

1. Which one of the following is the difference of the sum of cubes of first ten natural numbers and the sum of squares of first ten natural numbers?

(a) 2400  $\int_{1}^{10} x^2$

(b) 2640

(c) 2880

(d) 2000

2. A person buys an item from a shop for which the shopkeeper offers a discount of 10% on the marked price. The person pays using an e-wallet which gives 10% cash back. Which one of the following is the value of effective discount?

(a) 20%

(b) 18%

(c) 19%

(d) 21%

3. A solid spherical ball made of iron is melted and two new balls are made whose diameters are in the ratio of 1:2. The ratio of the volume of the smaller new ball to the original ball is

(a) 1:3

(b) 1:5

(c) 2:9

(d) 1:9

4. Suppose a bank gives an interest of 10% per annum compounded annually for a fixed deposit for a period of two years. What should be the simple interest rate per annum if the maturity amount after two years is to remain the same?

(a) 10%

(b) 10.5%

(c) 11%

(d) 12%

5. A runner's average speed reduces by 25% every hour. If he runs 16 km in the first hour and he runs for 3 hours, then what is his overall average speed?

(a) 12 km/hr

(b) 12.33 km/hr

(c) 10.33 km/hr

(d) 13 km/hr



6. Trough and ridge are

(a) elongated area of low pressure and of high pressure respectively

(b) elongated areas of low pressure

(c) elongated areas of high pressure

(d) elongated area of high pressure and of low pressure respectively

7. The boundary layer of the forest at which the energy exchange occurs and some insolation is returned directly to space is

- (a) forest floor
- (b) forest soil
- (c) forest canopy
- (d) forest litter

8. The organisms that prefer high salt concentration habitats refer to as

- (a) alkaliphiles
- (b) calcifuges
- (c) halophiles
- (d) nitrophiles

9. Which one of the following is **not** an operating system?

- (a) MS-Windows
- (b) Linux
- (c) Ubuntu
- (d) MS-Excel

10. Which one of the following protocols is **not** an application layer of the TCP/IP model?

- (a) FTP
- (b) HTTP
- (c) DNS
- (d) IP

11. Which one of the following is a semi-conductor device that is used to increase the power of the incoming signals by preserving the shape of the original signal?

- (a) Register
- (b) Transistor
- (c) Flip-flop
- (d) Diode

12. Which of the following combinations correctly represents the genetic materials in prokaryotes and eukaryotes respectively?

- (a) Nucleoid and Chromatin
- (b) Chromatin and Nucleoid
- (c) Nucleoid and Nucleolus
- (d) Nucleolus and Chromatin

13. Lysosomes are sacs of the cell filled with digestive enzymes. These digestive enzymes are synthesized by
- (a) Golgi bodies
  - (b) smooth endoplasmic reticulum
  - (c) rough endoplasmic reticulum
  - (d) lysosome itself
14. Which of the following best represents the cells of a meristem of plant?
- (a) Dense cytoplasm, thin cell wall, large nuclei and absence of vacuoles
  - (b) Dense cytoplasm, thin cell wall, large nuclei and large vacuoles
  - (c) Dense cytoplasm, thin cell wall, small nuclei and absence of vacuoles
  - (d) Dense cytoplasm, thick cell wall, small nuclei and large vacuoles
15. Which one of the following animals has a four-chambered heart?
- (a) King cobra
  - (b) Turtle
  - (c) Chameleon
  - (d) Crocodile
16. One way of incorporating desired characters into crop varieties is hybridization. In this process, there is crossing between genetically dissimilar plants. Which one of the following crossings will **not** refer to hybridization?
- (a) Intervarietal
  - (b) Interspecific
  - (c) Intergenic
  - (d) Intragenic
17. Depending on the requirements, plant nutrients are classified as micronutrients and macronutrients. Which one of the following is an example of a macronutrient?
- (a) Manganese
  - (b) Copper
  - (c) Magnesium
  - (d) Chlorine
18. Buds produced in the notches along the leaf margin of Bryophyllum fall on soil and develop into new plants. This is an example of which one of the following types of reproduction?
- (a) Vegetative propagation
  - (b) Budding
  - (c) Spore formation
  - (d) Regeneration

19. Phloem tissues are mostly responsible for transport of

- (a) water
- (b) oxygen
- (c) minerals
- (d) food

20. Two objects,  $x$  and  $y$ , have equal mass and are moving with speeds  $u$  and  $3u$  respectively. Their kinetic energies  $k_x$  and  $k_y$  are related as

- (a)  $k_x = k_y$
- (b)  $2k_x = k_y$
- (c)  $9k_x = k_y$
- (d)  $3k_x = k_y$

21. Which one of the following is **not** the unit of pressure?

- (a) pascal (Pa)
- (b)  $\text{N/m}^2$
- (c)  $\text{J/m}^2$
- (d) bar

22. Which one of the following materials **cannot** be used to make a convex lens?

- (a) Aluminium
- (b) Glass
- (c) Sapphire
- (d) Water

23. The optical phenomenon responsible for the blue colour of sky is

- (a) dispersion
- (b) reflection
- (c) refraction
- (d) scattering

24. The electrical device used for converting mechanical energy into electrical energy is called

- (a) voltmeter
- (b) ammeter
- (c) motor
- (d) generator

25. The magnitude of focal length of a concave lens is 2 m. What is the power of the lens?

- (a) +0.5 dioptre
- (b) -0.5 dioptre
- (c) +2.0 dioptre
- (d) -1.0 dioptre

26. At the time of short circuit, the current in an electric circuit

- (a) becomes zero
- (b) remains same
- (c) increases sharply
- (d) decreases sharply

27. If the linear momentum of a moving object changes by two times, then its kinetic energy will change by a factor of

- (a) 2
- (b) 4
- (c) 6
- (d) 8

28. Which one of the following oxides reacts with both acid and base?

- (a) Aluminium oxide
- (b) Calcium oxide
- (c) Sodium oxide
- (d) Potassium oxide

29. Which of the following makes bread soft and spongy when baking soda is added?

- (a) Sodium salt of acid
- (b)  $\text{NaHCO}_3$
- (c)  $\text{CO}_2$
- (d)  $\text{H}_2\text{O}$

30. The average age of father and elder son is 35 years, the average age of father and younger son is 32 years and the average age of the two sons is 17 years. What is the average age of the father and his two sons?

- (a) 30 years
- (b) 27 years
- (c) 28 years
- (d) 29 years

31. A number is 124 more than its one-third. What is that number?

- (a) 194
- (b) 180
- (c) 189
- (d) 186

32. A car travels  $\frac{3}{4}$ th of the distance at a speed of 60 km/hr and the remaining  $\frac{1}{4}$ th of the distance at a speed of  $v$  km/hr. If the average speed for the full journey is 50 km/hr, then the value of  $v$  is

- (a) 40
- (b) 30
- (c) 100/3
- (d) 35

33. Suppose A and B can complete a work together in 10 days. If B alone can complete the work in 15 days, then in how many days can A alone finish the work?

- (a) 20 days
- (b) 24 days
- ✓(c) 25 days
- (d) 30 days

34. If the average of the first four of five numbers in decreasing order is 25 and the average of the last four numbers is 20, then what is the difference between the first and the last number?

- (a) 5
- (b) 10
- (c) 15
- (d) 20

35. Borax is prepared from

- (a) calcium carbonate
- (b) magnesium carbonate
- (c) potassium carbonate
- (d) sodium carbonate

36. Cinnabar is an ore of

- (a) mercury
- (b) zinc
- (c) copper
- (d) lead

37. White gold is an alloy of

- ✶(a) gold, nickel and palladium
- (b) gold, cobalt and palladium
- (c) gold, titanium and platinum
- (d) gold, magnesium and palladium

38. Hydrogenation of alkenes can be carried out in the presence of

- (a) copper
- (b) zinc
- (c) aluminium
- (d) nickel

39. Calcium oxide reacts with water to produce slaked lime. It is an example of

- (a) combination reaction
- (b) decomposition reaction
- (c) oxidation reaction
- (d) addition reaction

40. The atomic radius of hydrogen atom is

- (a) 37 nanometer
- (b) 37 picometer
- (c) 17 picometer
- (d) 57 picometer

41. There is a group of 5 people among which there is one couple. In how many ways can these 5 people be seated in a row having 5 chairs if the couple is to be seated next to each other?

- (a) 24
- (b) 48
- (c) 60
- (d) 120

42. Two friends 10 km apart start running towards each other at speeds of 10 km/hr and 14 km/hr respectively. After how much time will they meet each other?

- (a) 20 minutes
- (b) 25 minutes
- (c) 28 minutes
- (d) 30 minutes

43. A coin is tossed 3 times. The probability of getting exactly 2 heads is

(a)  $\frac{1}{3}$

(b)  $\frac{3}{8}$

(c)  $\frac{1}{2}$

(d)  $\frac{5}{8}$

44. A test consists of 25 MCQs. Each correct answer gives +4 marks and incorrect answer gives -1 mark. If a candidate scores 74 marks, then how many questions were left unattempted?

- (a) 4
- (b) 3
- ✓(c) 5
- (d) 9

45. A person has a total of 100 coins consisting of ₹ 2 and ₹ 5 coins. If the total value of the coins is ₹ 320, then the number of ₹ 2 coins is

- (a) 40
- (b) 50
- (c) 60
- (d) 70

46. The technology known as 'Electromagnetic Air Lift System' is sometimes talked about in reference to

- (a) launching guided missiles from silos
- (b) launching aircraft from warships
- (c) navigation of nuclear-powered submarines
- (d) development of reusable rockets

47. Consider the following statements :

1. Aluminium powder is used as a solid fuel for rocket engines.
2. Compared to liquid fuel propelled rocket engines, the thrust per amount of fuel burned is higher in solid fuel propelled rocket engines.

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

48. Consider the following missiles :

1. Agni-I
2. BrahMos
3. Dhanush

Which of the above is/are cruise missile/missiles?

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

49. With reference to India's defence, consider the following helicopters :

1. Cheetah
2. Chetak
3. Rudra

Which of the above has/have turret gun, rocket system and air-to-air missile?

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

50. Recently, India gave a coastal radar system to which one of the following countries?

- ✓(a) Bangladesh
- (b) Maldives
- (c) Sri Lanka
- (d) United Arab Emirates

51. Which one of the following artworks was hailed by Sister Nivedita as the 'first masterpiece of Indian art' ?
- Bharatmata* by Abanindranath Tagore
  - Arjuna and Subhadra* by Raja Ravi Varma
  - Sita in Captivity in Lanka* by Abanindranath Tagore
  - Sati* by Nandalal Bose
52. 'Operation Sankalp' was initiated and implemented by the
- Indian Air Force
  - Indian Army
  - Indian Navy
  - Ministry of Home Affairs
53. Which one of the following statements is **not** true with regard to tribal welfare?
- The Comprehensive Tribal Development Programme aims at land development activities, improvement of roof houses, infrastructure development and so on.
  - As per the Scheduled Tribes and Other Traditional Forest Dwellers Act, villages in forests are provided with community rights.
  - The Special Area Development Programme aims at distribution of forest area produces to the tribals equitably.
  - The Special Central Assistance to Tribal Subplan provides dairy cows to tribal groups living below the poverty line.
54. Which one of the following statements is **not** correct?
- The 'Swarna Jayanti Shahari Rozgar Yojana' is an urban self-employment programme.
  - Drought-Prone Area Programme and Desert Development Programme were launched in 1970s.
  - The 'Sampoorna Grameen Rozgar Yojana' was launched after restructuring the 'Integrated Rural Development Programme' in 2001.
  - The 'Swarna Jayanti Gram Swarozgar Yojana' is a rural self-employment programme.
55. The Battle of Rakshasi-Tangadi is popularly known as the
- Battle of Talikota
  - Battle of Khanwa
  - Battle of Panipat
  - Battle of Dharmat
56. Ashokan inscriptions in Afghanistan are written in which one of the following scripts?
- Brahmi
  - Sharada
  - Kharoshthi
  - Greek-Aramaic

57. Which one of the following statements about coins struck during 200 BCE to 300 CE in the Indian subcontinent is **not** correct?

- (a) The Indo-Greeks introduced bilingual and bscript legends on their coins.
- (b) The Kushanas minted large quantities of gold coins as well as copper coins of low denomination.
- (c) The Satavahanas issued coins of silver, copper, lead and potin.
- (d) Absence of Negama coins suggests the declining power and authority of merchant guilds.

58. Match List-I with List-II and select the correct answer using the code given below the Lists :

Handwritten notes: Askini, Vitasta, Purushni, Chenab, Chautang, Ravi, Jhelum

List-I  
(Vedic name  
of river)

List-II  
(Modern name)

- |                |             |
|----------------|-------------|
| A. Drishadvati | 1. Chenab   |
| B. Askini      | 2. Chautang |
| C. Vitasta     | 3. Ravi     |
| D. Purushni    | 4. Jhelum   |

Code :

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

59. When was the Kothari Commission appointed by the Government of India to look into the education sector of India?

- (a) 1967
- (b) 1966
- (c) 1965
- (d) 1964

60. Which one of the following is **not** correct?

- (a) The Gulf Stream is a warm ocean current.
- (b) The North Atlantic Drift is a warm ocean current.
- (c) The Labrador Current is a cold ocean current.
- (d) The California Current is a warm ocean current.

61. Which of the following statements about maps are correct?

- 1. Maps that maintain the true shapes of areas are known as conformal maps.
- 2. Maps are used to show spatial relationships.
- 3. Maps cannot show route from one place to another.

Select the correct answer using the code given below.

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

62. Which one of the following statements about 'great circle' is **not** correct?

- (a) Every great circle divides the Earth into equal halves.
- (b) Every great circle is a circumference of the Earth.
- (c) Great circles mark the longest travel routes between locations on the Earth's surface.
- (d) Great circle is the largest circle that can be drawn around the Earth through two particular points.

63. Which one of the following statements is correct with reference to normal lapse rate?

- (a) Temperature is highest at ground level and decreases with increasing altitude.
- (b) Temperature is lowest at ground level and increases with increasing altitude.
- (c) Temperature remains stable with increasing altitude.
- (d) Temperature first increases with increasing altitude and gradually starts decreasing.

64. Which one of the following is a tributary of the Brahmaputra River?

- (a) Ghaggar
- (b) Mahi
- (c) Kosi
- (d) Manas

65. The landmark case of *D. C. Wadhwa vs. State of Bihar* in the Supreme Court is related to which one of the following powers of the Governor?

- (a) To repromulgate ordinances
- (b) To appoint a Chief Minister
- (c) To grant pardon, etc.
- (d) To revise the emoluments and allowances of the MLAs

66. 'Operation Flood' is also popularly known as

- (a) the Green Revolution
- (b) the White Revolution
- (c) the Blue Revolution
- (d) the Yellow Revolution

67. The 'Stand-Up India Scheme' is related to which one of the following issues?

- (a) Social security during old age
- (b) Providing technical knowhow to young, educated or skilled workers from rural areas
- (c) Promoting entrepreneurship amongst women, SC and ST communities
- (d) Insurance cover to people in the age group of 18-50 years

68. Which one of the following is **not** a feature of Indian federalism?

- (a) Courts can interpret the Constitution and powers of different levels of the Government.
- (b) Sources of revenue for the Union Government and the State Governments are specified.
- (c) Powers of the Union and the States are specified in the Constitution.
- (d) Indian federalism is based on the principle of Separation of Powers.

69. Consider the following statements :

1. The early Malwa school of paintings was influenced by Shirazi school while the early Mughal paintings initially followed Bihzad school.
2. The major exponents of Bihzad school in India were Sayyid Ali and Abdus Samad.

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

70. Which of the following statements about 'Ek Bharat Shreshtha Bharat' programme is/are correct?

1. It was announced in the year 2014.
2. Its aim is to create an environment which promotes learning between the States by sharing best practices and experiences.

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

71. Consider the following statements :

1. Mirage 2000 is a twin-engine fighter jet.
2. HAL Tejas is a delta-winged fighter jet.
3. Rafale is a hypersonic fighter jet.

Which of the statements given above is/are correct?

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