuration? 2M
c) Define electrical method? 2M
d) List out the importance of Electrical resistivity method? 2M
e) Illustrate the applications of magnetic method? 2M

Prepared by:

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QUESTION BANK (OBJECTIVE)
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- 1) which of the following logging technique is the best suited to estimate the shale content of hydro carbon reservoirs []
 A) Resistivity B) Sonic C) Induction D) Gamma ray
- 2) Which of the following method is best suited to estimate the resistivity variations in the upper mantle of the earth []
 A) Deep electrical resistivity B) Ground Penetrating radar
 C) Controlled source electromagnetics D) Magnetotellurics
- 3) A successful combination of geophysical methods for exploration of kimberlite pipe is []
 A) Gravity and radiometric B) Magnetic and electromagnetic
 C) Radiometric and Magnetic D) Radiometric and seismic
- 4) which of the following logging technique is the best suited to distinguish flowing and stagnant waters []
 A) Temperature log B) Resistivity log C) SP-log D) Resistance log
- 5) Magnetic survey is useful for []
 A) Metallic deposit B) Non- Metallic deposit C) Oil and Gas D) Iron and ore
- 6) Oil and gas can be explored by []
 A) Magnetic method B) Ground penetrating radar C) Seismic method D) Resistivity method
- 7) Ground penetrating radar is most useful for the exploration of []
 A) Coal B) Ore body C) Ground water and ore body at shallow depth
 D) Ground water and ore body at deeper depth
- 8) Subsurface geophysical method is []
 A) Magnetic method B) Ground penetrating radar C) Seismic method D) Borehole logging
- 9) If a material of resistance 'R' has a cross sectional area 'A' and a length 'L' then its resistivity ρ can be expressed as []
 A) $\frac{RA}{L}$ B) $\frac{LA}{R}$ C) $\frac{RA^2}{L}$ D) $\frac{LA^2}{L^2}$
- 10) The relation between aquifer resistivity ρ and the resistivity of ground water ρ_w and α is the porosity is []
 A) $\frac{\rho}{\rho_w} = \frac{2\alpha}{3-\alpha}$ B) $\frac{\rho}{\rho_w} = \frac{3-\alpha}{2\alpha}$ C) $\frac{\rho_w}{\rho} = \frac{3-\alpha}{2\alpha}$ D) $\frac{\rho_w}{\rho} = \frac{3-\alpha}{2\alpha}$
- 11) By using geo physical methods we can measure []
 A) Density B) Magnetism C) Resistivity D) All the above
- 12) The units of resistivity in metric system are []
 A) Volts B) Amp C) Ohm D) Ohm-m
- 13) Geo physical method detect differences or anomalies of physical properties within the earth's []
 A) Mantle B) Core C) Crust D) Outer mantle
- 14) Geophysical exploration refers to the scientific measurement of physical problems of the earth crust for investigation of []
 A) Mineral deposits B) Ore deposits C) Rock deposits D) all
- 15) Gravity method represents a set of geophysical methods which make use of the _____ field of earth []

- A) Natural gravity B) artificial gravity C) both a & b D) none
- 16) In gravity method _____ property of material is controlling physical property []
 A) Density B) Pressure C) Temperature D) All
- 17) In gravity method the gravity is influenced _____ if causative body is heavier []
 A) Positively B) Negatively C) Neutral D) All
- 18) The gravimeter used in relative gravity measured in _____ loaded spring []
 A) Pressure B) Density C) Mass D) All
- 19) Which of the following is a kind of gravity method []
 A) Gravity prospecting B) gravity logging C) shipborne gravity D) All
- 20) The process of applying various corrections, which is obviously necessary is called
 A) Reduction of gravity B) reduction of mass C) reduction of pressure D) All []
- 21) For total measurements _____ magnetometer is used []
 A) Neutron precession B) Proton precession C) electron precession D) All
- 23) Magnetic surveys have _____ []
 A) Certain inherent limitations B) certain herent limitations
 C) Both a & b D) All
- 24) In electrical methods employing _____ such a physical property is the electrical resistivity
 A) A.C Energization B) D.C energization C) Both a & b D) All []
- 25) The geological problem like locating and tracing of faults ____ are employed to find solution
 A) Magnetic investigations B) Pressure investigations C) Both a & b D) All []
- 26) Electrical method is successful in dealing with the problems like _____ []
 A) Groundwater studies B) surface water studies C) Both a & b D) All
- 27) What is an instrument used to study earthquakes? []
 A) Epicenter B) Foreshock C) Scarp D) Seismograph
- 28) What is the standardized distance from an earthquake epicenter for measuring Richter magnitudes?
 A) 0 km B) 10 km C) 100 km D) 500 km []
- 29) Where do most earthquakes occur? []
 A) Along dikes B) Along faults C) Along folds D) Along joints
- 30) Which of the following is not associated with earthquake destruction? []
 A) Fires B) High winds C) Mass wasting D) Trembling earth
- 31) What is the most earthquake prone state? []
 A) California B) Florida C) Maine D) North Dakota
- 32) A positive gravity anomaly indicates: []
 A) A deficiency in mass. B) An excess of mass
 C) A reversal of the gravitational field. D) None of these
- 33) Positive gravity anomalies are often associated with: []
 A) Ore bodies beneath Earth's surface. B) Large cavern systems beneath Earth's surface
 C) Deep ocean trenches D) All of these.
- 34) A positive magnetic anomaly indicates: []
 A) A body of magnetic ore. B) An intrusion of gabbro.
 C) Mafic rock masses. D) All of the above
- 35) Basalt seismic wave velocity varies from []
 A) 5-6.8 m/s B) 5.2-6.5 m/s C) 6.2-7.2 m/s D) 5-6.5 m/s
- 36) The unit of gravity is []
 A) Gal B) Amp C) Ohm D) Ohm-m
- 37) Loose sand and gravel seismic velocity is []
 A) 0.2-0.6 m/s B) 0.1-0.5 m/s C) 0.1-0.4 m/s D) 0.1-0.9 m/s

38) The minimum number of seismic stations needed to locate an earthquake is: []

- A) 8 B) 2 C) 3 D) 1

39) A seismic gap is: []

- A) The time between large earthquakes.
B) A segment of an active fault where earthquakes have not occurred for a long time.
C) The center of a tectonic plate where earthquakes rarely occur.
D) A large chasm opened by an earthquake.

40) Which boundary marks a change from 100% solid to 100% liquid? []

- A) Mantle ... outer core B) Lithosphere ... asthenosphere
C) Crust ... mantle D) None of these

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