

SET 2013
PAPER – II

EARTH, ATMOSPHERIC, OCEAN AND PLANETARY SCIENCES

Signature of the Invigilator

Question Booklet No.

1.

OMR Sheet No..

Subject Code

ROLL No.

Time Allowed : 75 Minutes

Max. Marks : 100

No. of pages in this Booklet : 8

No. of Questions : 50

INSTRUCTIONS FOR CANDIDATES

1. Write your Roll No. and the OMR Sheet No. in the spaces provided on top of this page.
2. Fill in the necessary information in the spaces provided on the OMR response sheet.
3. This booklet consists of Fifty (50) compulsory questions each carrying 2 marks.
4. Examine the question booklet carefully and tally the number of pages/questions in the booklet with the information printed above. **Do not accept a damaged or open booklet.** Damaged or faulty booklet may be got replaced within the first 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time given.
5. Each Question has four alternative responses marked (A), (B), (C) and (D) in the OMR sheet. You have to completely darken the circle indicating the most appropriate response against each item as in the illustration.



6. All entries in the common OMR response for Papers I and II sheet are to be recorded in the original copy only.
7. Use only Blue/Black Ball point pen.
8. Rough Work is to be done on the blank pages provided at the end of this booklet.
9. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Sheet, except in the spaces allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
10. You have to return the Original OMR Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. **You are, however, allowed to carry the test booklet and the duplicate copy of OMR Sheet** on conclusion of examination.
11. Use of any calculator, mobile phone or log table etc. is strictly prohibited.
12. **There is no negative marking.**

02-13

EARTH, ATMOSPHERIC, OCEAN AND PLANETARY SCIENCES

PAPER-II

Note :— This paper contains **fifty (50)** objective type questions, each question carrying **two (2)** marks. Attempt **all** the questions.

1. An equipotential line :
 - (A) Has no velocity component normal to it
 - (B) Has constant dynamic pressure
 - (C) Has no velocity component tangent to it
 - (D) Is same as streamline
2. The asteroid belt occurs between :
 - (A) Earth and Venus
 - (B) Mars and Jupiter
 - (C) Saturn and Jupiter
 - (D) None of the above
3. In Hubble's theory :
 - (A) Celestial bodies are receding from one another
 - (B) Celestial bodies are proceeding towards one another
 - (C) Celestial bodies are stationary with respect to one another
 - (D) None of the above
4. Duration of eccentricity cycle is :
 - (A) 41,000 years
 - (B) 21,000 years
 - (C) 100,000 years
 - (D) 800,000 years
5. The sequence of the planets with respect to increasing distance from the sun is :
 - (A) Mercury, Venus, Earth, Mars, Jupiter and Saturn
 - (B) Mercury, Venus, Earth, Mars, Saturn and Jupiter
 - (C) Mercury, Venus, Earth, Jupiter, Mars and Saturn
 - (D) Mercury, Venus, Mars, Earth, Jupiter and Saturn
6. Work done by a satellite moving around the Earth is :
 - (A) Infinite
 - (B) Proportional to the no. of its revolutions
 - (C) Zero
 - (D) Progressively increasing with time
7. Duration of Sunspot cycle is :
 - (A) 11 years
 - (B) 25 years
 - (C) 50 years
 - (D) 100 years
8. The Name of our Galaxy is :
 - (A) Andromeda Galaxy
 - (B) Cart wheel Galaxy
 - (C) Milky way Galaxy
 - (D) Cigar Galaxy

9. The Perihelion is :
- Position of earth closest to the sun
 - Position of earth farthest to the sun
 - Position of earth closest to the moon
 - Position of earth farthest to the moon
10. The planet having largest number of moons is :
- Jupiter
 - Saturn
 - Mars
 - Venus
11. The second largest planet in Solar system is :
- Jupiter
 - Mars
 - Saturn
 - Earth
12. We get seasons on the earth mainly because :
- The sun gets hotter and colder
 - The moon gets in the way of the sun
 - The earth's axis is tilted
 - The earth gets closer to the sun
13. About how long is a Lunar month ?
- 10 days
 - 18 days
 - 29 days
 - 35 days
14. Gravitational potential for a mass 'M' at a distance 'r' from center of the Earth is
- $-G.M^2/r$
 - $-G.M/r$
 - $-G.M/r^2$
 - $-GMr$
15. Light from the Sun takes about how long to reach us ?
- 1 second
 - 8 minutes
 - 1 hour
 - 8 seconds
16. In Pratt model of Isostasy :
- Density is kept constant
 - Thickness is kept constant
 - Both density and thickness is kept constant
 - None of the above
17. According to the Kepler's third law the time period (T) and the semi major axis (a) of orbit of the sphere to the mass (M) of the planet is :
- $M = \pi a$
 - $GM/a^3 = 4\pi^2/T^2$
 - $GM = 4\pi a$
 - $GM/a^2 = 4\pi/T$
18. The principle of faunal and floral succession was given by :
- Nicholas Steno
 - William Smith
 - Charles Lyell
 - Charles Darwin
19. The most voluminous portion of the Earth is :
- The Lithosphere
 - The Mantle
 - The Core
 - The Crust

20. The record of an earthquake is known as :
- Seismograph
 - Seismometer
 - Seismogram
 - Quakegrams
21. In greywacke we get enrichment of :
- K
 - Ca
 - Na
 - Mg
22. Steinmann's trinity refers to :
- A fossilised oceanic crust
 - Mid-oceanic ridge volcanism
 - Subduction volcanism
 - Sub-alkaline volcanism
23. Ophiolites are :
- Obducted oceanic crust
 - A kind of metamorphic rocks
 - Rocks formed by low pressure metamorphism
 - Typical continental basalts
24. Which one of the following minerals crystallizes out of magma at the lowest temperature ?
- Olivine
 - Calcium plagioclase feldspar
 - Pyroxene
 - Quartz
25. Extrusive igneous rocks :
- Are generally fine-grained
 - Form only from granitic magmas
 - Form only from basaltic magmas
 - Are plutonic
26. The process by which larger plates or sheets of rocks are stripped from a larger rock mass by physical force is :
- Exfoliation
 - Hydration
 - Hydrolysis
 - Dissolution
27. An important, soluble product of the weathering of limestone is :
- Clay
 - Calcium bicarbonate
 - Gypsum
 - Quartz
28. Which one of the following features is NOT associated with sedimentary rocks ?
- Bedding
 - Foliation
 - Fossils
 - Ripple marks
29. A clastic rock is :
- A rock that contains groundwater
 - A rock formed from the cementation of rock fragments
 - A rock formed from evaporation
 - Transformed by heat and pressure into limestone
30. Lithification is the *primary* process in the formation of which one of the following rocks ?
- Granite
 - Schist
 - Marble
 - Conglomerate

31. Shale *generally* refers to a rock formed from :
- (A) Sand
 - (B) Plant remains
 - (C) Clay
 - (D) Carbonate
32. A quartz sandstone actively fizzes upon the application of a drop of acid. Why ?
- (A) The acid has gone bad
 - (B) Quartz readily reacts with acid
 - (C) The sandstone is cemented with carbonate
 - (D) The clays are undergoing hydrolysis
33. The most destructive of seismic waves are :
- (A) P waves
 - (B) S waves
 - (C) L waves
 - (D) X waves
34. Body waves include :
- (A) L waves, only
 - (B) P waves, only
 - (C) S waves, only
 - (D) P and S waves
35. Where is the *epicenter* of an earthquake relative to its *focus* ?
- (A) Directly above
 - (B) Directly below
 - (C) At one and the same position
 - (D) On the opposite side of the Earth
36. The Moho separates :
- (A) The mantle from the core
 - (B) The asthenosphere from the mesosphere
 - (C) The lithosphere from the asthenosphere
 - (D) The crust from the mantle
37. One would utilize a dip-needle *specifically* to measure :
- (A) Gravitational force
 - (B) Magnetic declination
 - (C) Seismic intensity
 - (D) Magnetic inclination
38. Which one of the following statements best defines Pangaea ?
- (A) All of the Earth's continental masses together
 - (B) All of the continents of the Southern Hemisphere, only
 - (C) All of the continents of the Northern Hemisphere, only
 - (D) Africa, Madagascar, and the Indian subcontinents, only
39. Magnetic reversals :
- (A) Have not been encountered in the geologic record
 - (B) Cannot be detected in the remnant magnetism of rocks
 - (C) Occur when the Earth's rotational poles flip in position
 - (D) Are recorded in rocks forming at locations worldwide
40. Where is oceanic crust destroyed ?
- (A) At the oceanic ridges
 - (B) At the oceanic trenches
 - (C) In the inner core
 - (D) In the outer core

41. The general term for the blanket of loose rock debris that covers large areas of the Earth's surface is :
- (A) Regolith
(B) Bedrock
(C) Outcrop
(D) Laterite
42. In which situation would C-14 dating be used ?
- (A) A log buried in glacial sediments a few thousand years old
(B) Basalts less than a million years old
(C) Dinosaur fossils
(D) Paleozoic sedimentary rocks
43. The half-life of a radioactive element is :
- (A) The amount of radioactive material left after a given period of time
(B) The amount of radioactive material left after 1 million years
(C) The time required for $\frac{1}{2}$ of a sample to become radioactive
(D) The time required for $\frac{1}{2}$ of the radioactive material to decay
44. The Principle of uniformitarianism is not connected to which of the following statements ?
- (A) Type of geologic processes are uniform, but rates may change
(B) Natural laws do not change
(C) The present is the key to the past
(D) Most of the earth's events are catastrophic
45. Asthenosphere is a part of earth's :
- (A) Core
(B) Mantle
(C) Oceanic Crust
(D) Continental Crust
46. El Nino is a phenomenon associated with :
- (A) North Atlantic
(B) Northern Indian Ocean
(C) Eastern Pacific
(D) Mediterranean sea
47. The primary producers in the oceans are :
- (A) Foraminifera
(B) Radiolaria
(C) Phytoplanktons
(D) Ostracoda
48. Which of the following elements has maximum residence time in sea water ?
- (A) Calcium
(B) Sodium
(C) Magnesium
(D) Phosphorous
49. Which of the following natural hazards is rare but most devastating in context of India ?
- (A) Floods
(B) Earthquakes
(C) Volcanoes
(D) Tsunami
50. Which of the following term is associated with Monsoon front ?
- (A) Inter Tropical Convergence Zone
(B) Polar Front
(C) El Nino
(D) La Nina

ROUGH WORK

ROUGH WORK