PREVIOUS YEAR PAPER

DSSSB TGT Maths (Female) 2021 — 10 September 2021, Shift 3

DSSSB TGT · 10 September 2021 · Shift 3

151 of the paper's 200 questions · +1 for a correct answer, −0.25 for a wrong one · 120 minutes

Left out of the original paper: 49 (any question that needs a figure, a symbol or formatting we cannot show, or whose text did not read back cleanly from the booklet).

Questions from the Delhi Subordinate Services Selection Board's paper of 10 September 2021, Shift 3. Each question is followed by its answer, and the answer key is repeated on the last page.

Take it as a timed practice test: exambharo.com/dsssb-tgt/previous-year-papers/dsssb-tgt-2021-maths-female-10-sep-shift-3/

General Ability

1. Select the option that is related to the third term on the same basis as the second term is related to the first term.
Veterinarian : Animals :: Orthopaedic : ?

(a) Eyes
(b) Kids
(c) Brain
(d) Bone

Answer: (d)

2. Out of the given options, three are similar in a ce n manner. However, one option is NOT like the other three. Select the option which is om the rest.

(a) QRUZ
(b) JNQT
(c) GHKP
(d) ZADI

Answer: (b)

3. Out of the given options, three are similar in a certain manner. However, one option is NOT like the other three. Select the option which is different from the rest.

(a) (3, 10, 101)
(b) (5, 26, 677)
(c) (9, 82, 6725)
(d) (6, 37, 1368)

Answer: (d)

4. Complete the following letter series:
ABC, CEG, EHK, GKO, _, KQW

(a) UPO

(b) TWZ

(c) INS

(d) NST

Answer: (c)

5. Find the wrong term in the given series.
19200, 4800, 1200, 400, 75, 18.75

(a) 75

(b) 1200

(c) 400

(d) 18.75

Answer: (c)

6. In the question one statement is given, followed by two conclusions, I and II. You have to consider the statement to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statement.
Statement:
$T \geq D$; $T \geq K$; $Z = K$
Conclusions:
I. $D > Z$
II. $Z \geq D$

(a) Only conclusion I follows

(b) Only conclusion II follows

(c) Either conclusion I or II follow

(d) Both conclusion I and II follow

Answer: (c)

7. There are five friends P, Q, R, S and T. P is heavier than Q. R is as heavy as Q. T is lighter than R. S is lighter than Q but heavier than T. Who is the lightest friend?

(a) P

(b) Q

(c) S

(d) T

Answer: (d)

8. Select the most logical course of action for the following scenario.
You are getting late for the exam but you saw a girl being unconscious on the road beside her scooty. You will _____.

(a) Head towards exam venue as you are getting late.

(b) Look for others on the road to ask them for help and leave for the exam.

(c) Check for any major wound and sprinkle some water on her face and call an ambulance and then head towards the exam venue.

(d) Escape from the place as it may lead to some legal trouble of road accident case and you may miss your exam.

Answer: (c)

9. Select the most logical course of action for the following scenario.
\You are playing a cricket match with your friend in your locality. When you hit the ball, it went high and breaks the windowpane of a nearby house. You would _____.

(a) Demand your ball back from the house owner.

(b) Say that it was no fault of yours.

(c) Start fighting with the owner of the house to get your ball back.

(d) Apologize to the house owner and contribute to replacing the broken glass.

Answer: (d)

10. Find the missing number in the given series:
15, 23, 32, 157, _, 1537

(a) 500

(b) 206

(c) 412

(d) 298

Answer: (b)

12. How many pairs of letters are there in the word "BINOCULARS" each of which has as many letters between them as in the English alphabetical series in both forward and backward directions?

(a) One

(b) Two

(c) Three

(d) Four

Answer: (d)

13. Read the following statements and answer the question on their basis.
'A + B' means 'A is mother of B'.
'A - B' means 'A is husband of B'.
'A @ B' means 'A is sister of B'.
'A # B' means 'A is son of B'.
Which of the following expression indicates that S is daughter of U?

(a) U + C @ G # S
(b) U + C @ S # G
(c) S @ G # C + U
(d) S @ G # C — U

Answer: (d)

14. J, I, L, M, N and P are sitting in a straight line facing north. N sits to the right of P, who is second to the left of L. M sits to the immediate right of J. There are two persons between I and P. If J sits at the left end of the line, then who sits at the right end of the line?

(a) L
(b) M
(c) N
(d) I

Answer: (d)

15. Sum of Age of A, B and C is 10 years more than B and C and 5 years more than A and C. If sum of age of A, B and C is 25 year, then find the age of C

(a) 7 years
(b) 10 years
(c) 8 years
(d) 12 years

Answer: (b)

General Awareness

21. According to MoS Finance, which of the following rank India obtained in Forex Reserve Holder in the World as on 25th June 2021?

(a) 5th
(b) 6th
(c) 7th
(d) 8th

Answer: (a)

22. What will be the principle aim of the QUAD group?

(a) To enhance proper utilization of resources
(b) To enhance trade
(c) To enhance regional connectivity
(d) To enhance industrial output

Answer: (c)

23. Who is nicknamed Indian Napoleon?
(a) Akbar
(b) Chandra Gupta Maurya
(c) Chandragupta II
(d) Samudragupta
Answer: (d)

24. Who among the following won Gold medal in the Tokyo Paralympics 2020 by winning the women's 10m Air Rifle Standing SH1 event?
(a) Anjali Bhagawat
(b) Bhavina Patel
(c) Sumit Antil
(d) Avani Lekhara
Answer: (d)

26. In which of the following Schedule of the Constitution, the 'State List' is given?
(a) 5th
(b) 6th
(c) 7th
(d) 8th
Answer: (c)

27. Which of the following trophies are associated wi[illegible]ne game of Basketball?
(a) Basalat Jha Trophy
(b) Begam Rasul Trophy
(c) B.C.Raj Trophy
(d) G.D.Birla Trophy
Answer: (a)

28. Pele' is the professional player of which of the following games?
(a) Cricket
(b) Football
(c) Boxing
(d) Baseball
Answer: (b)

29. From which of the following states, folk dance of 'Bohada' originated?
(a) Gujarat
(b) Maharashtra
(c) Rajasthan
(d) Bihar
Answer: (b)

30. Ali Akbar Khan was an Indian Hindustani classical musician, known for his virtuosity in playing the _____.

(a) tambura
(b) sarod
(c) tabla
(d) shenai

Answer: (b)

31. Which among the following lines, the Germans retreated in 1917?

(a) Hindenberg Line
(b) Durand Line
(c) Maginot Line
(d) Mannerheim Line

Answer: (a)

32. Where is 'The roof of the world'?

(a) Central Asia
(b) Eastern Asia
(c) Western Asia
(d) Northern Asia

Answer: (a)

33. Where is the headquarter of the World Bank?

(a) Washington D.C.
(b) New York
(c) Austin
(d) Denver

Answer: (a)

34. Which among the following is not a vector quantity?

(a) Force
(b) Acceleration
(c) Speed
(d) Momentum

Answer: (c)

35. Which among the following is the unit of Radiant Flux?

(a) Joule
(b) Watt
(c) Ohm
(d) Tesla

Answer: (b)

36. Which among the following is the symbol of Silver?

(a) Ag
(b) Hg
(c) Pb
(d) Sn

Answer: (a)

38. When was the WHO (World Health Organisation) founded?

(a) 1948
(b) 1949
(c) 1950
(d) 1951

Answer: (a)

39. Who is the author of 'A tale of two cities'?

(a) Thomas Hardy
(b) Alexander Solzhenitsyn
(c) John Bunyan
(d) Charles Dickens

Answer: (d)

40. Who has written 'The Time Machine'?

(a) H.G.Wells
(b) Oliver Goldsmith
(c) Victor Hugo
(d) T.S.Eliot

Answer: (a)

Arithmetic Ability

41. What will come in the place of question mark(?) in the following question?
32% of 250 + 68% of 600 = ?% of 175 + 369

(a) 92
(b) 34
(c) 68
(d) 98

Answer: (c)

42. What approximate value will come in the place of question mark(?) in the following question?
199.98% of 54.98 + 24.99% of 799.99 = ? + 64.99% of 399.99

(a) 20
(b) 30
(c) 40
(d) 50

Answer: (d)

43. What will come in the place of question mark(?) in the following question?
10(3/4) + 12(5/8) + 7(1/2) = ?/4 + 16

(a) 59.5
(b) 60.5
(c) 58.5
(d) 56.5

Answer: (a)

44. The H.C.F. of 0.84, 0.28 and 0.7 is:

(a) 1.4
(b) 0.14
(c) 0.7
(d) 0.07

Answer: (b)

45. Find the greatest number that will divide 53, 93 and 153 so as to leave the same remainder in each case.

(a) 25
(b) 30
(c) 10
(d) 20

Answer: (d)

46. Rajan is older than Samara by 5 years. Five years from now, the respective ratio between Rajan's age and Samara's age will be 7:6. What was Rajan's age 10 years ago?

(a) 20 years
(b) 25 years
(c) 22 years
(d) 23 years

Answer: (a)

47. A craft takes twice time in rowing a certain distance upstream than downstream. What is the ratio between the craft's speed of rowing in still water and speed of stream?

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

Answer: (d)

48. If A is 20% elder than B. C is 25% younger than B. D is 40% elder than C. The Difference between the age of eldest and youngest is 9 years.
Find out their average age.

(a) 18 years

(b) 20 years

(c) 22 years

(d) 24 years

Answer: (b)

49. A student multiplied a number by (3/4) instead of (7/3).
What is the percentage error in the calculation?

(a) 60.75%

(b) 61.75%

(c) 65.75%

(d) 67.85%

Answer: (d)

50. In an organisation, average salary of all employees is Rs. 6000. The average salary of 7 engineers is Rs. 10000 and the average salary of the rest employees is Rs. 5000. What is the total number of employees in the organisation?

(a) 25

(b) 35

(c) 30

(d) 26

Answer: (b)

51. The data from a village is collected regarding the weight of people. The average weight of men in the village is 60 kg and average weight of the women is 45 kg. If there are 50 more men than women and total population of the village is 300. What is the difference between the total weight of men and the total weight of women in the village?

(a) 8670 kg

(b) 5675 kg

(c) 4875 kg

(d) 4560 kg

Answer: (c)

52. A and B contributes Rs. 5000 and Rs. 2000 respectively in a business. A is a sleeping partner and B gets 10% of the profit for management and the rest of the profit is divided in proportion of their capitals. If the profit of A is Rs. 900, then what is the share of B?

(a) Rs. 442

(b) Rs. 440

(c) Rs. 460

(d) Rs. 500

Answer: (d)

53. A vendor bought pencils at 7 for a rupee. How many for a rupee must he sell to gain 40%?

(a) 3
(b) 4
(c) 5
(d) 6

Answer: (c)

54. A dozen socks of Rs. 70 are available at a discount of 10%. Find out how many socks can be bought for Rs. 21.

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

Answer: (b)

55. A man took a loan of Rs. 12000 from a bank. Rate of interest offered by the bank was equal to the time period for which on takes the loan. If he paid Rs. 4320 as interest after x years to clear his loan. Find the time for which he took the loan.

(a) 5 years
(b) 6 years
(c) 6.5 years
(d) 7 years

Answer: (b)

56. A square shaped park with area 400 sq. km has a racing track surrounding it. The width of racing track is 4 km. What is the area of racing track?

(a) 384 sq. km
(b) 784 sq. km
(c) 284 sq. km
(d) 176 sq. km

Answer: (a)

57. Manoj and Nandan working together can do a certain amount of job in 45 days and are paid Rs. 12600 for the whole job. The efficiency ratio of Manoj and Nandan is 9 : 5. Find the daily wages of Nandan, if they get paid as per their efficiency.

(a) Rs. 120
(b) Rs. 100
(c) Rs. 105
(d) Rs. 90

Answer: (b)

58. A boat covers 45 km upstream in 5 hours and comes back same distance in 3 hours. Find the speed of the boat in still water.

(a) 12 km/hr

(b) 6 km/hr

(c) 3 km/hr

(d) 15 km/hr

Answer: (a)

General English

61. The sentence below has been divided into three parts. Select the part of the sentence that has an error. If the sentence has no error, select the option 'No Error'.
When we got married, / I have been thinking we maybe had 10 books / each, including novels by Sir Walter Scott.

(a) When we got married,

(b) I have been thinking we maybe had 10 books

(c) each, including novels by Sir Walter Scott.

(d) No Error

Answer: (b)

62. The sentence below has been divided into three parts. Select the part of the sentence that has an error. If the sentence has no error, select the option 'No Error'.
Heavy machines then / pounded and abrasion them to make / the surfaces smooth and uniform.

(a) Heavy machines then

(b) pounded and abrasion them to make

(c) the surfaces smooth and uniform.

(d) No Error

Answer: (b)

63. Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. Select the option 'no correction required' if the sentence is correct as given.
He gave the door a hefty kick (for good amount before turning on his) heel and striding back to his bed.

(a) for good quantity before turning on his

(b) for good quality before turning on his

(c) for good measure before turning on his

(d) No correction required

Answer: (c)

64. Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. Select the option 'no correction required' if the sentence is correct as given.
Haworth is the railway's headquarters, (boasting off a locomotive depot) where visitors can view the steam leviathans under repair or restoration.

(a) boasting a locomotive depot

(b) boast for a locomotive depot

(c) boasting at a locomotive depot

(d) No correction required

Answer: (a)

65. Fill in the blank with the most appropriate choice.
So it would appear that from now on I am going to have to be more tactful and _____ in my meanderings

(a) diplomatic

(b) obloquy

(c) rebuilt

(d) deceptive

Answer: (a)

66. The sentences below are not complete. There are four options for each question. Choose the best word to complete the sentence.
The interface is appalling, requiring _____ use of the yboard to do relatively simple tasks.

(a) amateur

(b) insipid

(c) clumsy

(d) dextrous

Answer: (d)

67. Some parts of a sentence have been jumbled up, and labelled P, Q, R and S. Select the option that gives the correct sequence in which these parts can be rearranged to form a meaningful and grammatically correct sentence.
The water cycle,
P. biogeochemical cycle that describes
Q. the continuous movement of water on,
R. the hydrological cycle, is
S. also known as the hydrologic cycle or
above and below the surface of the Earth.

(a) SRPQ

(b) RPQS

(c) PQSR

(d) QSRP

Answer: (a)

68. The question below consist of a set of labelled sentences. Out of four options given, select the most logical order of the sentences which form a paragraph.
Agents of erosion majorly include rainfall; bedrock wear in rivers; coastal erosion by the sea and waves; glacial plucking, abrasion, and scour.
P. They also include areal flooding; wind abrasion; groundwater processes; and mass movement processes in steep landscapes like landslides and debris flows.
Q. The rates at which such processes act control how fast a surface is eroded.
R. Typically, physical erosion proceeds fastest on steeply sloping surfaces, and rates may also be sensitive to some climatically-controlled properties.
S. Feedbacks are also possible between rates of erosion and the amount of eroded material that is already carried by, for example, a river or glacier.
The transport of eroded materials from their original location is followed by deposition, which is arrival and emplacement of material at a new location.

(a) PQRS
(b) SPRQ
(c) QSRP
(d) PSRQ

Answer: (a)

69. Four words are given, out of which only one word is spelt correctly. Choose the correctly spelt word.

(a) RACCOONS
(b) RACOONS
(c) RACCONS
(d) RACAONS

Answer: (a)

70. Select the word that is similar in meaning (SYNONYM) to the word given below.
HUMDRUM

(a) EXCITING
(b) FUNDAMENTAL
(c) MUNDANE
(d) EVENTFUL

Answer: (c)

71. Select the word that is similar in meaning (SYNONYM) to the word given below.
BUNCO

(a) HARMONY
(b) TREASON
(c) TENSION
(d) BUNKER

Answer: (b)

72. Select the word that is opposite in meaning (ANTONYM) to the word given below.
CHAUVINISM

(a) HUMBLE

(b) JINGOISM

(c) NARROWNESS

(d) UNBIASED

Answer: (d)

73. Select the most appropriate meaning for the word given below.
Connoisseur

(a) A person who is indifferent to the pains and pleasures of life.

(b) A person with expert knowledge or training.

(c) A closed political meeting.

(d) A temporary police force.

Answer: (b)

74. Select the most appropriate meaning of the given idiom.
Cost an arm and a leg

(a) To take risk.

(b) To have met with an accident.

(c) Very expensive.

(d) To be near death.

Answer: (c)

75. Select the most appropriate meaning of the given proverb.
A golden key opens any door.

(a) Sometimes one requires the master key to open locks.

(b) Work hard to become rich.

(c) Anything can be accomplished with enough money.

(d) To understand someone completely.

Answer: (c)

77. What do you understand by 'California has the largest concentration of beauty establishments in America'?

(a) California has the maximum sale of beauty products.

(b) California has the highest number of customers.

(c) Largest number of cosmetic companies in America are based in California.

(d) California has the maximum raw material required therefore the companies are based there.

Answer: (c)

78. The market volume of the cosmetics industry in Europe and United States is about _____ as per a 2005 publication.

(a) €60b per year
(b) €70b per year
(c) €90b per year
(d) €70m per year

Answer: (b)

80. In the United States which state has the highest concentration of beauty establishments?

(a) Florida
(b) New Jersey
(c) California
(d) Lowa

Answer: (c)

Discipline1

101. The second derivative of the graph tells you the _____ of the graph at a point.

(a) convexity
(b) concavity
(c) parabolic properties
(d) graphing

Answer: (b)

103. Graph of the curve y = (x-1)(x-2) decr[illegible]

(a) x < 3/2
(b) x > 3/2
(c) x < 1/2
(d) x = 2

Answer: (a)

104. The graph of the equation r = Sin4θ is

(a) Four leaved Rose
(b) Five leaved Rose
(c) Eight leaved Rose
(d) Ten leaved Rose

Answer: (c)

105. The graph of r = a(1 +Sinθ) is -

(a) Symmetric about x - axis
(b) Symmetric about y - axis
(c) Symmetric about y = x
(d) Not Symmetric

Answer: (b)

106. The area of the surface obtained by rotating the circle r = 2Sinθ about y - axis is -

(a) 2 π

(b) 3π

(c) 4 π

(d) 5 π

Answer: (c)

107. Formula for arc length is -

(a) $\int\sqrt{(1+x)}dx$

(b) $\int a^b\sqrt{1+[f'(x)]^2}dx$

(c) $\int a^b\sqrt{[f'(x)]}dx$

(d) $\int a^b[f'(x)]dx$

Answer: (b)

108. If derivative of <df/dx, df/dy> = <3+2xy, x^2-3y^2 > then value of f(x, y) is:

(a) 2x + x^2y -y^3

(b) 2x + x^2y+y^3

(c) 3x + x^2y+y^3

(d) 3x + x^2y-y^3

Answer: (d)

114. The set of real number R is uncountable i.e., ther no bijection N0→R , is -

(a) Mean value theorem

(b) Green's theorem

(c) Cantor's theorem

(d) continuity theorem

Answer: (c)

115. Number of zeros in, 1000! Is

(a) 30

(b) 249

(c) 248

(d) 25

Answer: (b)

116. If 7^{100} is divided by 8 then remainder is

(a) 1

(b) 2

(c) 3

(d) 4

Answer: (a)

117. If A is a square matrix then which of the following is false -

(a) $|AT| = |A|$

(b) $|A\theta| = |A|\theta$

(c) $|A^{-1}|T = |AT|^{-1}$

(d) $(AB)^{-1} = A^{-1}B^{-1}$

Answer: (d)

118. If AB = A and BA = B then what can be said about A and B.

(a) Both are Idempotent

(b) Both are not Idempotent

(c) Only A is Idempotent

(d) Only B is Idempotent

Answer: (a)

119. If A and B is square real matrix then which of the following is correct.

(a) A-AT is always symmetric

(b) A+AT is always skew-symmetric

(c) AB is always symmetric

(d) AB is not necessarily symmetric

Answer: (d)

120. If $S = \{f|f : N \rightarrow \{0,1\}\}$ then cardinality of S is -

(a) Finite

(b) Countable

(c) Xo

(d) $2^{x_o} = c$

Answer: (d)

Discipline2

121. Which of the following is false

(a) Set of natural number N is countable

(b) Set of natural number N is Uncountable

(c) Set of Real number R is uncountable

(d) Close interval [0, 1] is uncountable

Answer: (b)

122. If A be the set containing 6 elements and B be the set containing 2 elements. Then total number of functions from A to B is

(a) 16

(b) 60

(c) 64

(d) 46

Answer: (c)

124. If < an> = < 2 − n.n²> then the limit of < an> as n→ ∞ is:

(a) 0

(b) 1

(c) ∞

(d) -1

Answer: (a)

125. Let < an> be sequence defined as a1> 0, an+1 = { an+(2/ an)}/2, n≥1 then lim (a) as n→∞ is? n

(a) √2

(b) √3

(c) 2

(d) 3

Answer: (a)

126. Let < an> = {-2, -3, -1, 0, 1, 2, 1, 0, 1, 0 ....} then which is true about < an>?

(a) Limit point of A is '0' and '1'

(b) 0' is only limit point of A.

(c) 1' is only limit point of A.

(d) is convergent.

Answer: (a)

128. Given series Sn= ∑sin(nπ/3) then which of the fo wing is correct.

(a) limSup(Sn) =∞

(b) liminf(Sn) = -∞

(c) (Sn) is convergent

(d) (Sn) is not convergent

Answer: (d)

129. If ∑ a is convergent series of positive terms then ∑a /(1+a) is: n n n

(a) Convergent

(b) Divergent

(c) Sum is not finite

(d) None of these above

Answer: (a)

130. Given functions f(x)=sin x, g(x)=cos x, h(x)= sin2x then The Wronskian of given equation is-

(a) The Wronskian of given equation is sin(2x)

(b) The Wronskian of given equation is identically zero.

(c) The Wronskian of given equation is 3sin(2x)

(d) The Wronskian of given equation is 3cos(2x)

Answer: (c)

131. Any equation contains n-orbitary constants then the order of differential equation derived from it is -

(a) n

(b) n-1

(c) 2

(d) n+1

Answer: (a)

132. Given IVP $y' = 2\sqrt{y}$, $y(1) = 0$ which one is correct in a neighbourhood of 0 ?

(a) It has unique solution.

(b) It has no solution.

(c) Solution exist but not uniquely

(d) None of these.

Answer: (c)

133. Determine y0 such that the solution of the differential equation. $y' - y = 1 - e^{-x}$, $y(0)=y0$, has a finite limit as $x \to \infty$

(a) y0 = 1/2

(b) y0 = -1/2

(c) y0 = 0

(d) y0 = 2

Answer: (b)

134. If the rate of growth is proportional to the amo x of the substance present and if $dx/dt = kx$ then x is equal to (with C1 constant)

(a) $C1\, e^{-kt}$

(b) $C1\, e^{kt}$

(c) $C1\, e^{-2kt}$

(d) $C1\, e^{2kt}$

Answer: (b)

135. The solution of the differential equation $y'' + 4y = 0$ Subject to $y(0) = 1$, $y'(0) = 2$ is

(a) $\sin(2x) + 1$

(b) $\cos(2x) + 2x$

(c) $\sin(2x) + \cos(2x)$

(d) $\sin(2x) - \cos(2x)$

Answer: (c)

136. If y1 & y2 are two linearly independent solutions of second order differential equation then which is correct.

(a) $W(y1, y2) = 0$

(b) $W(y1, y2) \neq 0$

(c) $W(y1, y2) > 0$, for all x

(d) $W(y1, y2) < 0$, for all x

Answer: (b)

137. All real solutions of the differential equation y"+2ay'+by = cos(x) (Where a & b are real constants) are periodic if -

(a) a = 1 and b = 0

(b) a = 0 and b = 1

(c) a = 1 and b ≠ 0

(d) a = 0 and b ≠ 1

Answer: (c)

138. A system by a set of variables and a set of equations that establish relationships between the variables is-

(a) Algebra

(b) Mathematical model

(c) Theory of real functions

(d) Multivariate calculus

Answer: (b)

139. How many types of mathematical models are there-

(a) 1

(b) 2

(c) 3

(d) 4

Answer: (b)

Discipline3

141. lim{Sin(ax)/Sin(bx)} (a ≠ 0, b ≠ 0) is

(a) a/b

(b) b/a

(c) a.b

(d) Does not exist

Answer: (a)

142. The correct value of lim (1-Cos x)/x as x →0 is

(a) Does not exist

(b) √2

(c) 1/√2

(d) 0

Answer: (d)

143. Let f : R - {1} → R be defined as f(x) = Sin(x). Then which is true

(a) f is continuous at x = 1

(b) f is not continuous at x = 1

(c) f is not continuous at x = 0

(d) f is not continuous in its domain.

Answer: (b)

146. Let S be the subset of real number R. If f is differentiable on S and g is not differentiable on S. Then which is true.

(a) f+g must be differentiable.

(b) f-g must be differentiable.

(c) f.g must be differentiable (Where $f(x) \neq 0$, for all $x \epsilon S$)

(d) f+g and f-g can not be differentiable

Answer: (d)

147. The function f define by $f(x) = \{x^2 + 3x + a, \text{ if } x \leq 1\}$ and $f(x) = \{bx + 2, \text{ if } x > 1\}$ is differentiable for all x. Then which is true.

(a) a = 5, b = 3

(b) $a \neq 3, b \neq 5$

(c) a = 3, b = 5

(d) a = 3, b = 0

Answer: (c)

148. Algebraic structures in which addition and multiplication are defined and have similar properties to those operation is study of -

(a) ring theory

(b) calculus

(c) mensuration

(d) Riemann's integral

Answer: (a)

149. Expand $f(x) = x4 - 5x^3 + 5x^2 + x + 2$ in ...ers ...(x - 2) then the coefficient of (x-2)4 is

(a) 1

(b) -1

(c) 2

(d) -2

Answer: (a)

150. The Taylor series expansion of f(x) about a = 1 for the following function $f(x) = x^2 + 2x + 1$ is

(a) $4 + 6 (x-1) + 4 (x-1)^2 + 4 (x-1)^3$

(b) $4 + 4(x-1)+(x-1)^2$

(c) $4 + 6 (x-1) + 6 (x-1)^2 + 4 (x-1)^3$

(d) $6 + 4 (x-1) + 4 (x-1)^2 + 4 (x-1)^3$

Answer: (b)

151. The graph of a function f of two variables is the set of all points [x,y,f(x,y)] where (x,y) is in the :-

(a) domain of x

(b) domain of f

(c) domain of y

(d) domain of x and y

Answer: (b)

152. If f: $R^2 \rightarrow R$ given by $f(x, y) = 3\times4 - 4x^2 y + y^2$ for $(x, y) \epsilon R$ then which is true.

(a) (0, 0) is point of maximum.

(b) Point (0, 0) is point of local minimum.

(c) Point (0, 0) is neither point of maximum nor point of minimum.

(d) Neighbourhood of point (0, 0) gives f(x, y) always positive.

Answer: (c)

153. If $f(x, y) = x^3 + y^3 - 3x - 12y + 40$ then which is true.

(a) (0, 0) is critical point.

(b) (1, 2) is local maxima point.

(c) (-1, -2) is local minima point.

(d) (-1, 2) and (1, -2) are saddle points.

Answer: (d)

154. The area of cardioloide $r = a (1 - \cos\theta)$ is

(a) $3a^2\pi/2$

(b) $a^2\pi$

(c) $a^2\pi/2$

(d) $5a^2\pi/2$

Answer: (a)

155. Volume of the region enclosed by the paraboloid $1)^2+y^2= z$ and the plane $2x+z = 2$ is

(a) $\pi/4$

(b) $\pi/3$

(c) $\pi/2$

(d) π

Answer: (c)

156. The theorem which allows us to translate difficult line integrals into more simple double integral is:-

(a) Green's theorem

(b) stoke's theorem

(c) cantor's theorem

(d) mean value theorem

Answer: (a)

157. Value of the integral $\int x^2dx+(x+y^2)dy$. Where C is closed curve given y = 0, y = x and $y^2 = 2 - x$ in the first quadrant, oriented counter clockwise.

(a) 6/7

(b) 7/6

(c) 1/6

(d) 7/5

Answer: (b)

158. The law which enables an integral taken around a closed curve to be replaced by one taken over any surface bounded by that curve is:-

(a) Gauss's law

(b) stoke's law

(c) divergence law

(d) closure law

Answer: (b)

159. Gauss's theorem enables an integral taken over a_____ to be replaced by one taken over the surface bounding that volume and vice versa.

(a) area

(b) surface area

(c) volume

(d) height

Answer: (c)

160. Consider the function f: [0, 1] $\rightarrow$R define by f(1/2) = 1 and f(x) = 0 for all x ϵ [0, 1]-{1/2} then which is true.

(a) f is integrable

(b) f is not integrable

(c) Lower integral of f is non - zero.

(d) $\int_0^1 f(x)dx \neq 0$

Answer: (a)

Discipline4

162. Let f: [0, 1] $\rightarrow$R such that f(x) = {1/n, if x = 1/n, and f(x)= 0, otherwise} then which is true.

(a) f is integrable

(b) f is not integrable

(c) $\int_0^1 f(x)dx \neq 0$

(d) $\int_0^1 f(x)dx = 1$

Answer: (a)

163. The value of integral $\int e^{-x}dx$. is, (where 0 is lower limit and ∞ is upper limit of integration)

(a) 2

(b) -2

(c) 1

(d) ∞

Answer: (c)

164. Let gn(y) = {$ny^{1}-n/(1+y)$, if $0 \leq y < 1$, gn(y)=0, if y = 1} then the value of $\lim \int gn(y)\, dy$ as $n \to \infty$ is (where 0 is lower limit and 1 is upper limit of integration)

(a) 1/4

(b) 1/2

(c) 1/3

(d) -1/2

Answer: (b)

165. Consider the sequence {fn} of functions defined by fn(x) = xn for $0 \leq x \leq 1$ then which is true

(a) {fn(x)} is pointwise convergent as well as uniformly convergent.

(b) {fn(x)} is pointwise convergent but not uniformly convergent.

(c) {fn(x)} is not pointwise convergent.

(d) {fn(x)} is uniformly convergent.

Answer: (b)

166. Let {fn} be the sequence of function on $(0, \infty)$ defined by $fn(x)= nx/(1+n^2x^2)$ then which is true

(a) {fn(x)} is not pointwise convergent

(b) {fn(x)} is pointwise convergent but not uniformly convergent.

(c) {fn(x)} is uniformly convergent

(d) None of these above.

Answer: (b)

167. Consider the sequence {fn} of functions defined R by fn(x) = {Sin(nx)}/n then which is true

(a) The derivative of f'n(x) is pointwise converg

(b) The derivative of f'n(x) is not pointw rgent

(c) The derivative of f'n(x) is uniformly conve nt

(d) can not say

Answer: (b)

168. Radius of convergence of power series $\sum(-1)n+^{1}nx^{2}n-^{2}$

(a) ∞

(b) 0

(c) 1

(d) 2

Answer: (c)

169. A bounded function f on [a,b] said to be Riemann integrable if:-

(a) L(f)=0

(b) U(f)-0

(c) L(f)=U(f)

(d) L(f)=1

Answer: (c)

170. A function that defines a concept of distance between any two members of set which are usually called points is:-

(a) metric space
(b) determinant
(c) a set
(d) open set

Answer: (a)

171. Let (X, d) be a metric space, and let $A \subseteq X$. Then which is false

(a) the interior of A is the union of all open subsets of X contained in A
(b) the closure of A is the intersection of all closed subsets of X which contain A:
(c) The interior of A, Int(A), is the greatest open subset of X contained in A
(d) The interior of A, Int(A), is the smallest open subset of X contained in A

Answer: (d)

172. A metric space has a notion of distance , while a topological space only has a notion of :-

(a) openness
(b) closeness
(c) distance
(d) Space

Answer: (b)

174. Let S be an infinite subset of R such that $S \cap Q = \phi$ which of the following statement is true

(a) S must have a limit point which belongs to Q
(b) S must have a limit point which belo[illegible]
(c) limit point of R\S is finite
(d) R\S must have a limit point which belongs to S.

Answer: (d)

175. Let (X, d) and (Y, d) be two metric spaces, and $f : X \to Y$. Then which is true

(a) f is a continuous function iff the pre-image of open sets is always open
(b) f is a continuous function iff the pre-image of open sets is always closed
(c) f is a continuous function iff the pre-image of closed sets is always open
(d) None of these is true

Answer: (a)

176. To verify that (s,d) is a metric space we should first check that if d(x,y)=0 then:-

(a) x=0
(b) x=y
(c) y=0
(d) y=-1

Answer: (b)

178. A metric space is compact if every open cover of x has:-

(a) subgroup

(b) nonempty set

(c) empty set

(d) finite subcover

Answer: (d)

179. _____is one of the principal topological properties that are used to distinguish topological spaces.

(a) compactness

(b) connectedness

(c) closeness

(d) openness

Answer: (b)

180. A group isomorphism from a group to itself is:-

(a) group automorphism

(b) homomorphism

(c) Abelian

(d) closure

Answer: (a)

Discipline5

182. The external direct product of additive group integer Z with itself is

(a) Cyclic group

(b) Not cyclic group

(c) Abelian as well as cyclic group

(d) Cyclic but not abelian

Answer: (b)

183. The external direct product of two cyclic group is

(a) Always cyclic group

(b) Cyclic as well as abelian

(c) Need not be cyclic group

(d) must be cyclic group of finite order

Answer: (c)

184. Let G be a infinite cyclic group then which is true

(a) G is isomorphic to (Z3, +)

(b) G is isomorphic to (Z, +)

(c) G is isomorphic to (Z4, +)

(d) G may not be isomorphic to (Z, +)

Answer: (b)

187. Let G be non abelian group of order p^3 (where p is prime) then which is false

(a) $O(Z(G)) = p$

(b) Number of conjugate classes of cardinality p are p^2-1

(c) Number of conjugate classes of cardinality one are p

(d) $O(Z(G)) \neq p$

Answer: (d)

188. Let G be a group of order p.q.r, where $p<q<r$ being primes then which is false

(a) G is not simple

(b) sylow r-subgroup is normal in G

(c) G has a normal subgroup of order qr.

(d) If q/(r-1) then sylow q-subgroup is normal in G

Answer: (d)

189. Let G be group of order 21 then which is correct

(a) If G is abelian then G is cyclic

(b) If G is abelian then G need not be cyclic

(c) G is always cyclic

(d) can not say

Answer: (a)

190. Every holomorphic function is :-

(a) complex

(b) complex vector space

(c) analytic

(d) commutative

Answer: (c)

Teaching Methodology

191. Which are the three components of educational process?

(a) Students, Friends and Education

(b) Friends, Teacher and Subject

(c) Teacher, Students and Education

(d) Activities , Study and Teacher

Answer: (c)

192. Which of the following is the slogan of naturalism?

(a) Follow Nature

(b) Follow rules

(c) Follow resources

(d) Follow science

Answer: (a)

193. _____ is a technique by which the teacher gets the learners to give information rather than giving it to them.

(a) Elicitation

(b) Display questions

(c) Referential questions

(d) Pomodoro

Answer: (a)

194. Peace education involves which of the following.

(a) Values derived from the Indian Constitution

(b) Self-reflection and listening to the inner voice

(c) Language usages in diverse social households

(d) collaborative skills and respect for human rights

Answer: (b)

195. Most families coming under poor poverty line, chooses boy child to sent school and girl child is _____.

(a) Sent to work

(b) Sent to school with boy child

(c) Forced to marry

(d) Sent for work and school both

Answer: (a)

196. The hidden-curriculum concept is based on__

(a) the recognition that students absorb [illegible] school that may or may not be part of the formal course of study

(b) perpetuate unequal power relations operating among gender

(c) existing social and cultural ethos of the society

(d) policies on gender equality in education and practices

Answer: (a)

197. Which of the following is not an advantage to the Dramatization technique?

(a) Great way to learn to express themselves

(b) Used to Explore inferences and interpretations

(c) Helps the children to assume responsibility

(d) Build story telling abilities

Answer: (b)

198. Find the incorrect definition of "Belief".

(a) Belief is the state of mind in which a person thinks something to be the case

(b) Belief is, it is a mental representation of an attitude positively oriented towards the likelihood of something being true.

(c) Belief refers to ancient superstitions and religious patterns.

(d) Belief is a common label for convictions, surmises, suppositions, expectations.

Answer: (c)

199. _____ in research is the degree to which the results of a research can apply beyond the bounds of the project.

(a) Validity

(b) Reliability

(c) Transferability

(d) Relevance

Answer: (c)

200. As per the RPWD act, what is the minimum disability criteria to avail any government schemes?

(a) 50 %

(b) 60 %

(c) 70 %

(d) 40 %

Answer: (d)

Answer key

Answer key from the Delhi Subordinate Services Selection Board's official answer key for this sitting. "—" means the key gave none.

General Ability

1	**(d)**	2	**(b)**	3	**(d)**	4	**(c)**	5	**(c)**	6	**(c)**	7	**(d)**	8	**(c)**
9	**(d)**	10	**(b)**	12	**(d)**	13	**(d)**	14	**(d)**	15	**(b)**				

General Awareness

21	**(a)**	22	**(c)**	23	**(d)**	24	**(d)**	26	**(c)**	27	**(a)**	28	**(b)**	29	**(b)**
30	**(b)**	31	**(a)**	32	**(a)**	33	**(a)**	34	**(c)**	35	**(b)**	36	**(a)**	38	**(a)**
39	**(d)**	40	**(a)**												

Arithmetic Ability

41	**(c)**	42	**(d)**	43	**(a)**	44	**(b)**	45	**(d)**	46	**(a)**	47	**(d)**	48	**(b)**
49	**(d)**	50	**(b)**	51	**(c)**	52	**(d)**	53	**(c)**	54	**(b)**	55	**(b)**	56	**(a)**
57	**(b)**	58	**(a)**												

General English

61	**(b)**	62	**(b)**	63	**(c)**	64	**(a)**	65	**(a)**	66	**(d)**	67	**(a)**	68	**(a)**
69	**(a)**	70	**(c)**	71	**(b)**	72	**(d)**	73	**(b)**	74	**(c)**	75	**(c)**	77	**(c)**
78	**(b)**	80	**(c)**												

Discipline1

101	**(b)**	103	**(a)**	104	**(c)**	105	**(b)**	106	**(c)**	107	**(b)**	108	**(d)**	114	**(c)**
115	**(b)**	116	**(a)**	117	**(d)**	118	**(a)**	119	**(d)**	120	**(d)**				

Discipline2

121	**(b)**	122	**(c)**	124	**(a)**	125	**(a)**	126	**(a)**	128	**(d)**	129	**(a)**	130	**(c)**
131	**(a)**	132	**(c)**	133	**(b)**	134	**(b)**	135	**(c)**	136	**(b)**	137	**(c)**	138	**(b)**
139	**(b)**														

Discipline3

141	**(a)**	142	**(d)**	143	**(b)**	146	**(d)**	147	**(c)**	148	**(a)**	149	**(a)**	150	**(b)**
151	**(b)**	152	**(c)**	153	**(d)**	154	**(a)**	155	**(c)**	156	**(a)**	157	**(b)**	158	**(b)**
159	**(c)**	160	**(a)**												

Discipline4

162	**(a)**	163	**(c)**	164	**(b)**	165	**(b)**	166	**(b)**	167	**(b)**	168	**(c)**	169	**(c)**
170	**(a)**	171	**(d)**	172	**(b)**	174	**(d)**	175	**(a)**	176	**(b)**	178	**(d)**	179	**(b)**
180	**(a)**														

Discipline5

182	**(b)**	183	**(c)**	184	**(b)**	187	**(d)**	188	**(d)**
189	**(a)**	190	**(c)**						

Teaching Methodology

191	**(c)**	192	**(a)**	193	**(a)**	194	**(b)**	195	**(a)**	196	**(a)**
197	**(b)**	198	**(c)**	199	**(c)**	200	**(d)**				