

Each question carries 2 marks.

Answer all questions, choosing the correct one from the alternatives suggested and darken the appropriate circle using BLUE or BLACK BALL POINT PEN.

1. Which of the following statements about 'Sound' is incorrect ?
  - (1) Sound can't travel in vacuum
  - (2) Sound comes from vibrations
  - (3) Sound is a transverse wave
  - (4) Sound is an energy
  - (5) Sound travels faster in water than in air
2. The mass-energy relation is the outcome of :
  - (1) General theory of relativity
  - (2) Quantum field theory
  - (3) Quantum theory
  - (4) Special theory of relativity
  - (5) Uncertainty principle
3. The arc shape of the rainbow is mainly due to :
  - (1) Diffraction of sunlight
  - (2) Dispersion of sunlight
  - (3) Refraction of sunlight
  - (4) Reflection of sunlight
  - (5) Scattering of sunlight
4. Which of the following phenomena is responsible for the rise of oil in the wick of a lamp ?
  - (1) Capillary action
  - (2) Diffusion
  - (3) Osmosis
  - (4) Surface tension
  - (5) Vapour pressure
5. Which one of the following is a scalar quantity ?
  - (1) Charge
  - (2) Current density
  - (3) Force
  - (4) Momentum
  - (5) Torque

**Answers**

|   |           |           |          |         |          |
|---|-----------|-----------|----------|---------|----------|
| 1 | (a) - v   | (b) - iii | (c) - ii | (d) - i | (e) - iv |
| 2 | (a) - vi  | (b) - v   | (c) - ii | (d) - i | (e) - iv |
| 3 | (a) - iii | (b) - ii  | (c) - v  | (d) - i | (e) - iv |
| 4 | (a) - vi  | (b) - iii | (c) - ii | (d) - i | (e) - iv |
| 5 | (a) - vi  | (b) - iii | (c) - ii | (d) - v | (e) - i  |

6. What type of energy conversion does take place in a nuclear reactor ?

- (1) Chemical to heat and light
- (2) Electric to sound
- (3) Heat to electric
- (4) Kinetic to heat
- (5) Mass to heat

7. Which among the following types of water is the best conductor of electricity ?

- (1) Distilled water
- (2) Filtered hot water
- (3) Filtered water at normal temperature
- (4) Rain water
- (5) Saline water

8. Match each of the following quantities in Column - A with their SI units in Column - B and select the correct answer set from the table given below :

**Column - A**
**Column - B**

- |                        |                     |
|------------------------|---------------------|
| (a) Angular velocity   | (i) Diopre          |
| (b) Impulse            | (ii) Gauss          |
| (c) Magnetic Induction | (iii) Newton-second |
| (d) Power of lens      | (iv) Pascal         |
| (e) Pressure           | (v) Poise           |
|                        | (vi) Radian/second  |

9. In which of the following industries 'rock phosphate' is used extensively ?

- (1) Cement
- (2) Construction
- (3) Fertiliser
- (4) Ferro-alloys
- (5) Electrical appliances

10. Which one of the following forms the basis of the "Modern Periodic Table" ?

- (1) Atomicity
- (2) Atomic number
- (3) Atomic volume
- (4) Atomic weight
- (5) Mass number

11. The order "ionic bond > co-ordinate bond > covalent bond" is true for four of the following parameters. Identify the other parameter for which this order is not correct. :

- (1) Boiling point
- (2) Electrical conductance
- (3) Melting point
- (4) Solubility
- (5) Thermal stability

12. Which among the following elements exists in allotropic forms ?

- (1) Magnesium
- (2) Potassium
- (3) Silicon
- (4) Sodium
- (5) Sulphur

13. Which among the following statements regarding 'heavy water' is not correct ?

- (1) It is chemically known as Deuterium Oxide ( $D_2O$ )
- (2) It is a colourless, odourless and tasteless liquid
- (3) It is used in nuclear reactors to hasten the slow moving neutrons
- (4) Its melting point is 273.2 K and boiling point is 374.4 K
- (5) It was discovered by Urey in 1932

14. Which among the following noble gases is not present in the earth's atmosphere ?

- (1) Argon
- (2) Krypton
- (3) Neon
- (4) Radon
- (5) Xenon

15. Consider the following statements as regards to the by-products of the sugar industry :

- (i) Bagasse can be used as bio-fuel for generation of energy
- (ii) Molasses can be used for the production of industrial alcohol
- (iii) Molasses can be used for the production of synthetic chemical fertilisers

Which of the above statements is/are correct ?

- (1) (i) only
- (2) (i) and (ii) only
- (3) (i) and (iii) only
- (4) (ii) and (iii) only
- (5) (i), (ii) and (iii) only

16. Where in the following glands of the human body are the 'Islets of Langerhans' present ?

- (1) Adrenal gland
- (2) Hypothalamus
- (3) Pancreas
- (4) Pituitary gland
- (5) Thyroid gland

17. Which plant organelle is involved in the process of transpiration ?

- (1) Cell nucleus
- (2) Cell wall
- (3) Chloroplast
- (4) Ribosome
- (5) Stomata

18. Which of the following is the main constituent of haemoglobin ?

- (1) Calcium
- (2) Chlorine
- (3) Iron
- ✓ (4) Phosphorous
- (5) Potassium

19. What is the main function of the meristematic tissue in plants ?

- (1) Carbon assimilation
- (2) Conduction of water
- ✓ (3) Growth of new cells
- ✓ (4) Mechanical strength
- (5) Transport of food

20. In case of failure of which of the following organs in the human body is 'Dialysis' carried out ?

- ✓ (1) Gallbladder
- (2) Heart

(3) Kidney

(4) Liver

(5) Lungs

21. Which of the following substances, listed within the brackets below, can be found as pollutants in drinking water in some parts of India ?

[(i) Arsenic, (ii) Fluoride, (iii) Formaldehyde, (iv) Sorbital, (v) Uranium)]

- (1) (i) and (ii) only
- (2) (i), (ii) and (v) only ✓
- (3) (iii), (iv) and (v) only
- ✓ (4) (i), (ii), (iii) and (v) only
- (5) All (i), (ii), (iii), (iv) and (v) only

22. Which one of the following is the correct sequence of ecosystems in the order of increasing productivity ?

- ✓ (1) Lakes ; mangroves ; grasslands ; oceans
- (2) Grasslands ; lakes ; oceans ; mangroves
- (3) Lakes ; grasslands ; oceans ; mangroves
- (4) Grasslands ; lakes ; mangroves ; oceans
- ✓ (5) Oceans ; mangroves ; lakes ; grasslands

23. Match each of the following generations of computers in Column - A with their significant developments in Column - B and select the correct answer set from the table given below :

| Column - A | Column - B                  |
|------------|-----------------------------|
| (a) First  | (i) Artificial intelligence |
| (b) Second | (ii) Integrated circuits    |
| (c) Third  | (iii) Microprocessors       |
| (d) Fourth | (iv) Transistors            |
| (e) Fifth  | (v) Vacuum tubes            |

Answers

|   |          |          |           |           |           |
|---|----------|----------|-----------|-----------|-----------|
| 1 | (a) - v  | (b) - iv | (c) - ii  | (d) - iii | (e) - i   |
| 2 | (a) - v  | (b) - ii | (c) - iv  | (d) - iii | (e) - i   |
| 3 | (a) - v  | (b) - iv | (c) - ii  | (d) - i   | (e) - iii |
| 4 | (a) - v  | (b) - iv | (c) - iii | (d) - ii  | (e) - i   |
| 5 | (a) - vi | (b) - v  | (c) - ii  | (d) - iii | (e) - i   |

24. Which of the following computer languages does not find use in artificial intelligence ?

- (1) COBOL  
 (2) JAVA  
 (3) LISP  
 (4) PROLOG

(5) PYTHON

25. Which satellite was launched into space by India on the 12th April, 2018 by the launch vehicle - PSLV-C41 ?

- (1) CartoSat-2F  
 (2) GSAT-6A  
 (3) IRNSS-1H  
 (4) IRNSS-1I  
 (5) MicroSat-TD

26. Which of the following films has got the Best Picture award in the Oscar Awards, 2018 ?

- (1) A Fantastic Women  
 (2) Blade Runner 2049  
 (3) Darkest Hour  
 (4) Dunkirk  
 (5) The Shape of Water

27. Where has China opened an overseas naval base off late ?

- (1) Azores Islands  
 (2) Djibouti  
 (3) Timor-Leste  
 (4) Vanuatu  
 (5) Walvis Bay

28. In which of the following orders are the countries placed in terms of medal table ranking in the recently concluded Commonwealth Games, 2018 ?

(i – Australia, ii – Canada, iii – England, iv – India, v – New Zealand)

(1) i, ii, iv, iii, v

(2) i, iii, ii, iv, v

(3) i, iii, iv, ii, v

(4) i, ii, iii, iv, v

(5) i, iii, v, iv, ii

29. Which batsman has scored the highest number of runs in a single innings in the recently played matches for the Nidahas Trophy in Sri Lanka ?

(1) Kusal Perera

(2) Musfiquir Rahim

(3) Rohit Sharma

(4) Sabbir Rahman

(5) Shikhar Dhawan

30. For which of the following works has Andrew Sean Greer been awarded the prestigious Pulitzer Prize for fiction for the year 2018 ?

(1) Cost of Leaving

(2) Everybody

(3) In the Distance

(4) Less

(5) The Idiot

31. Match the names of the Padm Shri recipients from Odisha in 2018 in Column – A with their field of excellence in Column – B and select the correct set of answers from the table given below :

Column – A

Column – B

(a) Bhabani Charan Patnaik (i) Art-Sculpture

(b) Chandrasekhar Rath (ii) Art-Weaving

(c) Gobardhan Panika (iii) Film making

(d) Prabhakar Maharana (iv) Healthcare

(e) Sisir Purusottam Mishra (v) Literature and Education

(vi) Public Affairs

|   | (a)  | (b)   | (c)   | (d)  | (e)   |
|---|------|-------|-------|------|-------|
| 1 | (vi) | (v)   | (ii)  | (i)  | (iii) |
| 2 | (v)  | (iv)  | (iii) | (ii) | (i)   |
| 3 | (vi) | (iii) | (ii)  | (i)  | (iv)  |
| 4 | (vi) | (ii)  | (v)   | (i)  | (iii) |
| 5 | (i)  | (ii)  | (iii) | (iv) | (v)   |

32. Which among the following Hindi comedy films released recently is an Amitabh Bachchan starrer ?

- (1) 102 Not Out
- (2) 3 Dev
- (3) Blackmail
- (4) High Jack
- (5) Nanu ki Jaanu

33. Which of the following organisations of the United Nations is currently being headed by Jim Yong Kim ?

- (1) FAO
- (2) IMF
- (3) ILO
- (4) UNESCO
- (5) WBG

34. Which of the following prominent terrorist groups, currently active, is a Somali militant Islamist Organisation ?

- (1) Al-Qaeda
- (2) Al-Shabaab
- (3) Boko Haram
- (4) ISIS
- (5) The Taliban

35. Four of the following countries are members of BRICS, while the other one is not. Identify the one :

- (1) Brazil
- (2) Canada

- (3) India
- (4) Russia
- (5) South Africa



36. Which of the following countries has bagged the Hockey World Cup for the maximum number of times ?

- (1) Australia
- (2) India
- (3) Netherlands
- (4) Germany
- (5) Pakistan

37. The national sports of which the following famous football playing nations is other than football ?

- (1) Argentina
- (2) Brazil
- (3) France
- (4) Italy
- (5) Poland

38. Which of the following folk art forms of India is a harmonious blend of Aryan, Dravidian and Tribal traditions ?

- (1) Kalamezhuthu
- (2) Madhubani Painting
- (3) Pattachitra Painting
- (4) Tanjore Art
- (5) Warli Folk Painting

39. Between which two countries is the bilateral annual naval exercise SIMBEX conducted ?

- (1) India and Malaysia
- (2) India and Singapore
- (3) Indonesia and Singapore
- (4) Malaysia and Singapore
- (5) Malaysia and Thailand

40. In which of the following the saying 'War begins in the minds of men' is stated ?

- (1) Atharva veda
- (2) Mundaka Upanishad
- (3) Rig veda
- (4) Samveda
- (5) Yajur veda

41. Which of the following learning centers achieved fame as the seat of learning of Hinayana Buddhism ?

- (1) Nalanda
- (2) Odantapur
- (3) Somapura
- (4) Vallavi
- (5) Vickramshilla

42. Match each of the following Harappan sites in Column - A with the associated significant features in Column - B and select the correct answer set from the table given below :

Column - A

Column - B

- |                  |                              |
|------------------|------------------------------|
| (a) Dholavira    | (i) Bangle factory           |
| (b) Harappa      | (ii) Canala                  |
| (c) Mahenjo-Daro | (iii) Port Town              |
| (d) Lothal       | (iv) Phallus worship         |
| (e) Chanhudaro   | (v) The Great Bath           |
|                  | (vi) Water harnessing system |

Answers

|   |          |           |          |           |          |
|---|----------|-----------|----------|-----------|----------|
| 1 | (a) - ii | (b) - iv  | (c) - v  | (d) - iii | (e) - i  |
| 2 | (a) - vi | (b) - iv  | (c) - v  | (d) - iii | (e) - i  |
| 3 | (a) - vi | (b) - ii  | (c) - v  | (d) - iii | (e) - i  |
| 4 | (a) - vi | (b) - iv  | (c) - ii | (d) - iii | (e) - i  |
| 5 | (a) - i  | (b) - iii | (c) - v  | (d) - ii  | (e) - vi |

43. During the Sangam Age, which of the following dynasties had Uraiyur as the seat of power ?

- (1) Cholas
- (2) Chalukyas
- (3) Cheras
- (4) Pallavas
- (5) Pandyas

44. Which of the following pairs of officers and their assignments during the Sultanate Period in India is incorrectly matched ?
- (1) Ariz-i-Mamalik – Chief Military Officer
  - (2) Barid-i-Mumalak – Head of the Justice Department
  - (3) Diwan-i-Insha – Minister in-Charge of Provincial Government
  - (4) Diwan-i-Wazarat – Minister of Revenue
  - (5) Wakil-e-Dar – Control of Royal Household
45. Who amongst the military commanders of Alauddin Khalji was a eunuch slave-general ?
- (1) Ghazi Malik
  - (2) Malik Kafur
  - (3) Nusrut Khan
  - (4) Ulugh Khan
  - (5) Zafar Khan
46. Who among the following Bhakti saints of medieval India was the pioneer of teaching "Nirguna Bhakti" ?
- (1) Namadeva
  - (2) Ramananda
  - (3) Ramanuja
  - (4) Sri Chaitanya
  - (5) Vallabhacharya
47. Which of the following is the correct sequence of the advent of Europeans into India ?
- (1) English, Dutch, Portuguese, Danes, French
  - (2) Portuguese, Dutch, Danes, English, French
  - (3) Portuguese, Dutch, English, Danes, French
  - (4) Portuguese, Dutch, English, French, Danes
  - (5) Portuguese, English, Dutch, Danes, French
48. Who among the following was an acting Governor – General of British India ?
- (1) Lord Auckland
  - (2) Lord Bentinck
  - (3) Lord Ellenborough
  - (4) Lord Hardinge
  - (5) Lord Metcalfe
49. During the tenure of which Viceroy of British India did the Moplah rebellion take place in Kerala ?
- (1) Lord Chelmsford
  - (2) Lord Linlithgow
  - (3) Lord Reading
  - (4) Lord McDonald
  - (5) Lord Minto II

50. Who among the following can be rightly called "The Theosophist, Educationist and Indian National Leader" ?

- (1) Annie Besant
- (2) Bal Gangadhar Tilak
- (3) Madan Mohan Malaviya
- (4) Shyam Prasad Mukherji
- (5) Srinivasa Shastri

51. Which state was annexed by the British by removing its ruler on the pretext of misgovernance ?

- (1) Awadh
- (2) Jhansi
- (3) Sambalpur
- (4) Satara
- (5) Surat

52. Where did the INA trials take place during 1945-46 ?

- (1) Aga Khan Palace, Poona
- (2) Ahmednagar Fort
- (3) Lal Qilla, Delhi
- (4) Old Secretariat, Delhi
- (5) Parliament House, Delhi

53. Match each of the following capital cities in Column - A with the associated rivers in Column - B and select the correct answer set from the table given below :

| Column - A   | Column - B      |
|--------------|-----------------|
| (a) Budapest | (i) The Danube  |
| (b) Lisbon   | (ii) The Rhine  |
| (c) London   | (iii) The Seine |
| (d) Paris    | (iv) The Tagus  |
| (e) Rome     | (v) The Thames  |
|              | (vi) The Tiber  |

Answers

|   |             |            |            |             |            |
|---|-------------|------------|------------|-------------|------------|
| 1 | (a) - (ii)  | (b) - (iv) | (c) - (v)  | (d) - (iii) | (e) - (vi) |
| 2 | (a) - (i)   | (b) - (iv) | (c) - (v)  | (d) - (iii) | (e) - (vi) |
| 3 | (a) - (i)   | (b) - (ii) | (c) - (iv) | (d) - (iii) | (e) - (vi) |
| 4 | (a) - (i)   | (b) - (iv) | (c) - (ii) | (d) - (iii) | (e) - (v)  |
| 5 | (a) - (iii) | (b) - (iv) | (c) - (v)  | (d) - (i)   | (e) - (vi) |

54. Which of the following subtropical deserts is a cool coastal desert ?

- (1) Atacama
- (2) Gibson
- (3) Kalahari
- (4) Sonoran
- (5) Thar

55. Which is the deepest of the lakes in the world ?
- (1) The Baikal
  - (2) The Caspian
  - (3) The Nyasa
  - (4) The Tanganyika
  - (5) The Vostok
56. Which among the following states of India does share the longest boundary with Bangladesh ?
- (1) Assam
  - (2) Meghalaya
  - (3) Mizoram
  - (4) Tripura
  - (5) West Bengal
57. Within which of the following states both the Tropic of Cancer and the Indian Standard Time meridian intersect ?
- (1) Chhattisgarh
  - (2) Jharkhand
  - (3) Odisha
  - (4) Uttar Pradesh
  - (5) West Bengal
58. The largest of the planned cities in India is :
- (1) Bhubaneswar
  - (2) Chandigarh
  - (3) Gandhinagar
  - (4) Greater Noida
  - (5) Navi Mumbai
59. Identify the most important inland drainage system in India :
- (1) The Banas
  - (2) The Luni
  - (3) The Mahi
  - (4) The Sabarmati
  - (5) The West Banas
60. In which of the following types of soils in India is cotton extensively cultivated ?
- (1) Bhabar
  - (2) Bhargar
  - (3) Kankar
  - (4) Khadar
  - (5) Regur

61. In which state is the yield rate of sugarcane the highest in India ?

- (1) Andhra Pradesh
- (2) Karnataka
- (3) Maharashtra
- (4) Tamil Nadu
- (5) Uttar Pradesh

62. Which among the following hydro-electricity projects is associated with a different river than the other four ?

- (1) Baglihar
- (2) Dul Hasti
- (3) Pandoh
- (4) Salal
- (5) Ratle

63. From which mine in Odisha is iron ore mined by the Steel Authority of India Ltd. (SAIL) ?

- (1) Banspani
- (2) Bolani
- (3) Gandhamardan
- (4) Joda
- (5) Thakurani Pahad

64. Which of the following oil refineries has the highest production capacity in India ?

- (1) BPCL, Kochi
- (2) Essar, Vadinar
- (3) HPCL, Vishakhapatnam
- (4) IOCL, Paradip
- (5) Reliance, Jamnagar

65. Through which of the following ports is iron ore from the Daitari mines exported ?

- (1) Haldia
- (2) Mormugao
- (3) New Mangalore
- (4) Paradip
- (5) Visakhapatnam

66. Which one of the following is a human right as well as a fundamental right under the Constitution of India ?

- (1) Right to Education
- (2) Right to Free Legal Aid
- (3) Right to Housing
- (4) Right to Information
- (5) Right to Work

67. Which Article of the Indian Constitution refers to the removal of the Deputy Chairman of the Rajya Sabha ?

- (1) Article 61
- (2) Article 90
- (3) Article 94
- (4) Article 124(4)
- (5) Article 150

68. For the election of the President of India, the weightage of the vote of a member depends on :

- (i) Population represented
- (ii) The state to which he belongs
- (iii) The strength of his political party in the Parliament

Which of the above statements is/are correct ?

- (1) Only (i)
- (2) Only (ii)
- (3) Both (i) and (ii)
- (4) Both (ii) and (iii)
- (5) All (i), (ii) and (iii)

69. The Chairman of which of the following Committees is not appointed by the Speaker of the Lok Sabha ?

- (1) Business Advisory Committee

- (2) Committee on Public Undertakings
- (3) Estimates Committee
- (4) Joint Committee on Salaries and Allowances
- (5) Public Accounts Committee

70. Once a no confidence motion is admitted to the Lok Sabha, who decides the date for the debate ?

- (1) President
- (2) Vice-President
- (3) Prime Minister
- (4) Speaker of the Lok Sabha
- (5) Minister, Parliamentary Affairs

71. Which of the following features of the Indian Constitution has been borrowed from Japan ?

- (1) Concept of Directive Principles of State Policy
- (2) Independence of Judiciary and Judicial Review
- (3) Language of the Preamble
- (4) Law on which the Supreme Court Function
- (5) Scheme of Federation with a Strong Centre

72. Which is the smallest of the Parliamentary constituencies in India in terms of voter strength ?

- (1) Andaman and Nicobar Islands
- (2) Dadra and Nagar Haveli
- (3) Daman and Diu
- (4) Ladakh
- (5) Lakshadweep

73. By which amendment of the Indian Constitution was the Anti-Defection law amended ?

- (1) Eighty Sixth
- (2) Eighty Seventh
- (3) Ninety First
- (4) Ninety Second
- (5) Ninety Third

74. Match each of the following Five-Year Plans in Column - A with their main thrust areas in Column - B and select the correct answer set from the table given below.

Column - A

Column - B

- |           |  |
|-----------|--|
| (a) First | (i) Achievement of Self-reliance and growth with stability |
|-----------|--|

Column - A

Column - B

- |            |                                      |
|------------|--------------------------------------|
| (b) Second | (ii) Community Development Programme |
| (c) Third  | (iii) Expansion of Basic Industries  |
| (d) Fourth | (iv) Minimum Needs Programme         |
| (e) Fifth  | (v) Poverty Alleviation              |
|            | (vi) Rapid Industrialisation         |

Answers

|   |            |            |             |             |            |
|---|------------|------------|-------------|-------------|------------|
| 1 | (a) - (ii) | (b) - (vi) | (c) - (v)   | (d) - (i)   | (e) - (iv) |
| 2 | (a) - (i)  | (b) - (iv) | (c) - (v)   | (d) - (iii) | (e) - (vi) |
| 3 | (a) - (ii) | (b) - (v)  | (c) - (iii) | (d) - (i)   | (e) - (iv) |
| 4 | (a) - (ii) | (b) - (vi) | (c) - (iii) | (d) - (i)   | (e) - (iv) |
| 5 | (a) - (ii) | (b) - (vi) | (c) - (iii) | (d) - (v)   | (e) - (iv) |

75. Persistent high inflation combined with high unemployment and stagnant demand in a country's economy is known as :

- (1) Boom
- (2) Depression
- (3) Recession
- (4) Stagflation
- (5) Stagnation

76. Who is currently the Vice-Chairperson of the NITI Ayog in India ?

- (1) Bibek Debroy
- (2) Rajiv Kumar
- (3) Ramesh Chand
- (4) V. K. Saraswat
- (5) Vinod Paul

77. The promoter of which of the following private sector banks in India is the "Aga Khan Fund for Economic Development" ?

- (1) Bandhan Bank
- (2) DCB Bank
- (3) IDFC Bank
- (4) IndusInd Bank
- (5) RBL Bank

78. Loan or credit with low interest rates is known as :

- (1) Barren money
- (2) Cheap money
- (3) Dear money
- (4) Near money
- (5) Tight money

79. With which of the following branches of commercial activity are the terms 'bull' and 'big' associated ?

- (1) Banking and Finance
- (2) External Trade

- (3) Share Market
- (4) Transportation
- (5) Warehousing

80. Which among the following organisations in India looks into the credit needs of the agricultural activities and rural development ?

- (1) FCI
- (2) ICAR
- (3) IDBI
- (4) NABARD
- (5) RBI

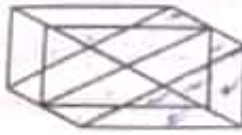
81. Who among the following bear the bulk of the burden of the indirect taxes ?

- (1) Consumers
- (2) Manufacturers
- (3) Taxpayers
- (4) Traders
- (5) None of the above

82. Which of the following States/Union Territories of India has the lowest sex ratio as per Census 2011 ?

- (1) Chandigarh
- (2) Dadra and Nagar Haveli
- (3) Daman and Diu
- (4) Delhi
- (5) Haryana

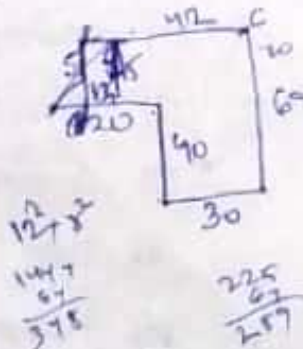
83. Find the number of triangles in the following figure :



- (1) 16  
(2) 18  
(3) 20  
(4) 24  
(5) 27

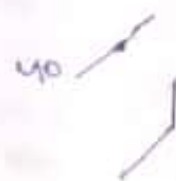
84. In an open field, Arif started from a point A and moved to east by 20 metres and then turned right by 40 metres to reach point B. Then he moved to east for 30 metres from where he turned to left by 60 metres to reach point C. Then he moved to west by 42 metres from where he turned left for 5 metres to reach the destination, D. What is the straight line distance between his starting point and the destination ?

- (1) 8 m  
(2) 12 m  
(3) 15 m  
(4) 17 m  
(5) 23 m



85. What is the angle between the hour hand and the minute hand of a clock at 40 minutes past 1 O' clock, measured anticlockwise ?

- (1) 135°  
(2) 150°  
(3) 170°  
(4) 190°  
(5) 210°



86. 1<sup>st</sup> January, 2018 had been a Monday. In which of the subsequent years will the New Year commence on Monday again ?

- (1) 2021  
(2) 2022  
(3) 2023  
(4) 2024  
(5) 2025

m -  
T - 10  
W - 20  
F - 23  
S - 22  
S - 23  
M - 24

87. If in a certain coded language PHYSICAL is written as MEVPFZXI, what will be the codeword for CANDIDATE ?

- (1) AYLGBBYRC  
(2) ECPFKFCVG  
(3) FDQGLGDWH  
(4) ZXKAFAXQB  
(5) ZXKAFBYRC

PHYSICAL  
21 MEVPFZXI  
CANDIDATE  
ZXKAFAXQB

88. How many numbers between 100 and 999 (both inclusive) are divisible by 6?

- (1) 144  
(2) 149  
(3) 150  
(4) 151  
(5) 159

$$\frac{999-100}{6} + 1$$

$$\frac{900}{6} = 150$$

89. What is the sum of the two consecutive even numbers if the difference between their squares is 260?

- (1) 126  
(2) 130  
(3) 134  
(4) 138  
(5) 142

$$x \quad x+2$$

$$x^2 - (x+2)^2 = 260$$

$$x^2 - x^2 - 4x - 4 = 260$$

$$-4x - 4 = 260$$

$$-4x = 264$$

$$x = -66$$

91. Mina took out 18 mugs from a container which was  $\frac{2}{3}$  full with water. Then Tina added 12 mugs to the container which is  $\frac{3}{5}$  full now. How many mugs of water the container will be able to hold?

- (1) 60  
(2) 90  
(3) 105  
(4) 120  
(5) 150

$$\frac{2}{3} \times 18 = 12$$

$$12 - 18 = -6$$

$$\frac{3}{5} \times 30 = 18$$

$$18 - (-6) = 24$$

$$\frac{24}{\frac{3}{5}} = 40$$

92. A foreign tourist to India exchanged 300 dollars @ Rs. 70 per dollar at the time of his arrival. He spent Rs. 18,120 during his stay in India and got the balance amount left with him exchanged to dollars at the time of departure @ Rs. 72 per dollar. How many dollars will he have now?

- (1) 36  
(2) 40  
(3) 44  
(4) 50  
(5) 60

$$300 \times 70 = 21000$$

$$21000 - 18120 = 2880$$

$$\frac{2880}{72} = 40$$

90. In a child's piggy bank there are coins of Rs. 5, Rs. 2 and Rs. 1 in the ratio of 2:3:5 that amount to 756 rupees in all. What is the total number of coins in the piggy bank?

- (1) 210  
(2) 280  
(3) 320

$$\frac{5}{2} \quad \frac{2}{3} \quad \frac{1}{5}$$

$$2:3:5$$

$$4:6:10$$

$$\frac{32 \times 756}{2}$$

93. Simplify the following term and find the value :

$$\frac{1}{1+\sqrt{2}} + \frac{1}{\sqrt{2}+\sqrt{3}} + \frac{1}{\sqrt{3}+\sqrt{4}} + \dots + \frac{1}{\sqrt{15}+\sqrt{16}}$$

- (1) -3  
(2) -1  
(3) 0  
(4) 1  
(5) 3

Handwritten solution for Q93:

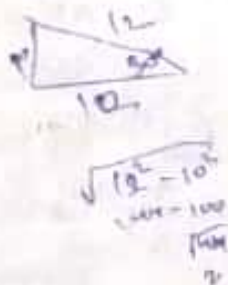
$$\frac{1}{1+\sqrt{2}} = \frac{1-\sqrt{2}}{(1+\sqrt{2})(1-\sqrt{2})} = \frac{1-\sqrt{2}}{1-2} = \frac{1-\sqrt{2}}{-1} = \sqrt{2}-1$$

$$\frac{1}{\sqrt{2}+\sqrt{3}} = \frac{1-\sqrt{3}}{(\sqrt{2}+\sqrt{3})(1-\sqrt{3})} = \frac{1-\sqrt{3}}{\sqrt{2}-3}$$

... (The rest of the handwritten work is messy and partially illegible)

94. Two sides of a triangle are 10 cm and 12 cm respectively and their included angle is  $30^\circ$ . Find the area of the triangle.

- (1)  $25 \text{ cm}^2$   
(2)  $30 \text{ cm}^2$   
(3)  $45 \text{ cm}^2$   
(4)  $60 \text{ cm}^2$   
(5)  $120 \text{ cm}^2$



95. Two circles touch externally. A common tangent touches the two circles at points A and B respectively. If the distance between the centres of the two circles is 16 cm and AB distance is 20 cm then what is the radius of the larger circle ?

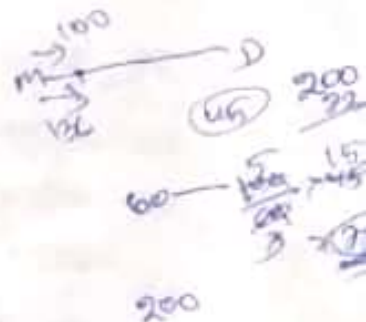
- (1) 9 cm  
(2) 10 cm



- (3) 12 cm  
(4) 14 cm  
(5) 15 cm

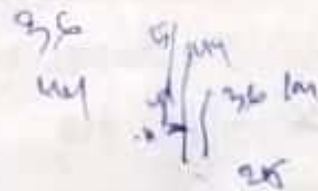
96. Two trains to Mumbai leave Delhi at an interval of 45 minutes. While the first one moves at a speed of 100 km/hour, the speed of the second one is 136 km/hour. At what distance from Delhi will the second train catch up with first one ?

- (1) 260.00 km  
(2) 262.40 km  
(3) 271.33 km  
(4) 275.00 km  
(5) 283.33 km



97. In a tall skyscraper, one elevator A is going up @ 36 floors per minute, while a second elevator B is going down @ 44 floors per minute. Deepika enters into elevator A at the 11<sup>th</sup> floor and moves up non-stop, while at the same time Anuska enters into elevator B at 51<sup>st</sup> floor and goes down non-stop. At which floor, will the two elevators cross each other ?

- (1) 28  
(2) 29  
(3) 30  
(4) 31  
(5) 33



98. If  $x = 0.4136$ , which of the following values is equal to the following term?

$$x + \sqrt{4x^2 - 4x + 1}$$

(1) -0.1728

(2) -0.2488

(3) 0.1728

(4) 0.5864

(5) 1.4136

99. The difference between the compound and simple interests, compounded annually, on a principal amount @ 4% interest for a period of two years is Rs. 8.00. What is the principal amount?

(1) Rs. 4,600

(2) Rs. 5,000

(3) Rs. 5,400

(4) Rs. 6,200

(5) Rs. 6,600



100. The following table gives the distribution of normal annual rainfall in 80 places in Odisha. What is the normal annual rainfall in the state?

| Rainfall Class<br>(in cm) | No. of<br>Places |
|---------------------------|------------------|
|---------------------------|------------------|

100 - 120

10

120 - 140

16

140 - 160

29

160 - 180

18

180 - 200

7

(1) 125 cm

(2) 133 cm

(3) 140 cm

(4) 149 cm

(5) 155 cm