GPA/19

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

2019

TEST BOOKLET

Time allowed : $1\frac{1}{2}$ hours

Full marks : 100

Answer ***all*** the questions.

Questions are of equal value.

TEST BOOKLET SERIES

D

Serial No. 300

Roll No.:

Signature of the Candidate:

INSTRUCTIONS

Candidates should read the following instructions carefully before answering the questions:

1. This booklet consists of 12 pages including this front page, containing 100 questions. **Verify the Page Nos. and Test Booklet series on each page and bring at once to the Invigilator's notice any discrepancy.**
2. Answers will have to be given in the Special Answer-Sheet supplied for the purpose.
3. Before you proceed to mark in the Answer-Sheet in response to various items in the Test Booklet, you have to fill in some particulars in the Answer-Sheet as per instructions sent to you in the Admit Card. ***Do not fold the Answer-Sheet as this will result in error in your marks.***
4. All questions are of multiple-choice answer-type. You will find ***four*** probable answers **(A)**, **(B)**, **(C)** and **(D)** against each question. Find out which of the four answers appears to be **correct or the best**. Now darken the circle corresponding to the letter of the selected answer in the Answer-Sheet with **Black Ball Point Pen** as per instructions printed on the reverse of the Admit Card and in the Answer-Sheet.
5. One and only one circle is to be fully blackened for answer. Any spot in any other circle (multiple circle) or in wrong circle will be considered as wrong answer.
6. ***There will be negative marking for wrong answers. $\frac{1}{3}$ mark will be deducted for each wrong answer.***
7. ***There is a blank page at the end of this Booklet for Rough Work.***
8. ***The Special Answer-Sheet should be handed over to the Invigilator before leaving the Examination Hall. You are permitted to take away the used Test Booklet after completion of the examination.***

1. Fill in with a suitable phrasal verb: It is warm inside. _____ your coat.

(A) Get on
(B) Take out
(C) Take off
(D) Look for

2. The tranquillity and sanctity of the place soothed us. Replace the underlined word with a suitable word.

(A) Security
(B) Holiness
(C) Equanimity
(D) Placidity

3. Add a suitable prefix to form the opposite of the word 'perfect'.

(A) Nonperfect
(B) Unperfect
(C) Disperfect
(D) Imperfect

4. Choose the correct form of the verb: I _____ your house this afternoon.

(A) am passing
(B) had been passing
(C) will be passing
(D) was passing

5. Insert the correct preposition: He is coming _____ foot.

(A) by
(B) in
(C) on
(D) with

6. Fill in with a suitable conjunction: _____ you run, you will not overtake him.

(A) Either
(B) As
(C) If
(D) Unless

7. Find the appropriate synonym of the word 'contagious'.

(A) Tireless
(B) Infectious
(C) Connecting
(D) Incompatible

8. Use the correct pronoun: Sita and _____ were present.

(A) them
(B) me
(C) I
(D) who

9. Find the correctly spelt word:

(A) Curryculam
(B) Curriculam
(C) Curriculum
(D) Curricullam

10. Convert into active voice: She is known to me.

(A) She has been known to me.
(B) I know her.
(C) I had known her.
(D) I have been known to her.

11. The idiom 'got under' means:

(A) Escaped
(B) Published
(C) Subdued
(D) Passed

12. Change into an exclamatory sentence: The cuckoo sings very sweetly.

(A) Who sings so sweetly?
(B) The song of the cuckoo is very sweet.
(C) How sweetly the cuckoo sings!
(D) None of the above

13. What is the meaning of the idiom underlined: He says he has invented a time machine, which is clearly a load of cobblers.

(A) Genuine
(B) Great
(C) Nonsense
(D) Significant

14. Choose the right option to rewrite the sentence: No sooner _____ the rain stop than we resumed our journey.

(A) did
(B) has
(C) had
(D) was

15. The detective suddenly _____ a useful clue. Fill in with the right phrasal verb.

(A) gave in
(B) came across
(C) filled up
(D) fell down

16. Convert the given sentence into a complex sentence: He saw the danger and paused.

(A) Seeing the danger he paused.
(B) When he saw the danger he paused.
(C) He paused and saw the danger.
(D) None of the above

17. Select the right answer: My watch is five minutes _____.

(A) slow
(B) lately
(C) past
(D) late

18. Provide a synonym for the word 'abortive'.

(A) Productive
(B) Accomplished
(C) In vain
(D) Absolving

19. Fill in the blank with the suitable option: Let's meet _____ next week.

(A) sometimes
(B) sometime
(C) some time
(D) some times

20. Fill in with suitable conjuction: He advanced _____ he could.

(A) until
(B) while
(C) as far as
(D) as

21. If the price of pins decreases by Rs. 2 per dozen then 6 more pins will be available in Rs. 42. What is the price of pins per dozen?

(A) Rs. 12
(B) Rs. 14
(C) Rs. 13
(D) Rs. 9

22. Rajya Sabha can delay passage of money bill for a maximum period of

(A) 7 days
(B) 12 days
(C) 14 days
(D) 18 days

23. The speed of a boat in still water is 25 km/hr. It can go 30 km. upstream and 45 km. downstream in 3 hours. The speed of the stream is

(A) 12 km/hr.
(B) 10 km/hr.
(C) 8 km/hr.
(D) 5 km/hr.

24. Look at this series: 80, 10, 70, 15, 60, ... What number should come next?

(A) 20
(B) 25
(C) 30
(D) 50

25. Sulfur dioxide is not released into the atmosphere in any significant amount by

(A) burning of coal
(B) bacterial action
(C) internal combustion engines
(D) volcanic eruption

26. Ozon is considered a pollutant in the

(A) air
(B) smog
(C) upper atmosphere
(D) troposphere

27. 'Hind Swaraj' is written by–

(A) Maulana Abul Kalam Azad
(B) Govind Vallabh Pant
(C) M. K. Gandhi
(D) Tara Ali Beg

28. A person travelled a distance of 80 km. in 7 hours. He travelled partly on foot at the rate of 8 km./hr. and partly on bicycle at 16 km./hr. How much distance he travelled on bicycle?

(A) 48 km.
(B) 32 km.
(C) 40 km.
(D) 36 km.

29. The most common ore of Magnesium is

(A) Zinc Blende
(B) Bauxite
(C) Haematite
(D) Dolomite

30. Which word does NOT belong with the others?

(A) Tape
(B) Twine
(C) Cord
(D) Yarn

31. A and B started a business investing Rs. 1,00,000 and Rs. 2,00,000 respectively. After 6 months A invested Rs. 50,000 more but B withdrew Rs. 1,00,000. If after the end of the year the profit be Rs. 33,000 then find how much money A will get from profit?

(A) Rs. 15,000
(B) Rs. 18,000
(C) Rs. 12,500
(D) Rs. 17,500

32. Garba is a folk dance of

(A) Gujarat
(B) Rajasthan
(C) Maharashtra
(D) Kerala

33. Which word does NOT belong with the others?

(A) Two
(B) Three
(C) Six
(D) Eight

34. Decimal system of numbers originated in

(A) India
(B) Greece
(C) France
(D) Germany

35. Which of the following is an alloy?

(A) Gold
(B) Zinc
(C) Tin
(D) Bronze

36. Which nation won the first ICC World Test cricket championship?

(A) India
(B) Australia
(C) New Zealand
(D) England

37. A number is divided by 13664 gives the remainder 250. What would be the remainder when it is divided by 8?

(A) 0
(B) 3
(C) 2
(D) 6

38. Choose the most proximate word combination as in CONDUCTOR : ORCHESTRA.

(A) JOCKEY : MOUNT
(B) THRASHER : HAY
(C) DRIVER : TRACTOR
(D) SKIPPER : CREW

39. Reptile is to lizard as flower is to

(A) petal
(B) stem
(C) daisy
(D) alligator

40. The first metal used by man was

(A) Copper
(B) Iron
(C) Bronze
(D) Gold

41. An isotope that undergoes decay starts off as a/an (i) _____ and becomes a (ii) _____.

(A) (i) alpha particle
(ii) beta particle
(B) (i) daughter
(ii) son
(C) (i) daughter
(ii) parent
(D) (i) parent
(ii) daughter

42. When seismic waves from an earthquake reach the boundary between the mantle and the liquid outer core

(A) all of the body waves get refracted.
(B) all of the body waves get reflected but none are refracted.
(C) all P-waves stop because they are unable to move through the outer core.
(D) all S-waves vanish because they cannot move through a liquid.

43. Which of the following features is NOT likely to form in limestone by groundwater dissolution?

(A) Sinkholes
(B) Caves
(C) Karst topography
(D) Cones of depression

44. The focus of an earthquake is

(A) the location along the fault where the earthquake rupture starts.
(B) the point on the Earth's surface where surface waves are created.
(C) the point on the Earth's surface directly above where rupture starts.
(D) exactly the same as the epicenter of an earthquake.

45. Piezoelectric effect is analogous to which phenomenon?

(A) Electrostriction
(B) Magnetostriction
(C) Anisotropy
(D) Magnetization

46. Which seismic wave is a type of body wave that moves through rocks with a back and forth motion, like a snake?

(A) P-waves
(B) Rayleigh waves
(C) S-waves
(D) Love waves

47. When the Earth, Moon and Sun are in alignment, gravitational forces combine to form a
(A) Flood tide
(B) Spring tide
(C) Neap tide
(D) Ebb tide

48. All water on earth moves from one storage or transportation system to another, forming a hydrologic cycle. These storage or transportation systems are called (i)_____ and the amount of time that water molecules spend in any one of them is (ii)_____.
(A) (i) hydrosphere
(ii) completely random
(B) (i) aquifer
(ii) impossible to determine
(C) (i) reservoirs
(ii) approximately few weeks
(D) (i) reservoirs
(ii) called the residence time

49. Influent streams are _____.
(A) more common in arid regions
(B) more common in humid regions
(C) only found in areas of permafrost
(D) sinkhole

50. Magnetic permeability has units as
(A) Wb/m2
(B) Wb/A.m
(C) A/m
(D) Tesla/m

51. The Earth has a magnetic field because
(A) magnetic materials are common at temperatures above Curie point.
(B) it has a magnetic iron-nickel core.
(C) the liquid outer core creates an eletric current which induces a magnetic field.
(D) all planets have magnetic fields when they form.

52. What is the typical depth of the epicenter of an earthquake?
(A) A few kilometer
(B) Up to 700 km
(C) The same depth as the focus
(D) Zero (at the surface)

53. Which of the following types of waves is unable to pass through a liquid?
(A) P-waves
(B) Sound waves
(C) Primary waves
(D) S-waves

54. A rock layer that can store a large amount of groundwater is called (i)_____ whereas a layer that does not allow water to pass into it or through it is called (ii)_____.
(A) (i) an aquifer
(ii) a confined aquifer
(B) (i) an unconfined aquifer
(ii) a confined aquifer
(C) (i) an aquiclude
(ii) an aquifer
(D) (i) an aquifer
(ii) an aquiclude

55. Seismic waves are recorded by an instrument called a (i) _____ and the record of the earthquake that the instrument generates is called a (ii) _____ .
(A) (i) seismograph
(ii) seismometer
(B) (i) seismograph
(ii) seismogram
(C) (i) seismometer
(ii) seismograph
(D) (i) seismogram
(ii) seismograph

56. If a hole is dug into an unconfined aquifer, the water will rise to the level of the

(A) aquiclude
(B) water table
(C) perched water table
(D) Artesian pressure surface

57. When salinity changes occur in vertical profile

(A) the lower portion of the aquifer should be tapped.
(B) the upper portion of the aquifer should be tapped.
(C) the middle portion of the aquifer should be tapped.
(D) the whole aquifer should be tapped.

58. The resistance of a wire depends upon

(A) cross sectional area.
(B) length of the wire.
(C) nature of the wire material.
(D) All of the above

59. Which of the following types of seismic waves does NOT emanate from the focus of the earthquake?

(A) Body waves
(B) P-waves
(C) Secondary waves
(D) Surface waves

60. Sinkholes are a possible danger in regions underlain by what type of bedrock?

(A) Granite
(B) Sandstone
(C) Shale
(D) Limestone

61. The intensity of an earthquake measured at some distance from the epicenter

(A) is variable depending on the distance to the epicenter.
(B) doesn't change for an earthquake no matter how far away it was.
(C) is measured using the moment magnitude scale.
(D) will be the same for all earthquakes with an identical magnitude.

62. On 26th December 2004, a magnitude 9.1 earthquake caused a tsunami that killed about 283000 people around the rim of the Indian Ocean. The earthquake itself occured off the coast of this country—

(A) India
(B) Thailand
(C) Sri Lanka
(D) Indonesia

63. The cross over distance (X_r) and critical distance (X_c) are related as

(A) $X_r > X_c$
(B) $X_r < X_c$
(C) $X_r = X_c$
(D) No relation between X_r and X_c

64. The infiltration of water into the subsurface is the _____.

(A) influent
(B) effluent
(C) discharge
(D) recharge

65. The gravitational force of attraction between Satellites and Earth provides

(A) Centripetal force
(B) Centrifugal force
(C) Resistive force
(D) Momentum force

66. The process of beta decay is when

(A) an atom releases a pair of protons and a pair of neutrons from the nucleus.

(B) an atom releases a proton and a neutron from the nucleus.

(C) an atom releases a pair of protons and pair of electrons from the nucleus.

(D) an atom releases an electron from the nucleus as neutron turns into a proton.

67. Darcy's Law may be written in one form as $Q=\frac{K}{M}\left(\frac{\Delta P}{\Delta X}\right)$, where Q is the rate of flow of fluid through a porous medium and K and M are constants. $\frac{\Delta P}{\Delta X}$

(A) is the hydraulic gradient.

(B) must always act vertically.

(C) is itself a constant.

(D) is dependent solely on gravitational potential.

68. If the half-life of an isotope is 1 million years, and 200 of these isotope atoms get trapped in a crystal in an igneous rock when it first forms, how old will the rock be when there are only 25 of these isotopes left in the crystal?

(A) 1 million years

(B) 2 million years

(C) 3 million years

(D) 4 million years

69. Which of the following statements about the water table is false?

(A) The water table changes when discharge is not balanced by recharge.

(B) The water table is generally flat.

(C) The water table is above the land in lakes.

(D) The water table is depressed near high volume pumping wells.

70. What is the difference between the saturated and the unsaturated zones of groundwater?

(A) The saturated zone has a higher porosity than the unsaturated zone.

(B) The saturated zone has a lower porosity than the unsaturated zone.

(C) The pore spaces in the saturated zone are completely full of water; the pore spaces in the unsaturated zone are not completely full of water.

(D) The pore spaces in the saturated zone are not completely full of water; the pore spaces in the unsaturated zone are completely full of water.

71. What activity results in the development of a feature called a cone of depression?

(A) Compaction

(B) Overpumping

(C) Subsidence

(D) Saltwater incursion

72. Which of the following statements about palaeomagnetism at spreading ridges is TRUE?

(A) There is no clear palaeomagnetic signal in rocks at spreading ridges.

(B) Rocks along spreading ridges show the same palaeomagnetic north direction, no matter how old they are.

(C) The palaeomagnetic pattern on one side of a ridge is the mirror image of the pattern on the other side of the ridge.

(D) There is no evidence that Earth's magnetic poles reverse every 11 years or so.

73. In order for an earthquake to occur

(A) a differential stress is needed.

(B) stored elastic energy must be released.

(C) the frictional strength of a fault must be overcome.

(D) All the above

74. Three seismograph stations are needed to find the epicenter of an earthquake because

(A) the more the better.
(B) at least one of the stations could have made a mistake.
(C) more than three stations take too long to process the seismogram data.
(D) three distance measurements are needed to define a point on a map.

75. The chief factor limiting the reliability of the C^{14} method to no greater than 30000 years is that

(A) the ratio of C^{14} to C^{12} is not constant beyond that age.
(B) fluctuations in the half-life take place at about that age.
(C) the remaining C^{14} is too minute to measure at greater than 30000 years.
(D) the modern organism use carbon at greater rates than ancient animals.

76. In which material the magnetic anisotropy is followed?

(A) Diamagnetic
(B) Paramagnetic
(C) Ferromagnetic
(D) None of the above

77. How much of the Earth's water is stored in underground aquifers?

(A) About 20%
(B) About 10%
(C) About 5%
(D) Less than 1%

78. The SP anomaly over ore bodies

(A) always positive only.
(B) always negative only.
(C) can be positive and negative both.
(D) does not depend on the depth and dimension of ore body.

79. Which of the following is natural source geophysical method?

(A) IP method
(B) Electrical method
(C) Gravity method
(D) Seismic method

80. The length of the screen is selected on the basis of the

(A) thickness of the aquifer.
(B) anticipated drawdown and decline in the water levels.
(C) stratification of the aquifer.
(D) All of the above

81. The earthquake scale that measures energy release by considering the physical characteristics of motion along the fault, such as amount of fault slip and the size of the fault that ruptured is called the

(A) Richter Scale
(B) Moment Magnitude Scale
(C) Modified Mercalli Scale
(D) Ground Acceleration Scale

82. Magnetic susceptibility of ferro-magnetic materials is

(A) $+10^{-5}$
(B) -10^{-5}
(C) 10^{5}
(D) 10^{-5} to 10^{-2}

83. The materials having very small susceptibility at all temperatures are

(A) Antiferromagnetic
(B) Diamagnetic
(C) Ferromagnetic
(D) Paramagnetic

84. If more resistors are added in a series circuit the resistance will be

(A) increased
(B) decreased
(C) equal
(D) constant

85. The slowest of the types of seismic waver are the

(A) Love waves
(B) S-waves
(C) Rayleigh waves
(D) P-waves

86. Which of the following materials has the lowest porosity?

(A) Shale
(B) Gravel
(C) Granite
(D) Sandstone

87. The acceleration due to gravity (g) and universal gravitational constant (G) are related by the expression (M and R are the mass and radius of the earth, respectively).

(A) $g = \frac{GM}{R}$
(B) $g = \frac{GM}{R2}$
(C) $g = \frac{GR}{M}$
(D) $g = \frac{GR}{M2}$

88. The salinity of the ocean water is in the range of

(A) 33–37 parts per hundred.
(B) 33–37 parts per thousand.
(C) 33–37 parts per million.
(D) 33–37 parts per billion.

89. Example for ferri-magnetic materials:

(A) Salts of transition elements
(B) Rare Earth elements
(C) Transition metals
(D) Ferrites

90. The presence of parallel alignment of magnetic dipole moment is given by which materials?

(A) Diamagnetic
(B) Ferromagnetic
(C) Paramagnetic
(D) None of the above

91. Regions that are underlain by limestone rocks are prone to the development of _____ as a result of dissolution by groundwater.

(A) Artesian wells
(B) Sinkholes
(C) Confined aquifer
(D) Swamps

92. Water on the Earth's surface infiltrates into the ground then percolates down through the (i)_____ to the (ii)_____. At which point the water has moved into the (iii)_____?

(A) (i) saturated zone
(ii) water table
(iii) unsaturated zone
(B) (i) unsaturated zone
(ii) water table
(iii) saturated zone
(C) (i) vadose zone
(ii) water table
(iii) unsaturated zone
(D) (i) zone of aeration
(ii) hydrous zone
(iii) capillary fringe

93. A local water table positioned above the regional water table is said to be

(A) Stranded
(B) Displaced
(C) Perched
(D) Depressed

94. Rainwater can mix with CO_2 in the atmosphere to form carbonic acid. This can result in the chemical weathering of rocks because

(A) rocks are naturally weak and easily go into solution.
(B) it is the same as acid rain, which forms wherever CO_2 exists in the atmosphere.
(C) oxidation reactions are produced that turn the rocks into red soil.
(D) hydrolysis reactions cause in H+ ions in the acid to displace cations in minerals.

95. Gravity field is maximum at poles because

(A) polar ice caps
(B) high density
(C) excess mass
(D) flattening of Earth and Earth's centrifugal force.

96. The latitude correction in gravity is maximum at

(A) 0°
(B) 45°
(C) 60°
(D) 90°

97. A fault that brings ultrabasic igneous rocks into direct contact with typical shales should be recorded as

(A) a negative gravitational anomaly.
(B) a positive gravitational anomaly.
(C) positive only if there is no residual gravity in the association.
(D) a zero gravitational anomaly because the specific gravity of the two rock types is similar.

98. In the P-waves shadow zone

(A) most seismic waves from an earthquake never get recorded by seismometers.
(B) S-waves predominate.
(C) earthquakes are impossible.
(D) the days are darker than usual.

99. The difference between magnetic north and true north is called (i)_____ whereas the angle between Earth's magnetic field lines and the horizontal surface is called (ii)_____.

(A) (i) magnetic deviation
(ii) magnetic inclination
(B) (i) magnetic declination
(ii) magnetic reversal
(C) (i) magnetic inclination
(ii) magnetic declination
(D) (i) magnetic declination
(ii) magnetic inclination

100. Palaeomagnetism studies often consider the latitude at which a certain rock formed. Which of the following magnetic properties only changes as a function of latitude?

(A) Magnetic polarity
(B) Magnetic reversals
(C) Magnetic inclination
(D) Magnetic susceptibility