gradeup

NVS TGT 2014

Maths Question Paper

(English Version)
Section – A (Languages)

1. 'ऋतु-ऋतु' शब्द-युग्म में क्या अर्थ भेद है?
   A. कठोर-मौसम B. मिथ्या-मौसम
   C. असत्य-मौसम D. सत्य-मौसम
2. 'सभा शब्द का प्रयोग किस संज्ञा के अंतर्गत आता है?
   A. व्यक्तिवाचक B. जातिवाचक
   C. भाववाचक D. द्रव्यवाचक
3. संज्ञा की व्याप्ति किससे मर्यादित होती है?
   A. सर्वनाम B. क्रिया
   C. विशेषण D. समास
4. निम्नलिखित में से कौन सा शब्द स्त्रीलिंग है?
   A. कपड़ा B. रात
   C. गाना D. नेत्र
5. निम्नलिखित में से कौन सा शब्द पुल्लिंग है?
   A. साँकल B. सभा
   C. व्याख्यान D. दक्षिणा
6. पुल्लिंग-स्त्रीलिंग के युग्म में से कौनसा युग्म सही नहीं है?
   A. बालक - बालिका B. मिहतर - मिहतरी
   C. गूँगा - गूँगी D. नर - नारी
7. कौनसा शब्द सदैव एकवचन में प्रयोग होता है?
   A. धन B. सोना
   C. मात्र 'A' D. 'A' व 'B' दोनों
8. संज्ञा के किस रूप से किसी को पुकारने का बोध होता है?
   A. संबंध - कारक B. संप्रदान - कारक
   C. संबोधन - कारक D. अपादान - कारक
9. संधि कितने प्रकार की होती है?
   A. दो B. तीन
   C. चार D. पाँच
10. अशुद्ध वर्तनी विकल्प कौन सा है?
   A. उज्ज्वल B. सन्यासी
   C. स्वयंवर D. सज्जन
11. कौनसा शब्द 'आकाश' का पर्यायवाची नहीं है?
   A. गगन B. नभ
   C. अवनि D. अम्बर
12. 'विधि' का सही विलोम क्या है?
   A. निषेध B. कानून
   C. कर्म D. नास्तिक
13. 'ज्येष्ठ' का विलोम क्या है?
   A. कनिष्ठ B. अवर
   C. अग्रज D. प्रवर
14. सही संधि - विच्छेद का चयन कीजिए -
   A. महा - ऊदय B. महा + उदय
   C. महो + दय D. महा + ओदय
15. निम्नलिखित ममें से अशुद्ध संधि का चयन करें -
   A. राजन + आज्ञा = राजाज्ञा
   B. वि + स्मरण = विसमरण
   C. धनिन + त्व = धनित्व
   D. नि: + चल = निश्चल
16. 'कलम तोड़ देना' मुहावरे का सही अर्थ है -
   A. लिखना - पढ़ना त्याग देना
   B. अत्यंत क्रोधित होना
   C. अत्यन्त मार्मिक व प्रभावशाली रचना करना
   D. लिखने से घृणा करना
17. 'नीम हकीम खतरे जान' कहावत का सही अर्थ है -
   A. अधकचरा ज्ञान नुकसान देता है
   B. जड़ी बूटी से इलाज करना
   C. नीम का उपयोग सभी हकीम करते हैं
   D. हकीम से उपचार करवाना
18. आवश्यकता से अधिक धन-संपत्ति एकत्र न करना - वाक्यांश के लिए एक शब्द लिखें -

A. कृपणता B. अपरिग्रह
C. सदाचार D. अस्तेय

19. 'चाकू' शब्द कौन सी भाषा से हिन्दी में आया है?
A. अरबी B. तुर्की
C. फारसी D. पोर्चुगीज़

20. असंगत वाक्य छांटिए :
A. जिस समास में पहला पद प्राय: प्रधान होता है उसे अव्ययीभाव समास कहते हैं |
B. जिस समास में दूसरा पद प्राय: प्रधान होता है उसे तत्पुरुष समास कहते हैं |
C. जिसमें कोई भी पद प्रधान नहीं होता उसे द्न्द्द समास कहते हैं |
D. जिस समस्त पद में कोई पद प्रधान नहीं होता तथा दोनों मिलकर किसी तीसरे पद की और संकेत करते हैं उसे बहुब्रिही समास कहते हैं |

Directions Qs. 21-24: Choose the opposite of the given word out of the four options:

21. Jejune
A. Sophisticated B. Arrogant
C. Delightful D. Indifferent

22. Jeopardy
A. Validity B. Safety
C. Piety D. Tactfulness

23. Obfuscate
A. Complicate B. Eclipse
C. Clarify D. Anticipate

24. Inveigh
A. Liberate B. Suggest
C. Equivocate D. Support

Directions Qs.25-28: Choose the correct preposition, out of the four options, to be filled in the blanks:-

25. Shyam is ignorant _____ his mistake.
A. of B. to
C. for D. at

26. His speech was appropriate _____ the occasion.
A. upon B. to
C. about D. for

27. Kalim's behavior is subversive _____ discipline.
A. with B. about
C. of D. for

28. Radhika's aptitude_____ business cannot be doubted.
A. to B. about
C. at D. for

Directions Qs.29-32: In these questions, four alternatives are given for the italicized idioms. Choose the alternative which best expresses the meaning of the idiom:

29. A fly on the wheel
A. a person who overestimates her/his importance
B. a person who cautions the people
C. a person who is hostile to all
D. a person who entertains others

30. Fly off the handle
A. attack someone's enemies
B. lose one's temper suddenly
C. make one's escape
D. run away from the difficult situation

31. Keep the wolf off the door
A. keep her secrets intact
B. keep protesting against the times
C. keep off starvation
D. keep working with utmost speed

32. To be under the harrow
A. to work hard
B. to be awarded for honesty
C. to be in good health
D. to be in distress

Directions Qs.33-36: Choose the correct synonyms of the following words out of the four given options:

33. Diaphanous
A. silken B. tired
C. kind D. thick

34. Expostulate
A. infer B. disagree
C. remit D. simmer

35. Improvised
A. imprudent B. incautious
C. unstudied D. oblivious

36. Maverick
A. materialist B. spiritualist
C. selfish D. nonconformist

Directions Qs.37-40: Choose the correct form of the following words as the given part of speech out of the four options:

37. Above as noun:
    A. Our blessings come from above
    B. The heavens are above
    C. The moral law is above the civil
    D. Analyse the above sentence
38. Down as noun:
    A. Down went the "Titanic"
    B. Shyam has seen the ups and downs of life
    C. The porter was killed by the down train
    D. The engine came rushing down the hill
39. But as adverb:
    A. None but the brave deserve the honour
    B. We tried hard, but did not succeed
    C. It is but right to admit our faults
    D. There is no one but likes him
40. After as adjective :
    A. They arrived soon after
    B. He takes after his father
    C. We went away after they had left
    D. After ages shall sing his glory

Section – B

41. Superconductivity is a material property associated with:
    A. cooling a substance without a phase change
    B. frictionless liquid flow
    C. a loss of thermal resistance
    D. a loss of electrical resistance
42. A type of plastic that is biodegradable and has been in the news lately. The ingredient that makes it biodegradable is :
    A. vegetable oil B. petroleum
    C. corn starch D. leather
43. How many Dynes are there in one gram weight?
    A. 900 B. 375
    C. 981 D. 250
44. If the distance between the earth and the sun were twice what it is now, the gravitational force exerted on the earth by the sun would be:
    A. twice as large as now
    B. four times as large as it is now
    C. half of what it is now
    D. one-fourth of what it is now
45. Who was the first Indian to be selected to the British Parliament?
    A. Dadabhai Naoroji
    B. G.K. Gokhale
    C. Bipin Chandra Pal
    D. Lala Lajpat Rai
46. Which of the following Rajput dynasties did not surrender to Akbar?
    A. Parmar B. Pratihara
    C. Rathor D. Sisodiya
47. Which of the following is not a classical language of India?
    A. Sanskrit B. Telugu
    C. Hindi D. Malayalam
48. The scientific study of ageing is known as :
    A. Etiology B. Gerontology
    C. Osteology D. Teratology
49. Which Indian artist decorated the handwritten copy of the Constitution?
    A. Nandalal Bose
    B. Mihir Sen
    C. S. N. Banerji
    D. Mukesh Bhandopadhyaya
50. Preamble of the Indian Constitution has been amended
    A. Once B. Twice
    C. Thrice D. Never
51. Which of these are nicknamed 'Bretton Woods Twins'?
    1. IDA
    2. IMF
    3. IBRD
    4. WTO
    A. 1 & 4 B. 3 & 4
    C. 2 & 4 D. 2 & 3
52. Section -498A of Indian Penal Code is a popular section. It deals with:
    A. Property rights to women
    B. Reservations for women
    C. Harassment for dowry
    D. Kidnap and rape
53. The United Nations climate change conference COP19 or CMP9 was held in November 2013 at:
    A. Paris B. Warsaw
    C. Montreal D. Kyoto
54. The number of approved share markets in India is :
    A. 19 B. 20
    C. 23 D. 24

55. Which of the following state has been brought into the railway network for the first time?
A. Manipur
B. Assam
C. Tripura
D. Arunachal Pradesh

56. Who among the following has recently been selected for the coveted Indira Gandhi Prize for Peace Disarmament and Development for 2013?
A. Ila Bhatt
B. Medha Patkar
C. Angela Merkel
D. Chandi Prasad Bhatt

57. Victoria Azarenka, who won the Australian Open Tennis women's singles title 2012 is from:
A. USA B. Belarus
C. Germany D. Slovakia

58. The National Sports Day is observed on :
A. August 29th B. July 29th
C. September 29th D. August 20th

59. Sonal Mansingh is famous for which form of dance?
A. Bharatnatyam B. Manipuri
C. Kuchipudi D. Kathak

60. Ms. Meera Sahib Fathima Beevi is distinguished as the first lady
A. Judge of the High Court
B. Governor of a State
C. Judge of the Supreme Court
D. Prime Minister of Bangladesh

61. The maximum poll expenditure for a Lok Sabha seat has been raised by the Union Cabinet on the suggestion of the Election Commission of India:
A. From Rs. 30 lacs to Rs. 70 lacs
B. From Rs. 40 lacs to Rs. 70 lacs
C. From Rs. 50 lacs to Rs.70 lacs
D. From Rs. 40 lacs to Rs. one crore

62. Which of the following agencies determine ranking of the countries in accordance with Economic Freedom Index?
A. World Economic Forum
B. UNDP
C. Heritage Foundation & Wall Street Journal
D. World Bank

63. When is the World Population Day observed?
A. May 31 B. July 11
C. Oct. 4 D. Dec. 10

64. What was the highest individual score, in an innings in ICC T20 World Cup 2014?
A. 101 B. 106
C. 111 D. 116

65. Fiscal Policy is related to:
A. Money supply in the economy
B. Regulation of the banking system
C. Planning for economic development
D. Government's Revenue and Expenditure

66. Which American President has recently painted a portrait of Dr. Manmohan Singh?
A. Barack Obama B. George Bush
C. Bill Clinton D. Ronald Reagan

67. Which is the largest economy in African Continent?
A. South Africa
B. Nigeria
C. Algeria
D. None of the above

68. Who wrote 'Why I am an Atheist'?
A. Subhash Chandra Bose
B. Khushwant Singh
C. Bhagat Singh
D. Madan Lal Dhingra

69. The recently set-up 7th Central Pay Commission is headed by
A. Ashok Kumar Mathur
B. G.K. Chadha
C. Montek Singh Ahluwalia
D. Ajit Prakash Shah

70. National Rural Employment Scheme was launched throughout the country from :
A. 1.04.2007 B. 02.10.2007
C. 14.11.2007 D. 01.04.2008

71. 'England' is related to 'Atlantic Ocean' in the same way as 'Greenland' is related to:
A. Pacific Ocean B. Atlantic Ocean
C. Arctic Ocean D. Antarctic Ocean

Direction Qs.Nos.72-73: Choose one of the four given alternatives that shows the same relationship as is found between the two letters/numbers to the left of the sign :

72. FJUL : BOQQ : : LHRX : ?
A. BKPR B. MNCC
C. HRYY D. HMNC

73. 9 : 162 : : 8 : ?
A. 162 B. 128
C. 96 D. 112

74. Choose the group of words that shows same relationship as is given in the question :
Correspondent : News : Newspaper
A. Farmer : Crops : Food
B. Mason : Cement : Construction
C. Cloud : Water : Ponds
D. Road : Vehicle : Destination

Direction (Q.Nos. 75-76): Three of the four alternatives given are same in a certain way and so form a group. Find the odd one that does not belong to the group:

75. A. 62 B. 42
C. 152 D. 110

76. A. Java B. Sri Lanka
C. Malaysia D. Cuba

77. In a certain code language, 'lu ra de' means 'what was it'; 'mo nil' means 'you go'; 'nil pam ra' means 'you like it' and 'tok lu fo' means 'she was sick'. How will you write 'what you like' in that code ?
A. nil ra lu B. pom nil ra
C. pom ra lu D. de nil pam

78. If 'MOUSE' is coded as "PRUQC', then how is 'SHIFT' written in the same code?
A. VKIRD B. VKIDR
C. VJIDR D. VIKRD

79. How many meaningful English words can be made with the letters 'ATLE' using each letter only once in each word?
A. Two B. Three
C. Four D. More than four

80. 36 vehicles are parked in a parking lot in a single row. After the 1st car, there is one scooter, after 2nd car there are two scooters, after 3rd car there are three scooters and so on. Work out the number of scooters in the second half of the row.
A. 10 B. 12
C. 15 D. 17

Direction (Q.Nos. 81-83): Six plays A, B, C, D, E and F are to be organized from 2nd June to 7th June, i.e. Monday to Saturday – one play each day. There are two plays between C and D and one play between A and C. There is one play between F and E and E is to be organized before F. B is to be organized before A, not necessarily immediately. The sequence of plays does not start with B.

81. The sequence of plays would start from which play?
A. A
B. F
C. D
D. Can't be determined

82. On which date is play E to be organized?
A. 2nd
B. 4th
C. 3rd
D. Can't be determined

83. The sequence of plays would end with which play?
A. A
B. D
C. B
D. Can't be determined

84. B, C, D, E, F, G, H, J are sitting around a circle facing the centre. B is an immediate neighbour of F and C. E is second to the left of F. G is second to the right of C. D is not an immediate neighbour of G. There are two persons between C and J. How many persons are between C and D?
A. 2 only B. 4 only
C. 5 only D. either 2 or 4

85. If 'A + B' means that A is the father of B; 'A–B' means that A is the wife of B; 'A × B' means that A is the brother of B and 'A ÷ B' means that A is the daughter of B. Then which of the following is true for P ÷ R + S + Q ?
A. P is the daughter of Q
B. Q is the aunt (Father's sister) of P
C. P is the aunt (father's sister) of Q
D. P is the mother of Q

86. Q's mother is the sister of P and daughter of M. S is the daughter of P and sister of T. How is M related to T?
A. Maternal Grandmother
B. Father
C. Maternal Grandfather
D. Option (A) or (C)

87. Ram starts walking towards East from a point 'S' and after walking 15 m turns to his left and walks 10 m, again he walks 10 m turning to his left and finally walks 22 m turning to his left and reaches a point 'Q'.

How far and in which direction is he from the point 'S'?

A. 15 m South B. 22 m South-East
C. 12 m South D. 13 m South-East

Direction Q.Nos. 88-89: Read the pattern of letters/numbers/terms and find the missing term from the given alternatives:

88. 9, 27, 31, 155, 161, 1127, ?
A. 1135 B. 1288
C. 316 D. 2254

89. Y, B, T, G, O, ?
A. N B. M
C. L D. K

90. In the following series some letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.
adb_ac_d_bcda_bcac_d
A. bacbd B. dbacb
C. cbadb D. acbda

91. If P denotes +, Q denotes −, R denotes × and S denotes ÷ , then which of the following is correct?
A. 16 R 12 P 49 S 7 Q 9 = 200
B. 32 S 8 R 9 = 160 Q 12 R 12
C. 8 R 8 P 8 S 8 Q 8 = 57
D. 36 R 4 S 8 Q 7 P 4 = 10

92. The age of father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. The ratio of their present ages is :
A. 5 : 2 B. 7 : 3
C. 9 : 2 D. 13 : 4

Direction (Q.Nos. 93 to 95): A survey of a locality regarding newspaper reading habits shows that: newspaper A is read by 26%; newspaper B is read by 25%; newspaper C is read by 14%; newspaper A and B are read by 11%; Newspaper B and C are read by 10%; Newspaper C and A are read by 9% and newspaper C only is read by 0%.

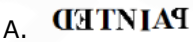
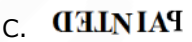
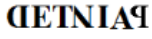
93. The percentage of readers who read all the three newspapers is
A. 10 B. 4
C. 5 D. 6

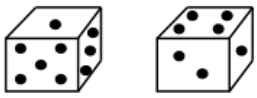
94. The percentage of readers who read at most one newspaper is
A. 20
B. 80
C. 60
D. None of the above

95. The percentage of reader who read at least two newspapers is
A. 15
B. 16
C. 20
D. None of the above

96. How many times are the two hands of a clock at right angles in a day?
A. 24 B. 48
C. 22 D. 44

97. Calendar for the year 2014 will be the same for the year:
A. 2018
B. 2020
C. 2022
D. none of the above

98. Choose the alternative which most closely resembles the mirror-image of word PAINTED
A.  B. 
C.  D. 

99. Two positions of a dice are shown below. When there are two dots at the bottom, the number of dots at the top will be

A. 2 B. 3
C. 5 D. 6

100. How many triangles are there in the given figure?

A. 28 B. 24
C. 25 D. 26

101. Which one of the following is the main objective of teaching?
A. To develop thinking power of the students
B. To give information related to the syllabus
C. To dictate notes to the students
D. To prepare students to pass the examination

102. Which of the following statements regarding "Memory Level of Teaching" (MLT) is incorrect?
A. Memory is the initial stage of teaching

B. Memory Level of Teaching mainly depends on the prevailing socio-economic conditions
C. MLT includes the habit of rote memorization of facts and bits of information
D. MLT enables the learner to retain and also reproduce the learnt material whenever required

103. Which of the following statements regarding "Understanding Level of Teaching" (ULT) is incorrect?
A. Morrison is the main proponent of ULT
B. It is 'memory plus insight' as it goes beyond just the memorizing of facts. It focuses on the mastery of the subject
C. Cultural materialism is also a primary determining factor of ULT
D. It provides more and more opportunities for the students to develop the intellectual behavior

104. Which of the following statements regarding 'Reflective Level of Teaching' (RLT) is incorrect?
A. Hunt is the main proponent of RLT
B. It is problem - centred teaching
C. The students are assumed to adopt some sort of research approach to solve the problem
D. The teacher assumes the primary place and the pupil occupies the secondary place

105. Which of the following is not a domain or category of instructional objectives according to Bloom et al?
A. Socio-Political Domain
B. Cognitive Domain
C. Affective Domain
D. Psychomotor Domain

106. Which of the following is not one of the advantages of "Lecture Method"?
A. It is economical as it can cover large audience in less time
B. It promotes social cohesion among the pupils
C. It is useful for stimulating further learning
D. It has the flexibility for adapting the lecture according to time and equipment available

107. Which one of the following is not one of the advantages of 'TV or Video Presentation' as a teaching method?
A. Many important personalities and experts are brought to the classroom through videopresentation
B. This method is specifically useful for adult learners
C. It promotes a sort of nativism among the learners
D. Illustrated lectures and demonstrations can be supplemented by other teaching aids such as slides, models, specimens, etc.

108. Which one of the following is not one of the advantages of 'Team Teaching Method'?
A. It helps in sharing the best faculty by more students
B. It involves optimum use of teaching techniques and devices
C. It improves the teaching quality
D. It affects the socio-economic conditions of the pupils

109. Which one of the following is not one of the advantages of 'Group Discussion Method'?
A. It flattens out the ideological differences of the pupils
B. It can be planned where there is certainty about the conclusions and objectives. The discussion is guided by the trainer in an appropriate sequence
C. It promotes communication and interaction within a group around a topic or problem presented to the group
D. It can also be unplanned where the topic presented for discussion is without any opening statement and discussion that follows is entirely spontaneous

110. Which one of the following is not one of the advantages of the "Case Study Method"?
A. It provides opportunity to the participants to critically analyze the problem and express reasoned opinions.
B. It promotes gender-sensitivity among the pupils.
C. It enhances decision –making and problem-solving skills.
D. It ensures active participation, which may lead to innovative solutions.

111. Which one of the following is not one of the functions of 'Evaluation'?
   A. Feedback
   B. Motivation
   C. Ideological indoctrination
   D. Better guidance
112. Who among the following is considered a proponent of the Wardha Education System?
   A. Sri Aurobindo B. S. Radhakrishnan
   C. J.Krishnamurti D. Mahatma Gandhi
113. Who among the following was the main proponent of the Kindergarten system of education?
   A. Froebel
   B. Rousseau
   C. Maria Montessori
   D. John Dewey
114. Which of the following is not one of the "Projected Visual Aids"?
   A. Slides
   B. Bar Chart
   C. Handheld Projector
   D. Video Projector
115. Which of the following is an independent variable in teaching-learning process?
   A. Student B. Institution
   C. Teacher D. Parents
116. The highest level of cognitive domain is:
   A. Synthesis B. Analysis
   C. Comprehensive D. Evaluation
117. Who has the least chance of becoming an effective teacher?
   A. One who has no interest in teaching
   B. One who is a strict disciplinarian
   C. One who neglects teaching
   D. One who knows his subject well
118. Books can be a powerful source of communication, provided:
   A. The content is abstract
   B. The content is illustrative
   C. The medium is Hindi
   D. The print quality of the book is good
119. Good teaching is best reflected by:
   A. Attendance of students
   B. Number of distinctions
   C. Meaningful questions asked by students
   D. Pin-drop silence in the class
120. The ability to locate, evaluate and effectively use information is an important trait known as :
   A. Critical thinking
   B. Information literacy
   C. Number of distinctions
   D. Selective attention

Section – C

121. If $2^{x+13} = 4^{x+2}$ then x is equal to
   A. 2 B. 3
   C. 9 D. 4
122. How many real solutions are there of the equation $x^4 - 2 = 0$?
   A. 1 B. 2
   C. 3 D. 4
123. The value of the expression $0.7 \times \frac{0.08}{0.004}$ is equal to
   A. 14 B. 0.14
   C. 140 D. 0.56
124. The sum of two numbers is 50. The fraction obtained by dividing the larger number by the smaller number is 3/2. The numbers are.
   A. 25, 25 B. 10, 40
   C. 15, 35 D. 20, 30
125. Father's age is 5 times the age of his son. After 15 years the father will be $2\frac{1}{2}$ times older than his son. What is the present age of the father?
   A. 35 years B. 45 years
   C. 55 years D. 30 years
126. The Sup. {sin x + cos x} is equal to.
   A. 2 B. 1
   C. $\sqrt{2}$ D. $\frac{1}{\sqrt{2}}$
127. A bag contains 6 red and 4 green balls. A ball is drawn at random from the bag. Find the probability that it is either a red ball or a green ball.
   A. 1 B. 3
   C. 1/2 D. 5
128. For any event E, if P(E) = 0.99, find the value of P(not E)
   A. 0.1 B. 0.01

C. 0.0001 D. none of these

129. The sum of the series 5 + 9 + 13 + … + 49 is
A. 351 B. 535
C. 324 D. 435

130. What will be the remainder if $(x^{97} - 1)$ is divided by x + 1?
A. 96 B. 0
C. 2 D. – 2

131. What will be the remainder if (16 ! + 1) is divided by 17?
A. 1 B. 0
C. 2 D. none of these

132. An odd degree polynomial equation has
A. at least one real root
B. no real root
C. only one real root
D. none of these

133. Decimal expansion of an irrational number is
A. non-terminating, recurring
B. terminating
C. non-terminating, non-recurring
D. none of these

134. The equation |x + 2| = – 2 has
A. unique solution
B. two solutions
C. many solutions
D. No solution

135. The value of Sin (13π/4) is same as the value of
A. Sin (3π/4) B. Sin (5π/4)
C. Sin (π/4) D. Sin (9π/ 4)

136. If ax + by = c is tangent to the circle $x^2 + y^2 = 16$ then
A. $16 (a^2 + b^2) = c^2$
B. $16 (a^2 - b^2) = c^2$
C. $16 (a^2 + b^2) = - c^2$
D. $16 (a^2 - b^2) = - c^2$

137. Value of the limit $\lim_{x\to 0} \frac{\sqrt{x+1}-1}{x}$ is equal to
A. 1 B. 2
C. $\frac{1}{2}$ D. none of these

138. If $\begin{bmatrix}2x & 3\end{bmatrix}\begin{bmatrix}1 & 2\\ -3 & 0\end{bmatrix}\begin{bmatrix}x\\ 8\end{bmatrix} = 0$, value of x is
A. $\frac{23}{2}$ B. $\frac{13}{2}$
C. $-\frac{13}{2}$ D. $-\frac{23}{2}$

139. Every homogeneous equation f(x, y, z) = 0 represents
A. A Sphere
B. A Cone with vertex at origin
C. A Cylinder
D. None of these

140. The equation $x^2 - y^2 = 0$ represents
A. a circle
B. an ellipse
C. pair of straight lines
D. a hyperbola

141. Two angles of an isosceles triangle are always
A. equal B. equal to 45^0
C. equal to 60^0 D. none of these

142. The function y = f(x) has a relative minima where
A. f(x) = 0 and f'(x) < 0
B. f '(x) = 0 and f ''(x) > 0
C. f(x) = 0 and f '(x) > 0
D. f '(x) = 0 and f ''(x) < 0

143. If volume of a sphere is 36 π then its surface area will be
A. 18 π B. 6 π
C. 12 π D. 36 π

144. Let average of three numbers be16. If two the numbers are 8 and 10, what is the remaining number?
A. – 30 B. 18
C. 12 D. 30

145. A bag contains 7 red and 4 blue balls. Two balls are drawn at random with replacement. The probability of getting the balls of different colours is
A. $\frac{28}{121}$ B. $\frac{56}{121}$
C. $\frac{1}{2}$ D. None of these

146. The distance of the point (2, 3, 4) from the plane 3x - 6y + 2z + 11 = 0 is
A. 9 B. 7
C. 10 D. none of these

147. If g = {(1, 1), (2, 3), (3, 5), (4, 7)} is a function described by g(x) = ax + b, then what values should be assigned to a and b?
A. 1, 1 B. 1, -2
C. 2, -1 D. -2, -1

148. Three resistances of value 2Ω each are arranged in a triangle form. The total resistances between any two corners will be
   A. 4 Ω B. 2 Ω
   C. 3/4 Ω D. 4/3 Ω
149. A copper wire and a steel wire of equal length and equal thickness are connected in series with a battery. Which of them will get more heated?
   A. steel
   B. copper
   C. equally heated
   D. insufficient data to reply
150. A current in a coil of inductance 5H decreases at a rate of 2 Amp/sec. The induced emf is
   A. 2 V B. 5 V
   C. 10 V D. - 10 V
151. The application of an electric motor is to
   A. convert voltage into current
   B. transfer charge into current
   C. transfer electrical energy into kinetic energy
   D. convert current into voltage
152. Charge flowing per unit area per second through a conductor is known as
   A. potential difference
   B. emf of the battery
   C. Ohm's law
   D. current
153. The final image formed by simple microscope is
   A. real and inverted
   B. imaginary and inverted
   C. imaginary and erect
   D. real and erect
154. Which of the following phenomenon is responsible for the twinkling of stars?
   A. atmosphere reflection
   B. atmosphere refraction
   C. reflection
   D. total internal reflection
155. The refraction index of a rare medium with respect to a denser medium is
   A. 1 B. greater than 1
   C. smaller than 1 D. negative
156. Objects at different distances are seen by the eye. In this process which one of the following remain constant?
   A. The object distance from the eye lens
   B. The focal length of the eye lens
   C. The image distance from the eye lens
   D. The radii of curvature of the eye lens
157. The sine of angle of incidence divided by the sine of angle of refraction equals refractiveindex is called
   A. Snell's law
   B. Newton's law
   C. Brewster's law
   D. Bernoulli's principle
158. The power generated in a windmill
   A. is more in rainy season since damped air would mean more air mass hitting the blades
   B. depends on the height of the tower
   C. depends on wind velocity
   D. can be increased by planting tall trees close to the tower
159. The one thing that is common to all fossil fuels is that they
   A. were originally formed in marine environment
   B. contain carbon
   C. have undergone the same set of geological processes during their formation
   D. represent the remains of living organisms
160. A particle moves in a straight line such that $s = \sqrt{t}$ (where s is distance and t is time) then the acceleration of the particle is always
   A. negative B. positive
   C. zero D. can not be found
161. A person covers half of his journey at a speed of 40 m/sec and the other half at a speed of 50 m/sec. His average speed during the whole journey is about
   A. 15 m/sec B. 45 m/sec
   C. 75 m/sec D. 90 m/sec
162. Two particles move in concentric circles of radii r_1 and r_2 such that they maintain a straight line with the centre. The ratio of their angular velocities is
   A. 1 B. $r_1 + r_2$
   C. r_1/r_2 D. r_2/r_1
163. When we kick a stone, we get hurt. Due to which one of the following properties does it happen?
   A. inertia B. momentum
   C. reaction D. velocity

164. The slope of the velocity – time graph for retarded motion is
A. zero B. positive
C. negative D. neutral

165. If the kinetic energy of a particle increases by 44%, then the increase in its momentum will be
A. 12% B. 20%
C. 33% D. 44%

166. Newton's law of gravitation is valid
A. only for charged bodies
B. all bodies
C. only heavenly bodies
D. only for small bodies

167. When two bodies collide elastically then the quantity conserved is
A. kinetic energy
B. momentum
C. potential energy
D. both kinetic energy and momentum

168. The heart of a man pumps 4000 cc blood per minute at 120 mm of Hg. The power of the pump (heart) is
A. 0.98 W B. 1.08 W
C. 1.18 W D. 1.28 W

169. The gravitational force on earth on a ball of mass one kilogram is 9.8 N. The attraction of ball on the earth is
A. more than 9.8 N
B. negligible
C. 9.8 N
D. slightly less than 9.8 N

170. Which one of the following instruments is used to measure the pressure?
A. Ammeter B. Manometer
C. Lactometer D. Picometer

171. Which has a greater buoyant force acting on it, a floating 100 lb piece of wood, or a floating 50 lb piece of wood?
A. the 100 lb piece of wood.
B. the 50 lb piece of wood.
C. since both pieces of wood are floating, they experience the same buoyant force.
D. there is not enough information.

172. A stationary wave is produced in a string of length 1.25 meters. If three nodes and two antinodes are produced in the string, then the wavelength of the wave is
A. 2.50 meters B. 3.75 meters
C. 5.00 meters D. 1.25 meters

173. An echo will be heard if the
A. time interval between original sound and reflected sound is more than 1/10s
B. time interval between original sound and reflected sound is less than 1/10s
C. time interval between original sound and reflected sound is more than 1/120s
D. time interval between original sound and reflected sound is less than 1/120s

174. The method of detecting the presence, position and direction of motion of distant objects by reflecting a beam of sound waves is known as
A. RADAR B. SONAR
C. MIR D. CRO

175. Which state consists of super energetic and super excited particles?
A. Liquid
B. Gas
C. Plasma
D. Bose-Einstein Condensate

176. According to Henry's law
A. doubling the partial pressure doubles the solubility
B. doubling the partial pressure triples the solubility
C. doubling the partial pressure decreases the solubility
D. doubling the partial pressure does not affect the solubility

177. The protecting power of lyophilic colloidal sol is expressed in terms of
A. Critical miscelle concentration
B. Oxidation number
C. Coagulation value
D. Gold number

178. Atoms having same number of neutrons but different mass number are called
A. isotopes B. isobars
C. isotones D. isotherms

179. Which of the following has largest negative electron affinity?
A. F B. Cl
C. Br D. I

180. The family of element with the highest ionisation enthalpy:
A. Alkali metals

B. Alkaline earth metals
C. Halogens
D. Noble gases

181. Which of the following has coordination bond?
A. N_2 B. $CaCl_2$
C. O_3 D. H_2O

182. What will be the pH at 25°C containing 0.10 M CH_3COONa and 0.03 M CH_3COOH. pKa for CH_3COOH = 4.57.
A. 4.87 B. 3.33
C. 5.09 D. 4.05

183. The function of alum used for the purification of water is to
A. coagulate the sol particles
B. disperse the sol particles
C. emulsify the sol particles
D. absorb the sol particles

184. Which one of the following is metal?
A. C B. N
C. Na D. O

185. Which non-metal is found in liquid state at room temperature?
A. Mercury B. Zinc
C. Iodine D. Bromine

186. Oxides of non metals are _____ in nature.
A. Basic B. Acidic
C. Neutral D. Amphoteric

187. Which gas are produced when metal react with acids?
A. Oxygen B. Nitrogen
C. Hydrogen D. Carbon dioxide

188. Which of the following can be shown to be both a Bronsted acid and a Bronsted base?
A. O^{-2} B. HSO_4^{-1}
C. PO_4^{-3} D. CN^{-1}

189. An example of an emulsifying agent would be_____.
A. Oil B. Soap
C. Water D. Salt

190. Which is not an organic compound?
A. methanol B. acetonitrile
C. sodium cyanide D. phenol

191. In benzene, each carbon atoms undergoes
A. sp
B. sp^2
C. sp^3
D. sp^2 and sp^3 hybridisation

192. The shortest C-C bond distance is found in:
A. ethane B. ethene
C. ethyne D. diamond

193. Propene reacts with HBr in presence of organic peroxide to form:
A. 1-Bromopropane
B. 2-Bromopropane
C. 3-Bromopropane
D. 2-Bromopropene

194. The strongest acid among the following is:
A. C_2H_6 B. C_3H_8
C. C_2H_4 D. C_2H_2

195. The compound formed as a result of oxidation of ethyl benzene by $KMnO_4$ is
A. Benzoic acid
B. Acetophenone
C. Benzophenone
D. Benzyl alcohol

196. Which acid is used in the manufacture of synthetic rubber?
A. Acetic acid B. Formic acid
C. Carbonic acid D. Benzoic acid

197. Not a characteristic property of ceramic material
A. high temperature stability
B. high mechanical strength
C. low elongation
D. low hardness

198. Increasing concentration of CO_2 in atmosphere is responsible for:
A. acid rain
B. greenhouse effect
C. lack of photosynthesis
D. death of aquatic life

199. The coating on modern non- stick cookware and electric iron is of
A. Terrycot B. Rayon
C. Polyester D. Teflon

200. For corrosion of iron to take place
A. Presence of moisture is sufficient
B. Presence of moisture and oxygen is essential
C. Hydrogen is required
D. A strong acid is necessary