



INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES **NOT** HAVE ANY UNPRINTED OR TURN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C** OR **D** AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE ANSWER SHEET.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. **Do NOT** write anything else on the Test Booklet.
4. This Test Booklet contains **35 items** (Questions). Each item is printed in English. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response with you consider the best. In any case, choose **ONLY ONE** response for each item.
5. You have to mark all your responses **ONLY** on the separate Answer Sheet provided. See direction in the answers sheet.
6. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of **correct responses** marked by you in the answer sheet. For **every incorrect** response **1/3rd of the allotted marks** will be deducted.
7. Before you proceed to mark in the Answer sheet the response to various items in the Test booklet, you have to fill in some particulars in the answer sheets as per instruction sent to you with your Admission Certificate.
8. After you have completed filling in all responses on the answer sheet and the examination has concluded, you should hand over to Invigilator only the answer sheet. You are permitted to take away with you the Test Booklet.
9. Sheet for rough work are appended in the Test Booklet at the end.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO

1. Which of the following is correct?
 - (a) Core of the earth is liquid due to very high temperature.
 - (b) Outer core is liquid whereas inner core is solid.
 - (c) Outer core is solid whereas inner core is liquid.
 - (d) Core of the earth is solid due to the presence of nickel and iron at extremely high pressure.

2. The phenomenon of Day and Night is caused due to:
 - (a) The Revolution of Earth around the Sun.
 - (b) The Rotation of Earth on its axis from west to east.
 - (c) Both Rotation and Revolution of the Earth.
 - (d) The inclination of Earth on its axis.

3. Consider the following statements regarding the grouping of inner and outer planets on the basis of their physical properties:

1. Inner planets are also known as Jovian planets, whereas outer planets are known as Terrestrial planets.
2. Inner planets are small in size and have high density, whereas outer planets are larger in size and have a low density.
3. Inner planets are relatively hotter than the outer planets.

Which one of the statement given above is/are **not** correct?

- (a) 1 only
- (b) 1 and 2 only
- (c) 3 only
- (d) None of the above

4. Consider the following major discontinuities of Earth:

1. Conrad - Outer and Inner Crust
2. Mohorovicic - Crust and mantle
3. Gutenberg - Outer and Inner Mantle
4. Lehmann - Mantle and Core

Which of the pairs given above is/are correctly matched?

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 2 and 3 only
- (d) 1, 2, 3 and 4

5. Match the two lists.

Planet	Moon
1. Mars	A. Ganymede
2. Jupiter	B. Titan
3. Saturn	C. Miranda
4. Uranus	D. Phobos

Select the correct answer using the code given below.

- (a) 1-B, 2-A, 3-C, 4-D
- (b) 1-D, 2-C, 3-A, 4-B
- (c) 1-D, 2-A, 3-B, 4-C
- (d) 1-B, 2-C, 3-D, 4-A

6. Consider the following pairs:

Original Rock	Metamorphic Rock
1. Sandstone	Schist
2. Limestone	Marble
3. Granite	Gneiss
4. Shale	Slate

Which of the above is/are correctly matched?

- (a) 1, 2 and 3 only
- (b) 1 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2 and 4 only

7. Consider the following statements with regard to earth's crust:
1. The oceanic crust is younger than the continental crust.
 2. The oceanic crust is thinner than the continental crust.
 3. The oceanic crust is lighter than continental crust.
- Which of the statements given above are correct?
- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3
8. Arrange the following elements in decreasing order of their weight in composition of earth's crust.
1. Silicon
 2. Oxygen
 3. Iron
 4. Aluminium
- Select the answer using the code given below.
- (a) 1-2-3-4
(b) 2-1-3-4
(c) 2-1-4-3
(d) 1-2-4-3
9. Which of the following statements correctly describes Planetesimals?
- (a) It refers to the smaller bodies which exists at an early stage of the planet formation.
- (b) It is the study of planets' internal structure.
- (c) It is localised lumps of gas within a nebula.
- (d) It refers to the type of galaxies which contains a large number of planets.

10. A light year is a measure of:
- (a) time
(b) distance
(c) velocity
(d) intensity of light
11. With respect to the rotation of earth, which of the following statements is/are correct?
1. Earth's rotational speed decreases towards the equator.
 2. Rotation is the reason behind the flattened the pole of earth.
- Select the correct answer using the code given below.
- (a) 1 only
(b) 2 Only
(c) Both 1 and 2
(d) Neither 1 nor 2
12. Which of the following statement(s) is/are correct?
1. Asteroids are found between the orbits of Mars and Jupiter.
 2. Meteorites enter the earth's atmosphere at high speed and get burnt completely due to friction.
 3. Meteoroids are the rock pieces which doesn't incinerate wholly and land on earth.
- Select the correct answer using the codes given below.
- (a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

13. With reference to Pole Star, which of the following statement(s) is/are correct?

1. The Pole star is seen at the same angle from all places on the Earth.
2. Its fixed position in the sky throughout the night proves the spherical shape of the Earth.

Select the correct answer using the codes given below.

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

14. With reference to the International Date Line, which of the following statements is/are correct?

1. A traveller crossing it from east to west gains a day.
2. When one crosses it, there is only change of date and not of time.
3. It deviates from the normal 180 degree meridian at various places.

Select the correct answer using the code given below.

- (a) 1 and 3 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

15. Venus is considered as "Earth's twin" because:

- (a) its period of revolution is same as that of Earth.
- (b) it has abundant amount of water.
- (c) it has approximately same size, mass and density as that of Earth.
- (d) it completes one rotation on its axis in 24 hours.

16. Which of the following provide information about the Earth's interior ?

1. Volcanic eruptions
2. Meteors
3. Seismic activities
4. Deep ocean drilling projects

Select the correct answer using the code given below.

- (a) 1, 2 and 3 only
- (b) 2 and 3 only
- (c) 2, 3 and 4 only
- (d) 1, 2, 3 and 4

17. The process of 'lithification' related with rocks:

- (a) turns sedimentary rocks directly to igneous rock
- (b) turns raw rock sediment into consolidated sedimentary rock
- (c) is responsible for building of block mountains
- (d) turns sedimentary rocks into metamorphic rocks

18. Consider the following pairs:

Astrological Phenomenon	Description
1. Super Moon	A full moon closest to Earth in its elliptical orbit.
2. Blood Moon	Occurrence of two full moons in the same month
3. Blue Moon	Colored appearance of moon during total lunar eclipse.

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 only
- (d) 1, 2 and 3

19. Consider the following statements regarding geomorphic processes:

1. The exogenic forces derive their energy mainly from within the earth while the endogenic forces derive their energy from the atmosphere.
2. The actions of exogenic forces continuously elevate the parts of the earth's surface, while actions of endogenic forces leads to wearing down of relief and filling up of depressions.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

20. Consider the following statements:

1. Spherical shape of other planetary bodies.
2. Different time of sunrise and sunset at different places.
3. Shadow of earth on moon during lunar eclipse.

Which of the statements given above provide an evidence for Earth's sphericity?

- (a) 1 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

21. With reference to Solar eclipses, consider the following statements:

1. Solar eclipse occur when position of Earth is between Moon and Sun.
2. Frequency of occurrence of total Solar Eclipse is higher than that of total lunar eclipse.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

22. Which of the following phenomenon are caused by the inclination of the Earth on its ecliptic plane?

1. Variation in length of day and night
2. Variation in position of the Midday Sun
3. Variation in intensity of solar insolation

Select the correct answer using the code given below.

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

23. Consider the following statements:

1. On the day of equinoxes, all parts of the world have equal days and nights.
2. When winter solstice occurs in the Southern hemisphere, the Northern hemisphere has the longest day and shortest night.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

24. With reference to Dawn and Twilight, consider the following statements:

1. It occurs when the Sun is below the horizon.
2. Their time duration decreases as one moves from pole to equator.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

25. A traveller starts his journey on 1st January 2019 and reaches his destination on 31st December 2018. In which of the following conditions it is possible?

- (a) When he flies from New Delhi to Abu Dhabi over Arabian Sea.
- (b) When he flies from New Delhi to Sydney over Bay of Bengal.
- (c) When he flies from Kyoto to California over Pacific Ocean.
- (d) When he flies from Kyoto to Beijing over East China Sea.

26. Which of the following countries is most likely to adopt multiple time zones?

- (a) A country which have large longitudinal expanse.
- (b) A country which has large latitudinal expanse.
- (c) A country which has high altitudinal variation.
- (d) A country which is located far away from the equator.

27. As one moves from Equator towards Poles, one will observe:

- 1. Decrease in length of longitudes
- 2. Decrease in distance between longitudes
- 3. Increase in altitude

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 only
- (c) 1 and 3 only
- (d) 2 and 3 only

28. Consider the following processes in relation to the evolution of Earth's atmosphere:

- 1. Degassing
- 2. Loss of primordial atmosphere
- 3. Oxygen addition by photosynthesis process

The correct chronological order in which the processes took place is

- (a) 1- 2- 3
- (b) 1- 3- 2
- (c) 2- 1- 3
- (d) 2- 3- 1

29. Which of the following theories is/are related to the origin of universe?

- 1. Big Bang Theory
- 2. Hoyle's Steady State Theory
- 3. The Big Splat Theory

Select the correct answer using the code give below.

- (a) 1 only
- (b) 1 and 2 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

30. The Jovian planets are mostly in gaseous form because of:

- 1. their distance from Sun
- 2. the Asteroid belt providing shield against solar winds

Select the correct answer using the code given below.

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

31. With reference to the Solar system, which of the following statements is/are correct?
1. All planets orbit around the sun in counter-clockwise direction.
 2. All other planets have density less than that of Earth.
 3. All planets have at least one natural satellite.
- Select the correct answer using the code given below.
- (a) 1 and 2 only
(b) 1 and 3 only
(c) 2 only
(d) 2 and 3 only
32. With reference to the Earth's crust, which of the following statements is/are **not** correct?
1. It is the outer thin layer with a thickness of upto 200 km.
 2. The continental crust is formed by basaltic rocks.
 3. The ocean floors are formed by granitic rocks.
- Select the correct answer using the code given below.
- (a) 1 only
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1, 2 and 3
33. Which of the following statements is/are correct with respect to Igneous rocks?
1. Cooling of magma in the Earth's crust leads to their formation.
 2. They are also known as primary rocks.
 3. Granite and Basalt are examples of igneous rocks.
- Select the correct answer using the code given below.
- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

34. With reference to the Earth's axial tilt or obliquity, consider the following statements:
1. Earth has the largest axial tilt of all the planets in the solar system.
 2. Less tilt results in less severe seasons, which means cooler summers and milder winters.
- Which of the statements given above is/are correct?
- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

35. With reference to the Daylight saving time (DST), consider the following statements:
1. It involves advancing clocks during summer months.
 2. It aims to decrease energy consumption by reducing the need for artificial lights.
 3. Regions closer to the equator benefit the most from DST.
- Which of the statements given above is/are correct?
- (a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3