PREVIOUS YEAR PAPER

DSSSB TGT Maths (Female) 2021 — 11 September 2021, Shift 3

DSSSB TGT · 11 September 2021 · Shift 3

155 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: 45 (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 11 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-11-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.
Gmail : Email service :: Facebook : ?

(a) Trading account
(b) Social Network
(c) Calendar
(d) Storage platform

Answer: (b)

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) Diabetes
(b) Cancer
(c) Virus
(d) Diphtheria

Answer: (c)

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) 125
(b) 512
(c) 1331
(d) 1728

Answer: (d)

4. Complete the following letter series:
ADGS, EGIT, IJKU, MMMV, ____

(a) QPOW

(b) QMVM

(c) NNUW

(d) ONPM

Answer: (a)

5. Find the wrong term in the given series.
1152, 144, 30, 6, 3

(a) 144

(b) 30

(c) 6

(d) 3

Answer: (b)

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:
$E \geq Y \geq Z$; $P > Q \geq Y = S$
Conclusions:
I. $Q \geq Z$
II. $P > S$

(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: (d)

7. A, B, C, D, E, and F are six candidates who appeared for their physical test. No two person have the same height. D is not the tallest person. At least three people are shorter than D but taller than E. How many people are taller than E?

(a) Two

(b) Five

(c) Three

(d) Four

Answer: (b)

8. Select the most logical course of action for the following scenario.
Rohit got a call for a job interview which he needed very badly. But on the same day, he was having his final exam of his college. He will _____

(a) Leave his final exam and will give the interview and get selected.

(b) Ask the job authorities to reschedule the interview to the next day, and will appear in the examination.

(c) Leave his interview and will give the final exam.

(d) Reschedule his exam.

Answer: (b)

9. Select the most logical course of action for the following scenario.
You work in a XYX bank and an angry customer wants to meet the manager of the bank for the grievance reporting. What will you do?

(a) Talk to him in a rude manner.

(b) Will ask the security to throw him out of the bank.

(c) Try to remove his inconvenience by consulting seniors.

(d) Tell him it is not easy to meet the manager.

Answer: (c)

10. Find the last term of the series. 16, 24, 60, 210, _____.

(a) 420

(b) 630

(c) 840

(d) 945

Answer: (d)

12. How many such pairs of letters are there in the word 'SOMETHING', each of which has as many letters between them in the word (both forward and backward direction) as they have between them in the English Alphabet ?

(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 father of B'.
'A # B' means 'B is daughter of A'.
'A × B' means 'B is sister of A'.
'A @ B' means 'B is husband of A'.
How is P related to T in the expression P @ Q $ R @ S # T?

(a) Maternal grandmother

(b) Paternal grandmother

(c) Father

(d) Mother

Answer: (a)

14. Six boys P, Q, R, S, T and U are sitting around a circular table facing inside but not necessarily in same order. Two person sits between P and U and P sits immediate left of S. S sits opposite to T and sits second to right of R. Who sits opposite to R?

(a) P

(b) Q

(c) S

(d) T

Answer: (b)

15. S, B, and L have a business in which they share profit in the ratio of 5 : 4 : 3. When B retires from the business, he gives his 1/4th share to S and remaining to L. find out the new profit sharing ratio of S and L.

(a) 1:1

(b) 2:1

(c) 1:2

(d) 1:3

Answer: (a)

General Awareness

21. Which among the following institutions has developed NBDriver (neighbourhood driver) for analysing the cancer-causing mutations in cells?

(a) IIT-Madras

(b) IIT-Bombay

(c) IIT-BHU Varanasi

(d) IIT-Delhi

Answer: (a)

22. Which Ministry is connected with the National Logistics Excellence Awards?

(a) Ministry of Home Affairs

(b) Ministry of Information and Broadcasting

(c) Ministry of Commerce and Industry

(d) Ministry of Jal Shakti

Answer: (c)

23. Who travelled to the United Kingdom in 1830 as the Mughal Empire's ambassador to ensure that Lord William Bentinck's Bengal Sati Regulation was not repealed or overturned?

(a) Swami Vivekananda

(b) Surendranath Banerjee

(c) Nehru

(d) Raja Rammohan Roy

Answer: (d)

24. When did Ramkrishna Mission establish?
    (a) 1895
    (b) 1896
    (c) 1897
    (d) 1898
    Answer: (c)

25. India, also known as Bharat, is a:
    (a) Union of World
    (b) Union of peoples
    (c) Union of States
    (d) Union of country
    Answer: (c)

26. Under which of the following article of the constitution, right to property is given?
    (a) Article 35A
    (b) Article 300A
    (c) Article 19
    (d) Article 243
    Answer: (b)

27. India played its first official cricket one-day international match against which of the following countries?
    (a) England
    (b) Australia
    (c) New Zealand
    (d) Pakistan
    Answer: (a)

28. In which of the following sports, the term 'Googly' is generally used?
    (a) Cricket
    (b) Chess
    (c) Badminton
    (d) Hockey
    Answer: (a)

29. Which state is famous for 'Warli folk paintings'?
    (a) Odisha
    (b) West Bengal
    (c) Rajasthan
    (d) Maharashtra
    Answer: (d)

30. Which of the following Dance is originated from the state of Rajasthan?
    (a) Terataal
    (b) Mahal
    (c) Savari
    (d) Painka
    Answer: (a)

31. Who discovered the South Pole?
    (a) Robert Edwin Peary
    (b) Amundsen
    (c) Captain James cook
    (d) Vasco-D-Gama
    Answer: (b)

32. Where is Tabo Monastery located?
    (a) Uttar Pradesh
    (b) Himachal Pradesh
    (c) Jharkhand
    (d) Bengal
    Answer: (b)

33. When was RBI (Reserve Bank of India) establishe
    (a) 1st April 1935
    (b) 1st April 1936
    (c) 1st April 1937
    (d) 1st April 1950
    Answer: (a)

34. Mohan jumped from bed to floor. When he hit the floor, he felt a force applied by the floor. Which law of physics, Mohan experienced?
    (a) Newton 1st Law
    (b) Newton 2nd Law
    (c) Newton 3rd Law
    (d) Hubble's Law
    Answer: (c)

35. What is the SI unit of 'luminous intensity'?
    (a) ampere
    (b) Joule
    (c) watt
    (d) candela
    Answer: (d)

36. Who has discovered Insulin?
(a) Domagk
(b) Finsen
(c) Salk
(d) Banting
Answer: (d)

37. Who discovered the diffraction of electrons?
(a) Eugene Goldstein
(b) Sir George Thomson
(c) Anderson
(d) Avogadro
Answer: (b)

38. In which year WEF (World Economic Forum) was founded?
(a) 1961
(b) 1966
(c) 1971
(d) 1976
Answer: (c)

39. Which among the following person has written 'Fa om the Madding Crowd'?
(a) Thomas Hardy
(b) Alexander Solzhenitsyn
(c) William Shakespeare
(d) Somerset Maughan
Answer: (a)

40. Who is the author of 'Chitra'?
(a) M.K.Gandhi
(b) Vishnu Sharma
(c) Kalidas
(d) Rabindra Nath Tagore
Answer: (d)

Arithmetic Ability

41. What approximate value will come in the place of question mark(?) in the following question?
$\sqrt{2915} \times \sqrt{786} \div \sqrt{728} = ? \div 8$
(a) 7
(b) 448
(c) 548
(d) 224
Answer: (b)

42. What approximate value will come in the place of question mark(?) in the following question?
(42.99 × 10.01) ÷ 5.02 = 37.03 × 1.98 + ?

(a) 19
(b) 12
(c) 4
(d) 20

Answer: (b)

43. What will come in the place of question mark(?) in the following question?
(14/3) of (9/7) + (6/5) × 15 - 10 = 46 - ?

(a) 34
(b) 32
(c) 42
(d) 22

Answer: (b)

44. The greatest number of four digits which is divisible by 9, 24, 35 and 56 is:

(a) 5760
(b) 9540
(c) 8550
(d) 7560

Answer: (d)

45. Find the lowest common multiple of 0.24, 0.36 a 0.40.

(a) 0.72
(b) 1.44
(c) 2.88
(d) 3.6

Answer: (d)

46. In a school, the student in Science and Commerce stream were in the ratio of 3 : 5 respectively. When 70 more students joined commerce stream the ratio became 8 : 15. How many students are there in Science stream?

(a) 112
(b) 336
(c) 560
(d) 224

Answer: (b)

47. The three person A, B and C can complete the work in 40 days. If the ratio of efficiencies of A, B and Cis 3 : 2 : 5, then find in how many days A and C together can complete (2/5)th part of that work.

(a) 15 days

(b) 16 days

(c) 25 days

(d) 20 days

Answer: (d)

48. In a class, there are 25 boys and 50 girls. Each boy got pen that are 2% of the total number of girls, and each girl got pen that are 4% of the total number of students. Then find the total number of pens in the class.

(a) 160

(b) 200

(c) 60

(d) 175

Answer: (d)

49. There are 2000 inhabitants in a City. 60% are males of whom 20% are literate. If, from all of the inhabitants, 30% are literate, then what percent of the females of the city are literate?

(a) 35%

(b) 40%

(c) 45%

(d) 50%

Answer: (c)

50. There were 70 employees in the IT start up company. If the number of employees increases by 14, the expense send for Refreshment increases by Rs.84 per day while the average expenditure per head diminishes by Rs.2. Find the Original expenditure for the Refreshment?

(a) Rs. 1360

(b) Rs. 1460

(c) Rs. 1560

(d) Rs. 1260

Answer: (d)

51. In an office, the average height of 36 employees is 90 feet. If 'n' employees were included whose average height was 81 feet and now the average height of total employees is 87 feet. Find the total number of employees in an office.

(a) 50

(b) 54

(c) 60

(d) 48

Answer: (b)

52. A man buys a chair for Rs. 800 and sells it at a loss of 15%. What is the selling price of the chair?

(a) Rs. 620
(b) Rs. 680
(c) Rs. 650
(d) Rs. 780

Answer: (b)

53. A trader mixes 24 kg of rice at Rs. 18 per kg with 27 kg of rice of other variety at Rs. 30 per kg and sells the mixture at Rs. 25 per kg. Find his profit or loss.

(a) Rs. 33 profit
(b) Rs. 33 loss
(c) Rs. 23 profit
(d) Rs. 23 loss

Answer: (a)

54. An article is marked at Rs. 4500 and the shopkeeper allow three successive discount of 20%, 20%, 10% respectively. Find selling price of article.

(a) Rs. 2620
(b) Rs. 2592
(c) Rs. 2582
(d) Rs. 2492

Answer: (b)

55. Ram invested Rs. 10000 at x% simple interest fo years. After 2 years, he noticed that if he has given the money on compound interest the wo have got Rs. 144 more as interest. Find the rate of interest.

(a) 10%
(b) 12%
(c) 15%
(d) 20%

Answer: (b)

56. In a circular bed we need to plant some plants allowing 11 sq. cm for each plant. If the outer edge of circular bed measure 44 cm, how many plants can be planted in it? (use π = 22/7)

(a) 18
(b) 75
(c) 14
(d) 12

Answer: (c)

57. A farm house can be built by a number of workers in 22 days. While their 3 workers were absent, so it took 24 days to complete the work. What was the actual number of workers?

(a) 72

(b) 24

(c) 36

(d) 40

Answer: (c)

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'.
It's a scene that / really packs a wallop / because its believable.

(a) It's a scene that

(b) really packs a wallop

(c) because its believable.

(d) No Error

Answer: (c)

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'.
I stayed staring at him until / he's out of sight, before giving / myself a hefty mental kick.

(a) I stayed staring at him until

(b) he's out of sight, before giving

(c) myself a hefty mental kick.

(d) No Error

Answer: (a)

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.
I was (intending to) my honourable friend with respect to the reply that I gave some moments ago.

(a) eluding to

(b) referring to

(c) hinting to

(d) No correction required

Answer: (b)

64. Choose the right synonym for "abduct."

(a) Kill

(b) Kidnap

(c) Deceive

(d) Ravage

Answer: (b)

65. Fill in the blank with the most appropriate choice.
Now in her senior year she had the _____ to take it easy.

(a) difficulty
(b) interpretation
(c) consultation
(d) leisure

Answer: (d)

66. The sentences below are not complete. There are four options for each question. Choose the best word to complete the sentence.
Powered by infrared lasers, the _____ surface reflects and focuses this laser beam into a ring.

(a) dusky
(b) shiny
(c) drizzly
(d) daunting

Answer: (b)

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 boundary between the
P. called the "Lehmann discontinuity",
Q. refers to another discontinuity,
R. although the name usually
S. inner and outer cores is sometimes
which has been named after K. Bullen.

(a) PQRS
(b) SPRQ
(c) RPQS
(d) QSPR

Answer: (b)

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.
Owing to their remoteness, the islands of New Zealand were the last large habitable lands to be settled by humans.
P. In 1642, the Dutch explorer Abel Tasman became the first European to sight New Zealand.
Q. Between about 1280 and 1350, Polynesians began to settle in the islands and developed the Mā ori culture.
R. In 1841, New Zealand became a colony within the British Empire.
S. In 1840, representatives of the United Kingdom and Māori chiefs signed the Treaty of Waitangi, which declared British sovereignty over the islands.
In 1907 it became a dominion; it gained full statutory independence in 1947.

(a) RSPQ
(b) QPSR
(c) SQRP
(d) PQRS

Answer: (b)

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

(a) SIEZE
(b) COCOON
(c) PSORIASIS
(d) MOISTEN

Answer: (a)

70. Select the word that is similar in meani[illegible]YM) to the word given below.
BELLICOSE

(a) PACIFISTIC
(b) PASSIVE
(c) THREATENING
(d) STEADINESS

Answer: (c)

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

(a) DISINCLINATION
(b) INADEQUACY
(c) ANTIPATHY
(d) BIAS

Answer: (d)

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

(a) DUMB
(b) SHARP
(c) COMMON
(d) SIMPLE

Answer: (b)

73. Select the most appropriate 'one word ' for the expressions given below.
Creation of exclusive custom-fitted clothing.

(a) Acture
(b) Feature
(c) Couture
(d) Limature

Answer: (c)

74. Select the most appropriate idiom for the given sentence.
Feeling nervous or scared.

(a) As keen as mustard.
(b) Heart in mouth.
(c) A smart cookie.
(d) To play ducks and drakes.

Answer: (b)

75. Select the most appropriate meaning of the given proverb.
Hunger is the best sauce.

(a) Food tastes better when one is hungry.
(b) Hungry man understands the value of money.
(c) Hunger is the best lesson.
(d) Sometimes lessons are learnt the harder way.

Answer: (a)

77. After the revolution of _____ the practice of foot binding was ended. Select the correct option.

(a) 1921
(b) 1914
(c) 1919
(d) 1911

Answer: (d)

Discipline1

101. Graph of given equation $y = (x-1)^2 (x-2)$ is decreases where

(a) $0< x <1$

(b) $x > 5/3$

(c) $1 < x < 5/3$

(d) $x < 0$

Answer: (c)

102. Graph of the curve $y = 3x^2 - 2x^3$ is concave down when

(a) $x > ½$

(b) $x < ½$

(c) $x < 1/3$

(d) $x < ¼$

Answer: (a)

103. The graph of the equation $r=\sin 3\theta$ is

(a) Four leaved Rose

(b) Cardioid

(c) Spiral

(d) Three leaved Rose

Answer: (d)

105. Revolve a piece of the straight line $y = 2x$ around the x - axis then surface area generated by revolving the curve between $x = 0$ and $x = 1$ is

(a) $3\pi\sqrt{5}$

(b) $2\pi\sqrt{5}$

(c) $\pi\sqrt{5}$

(d) $4\pi\sqrt{5}$

Answer: (b)

106. The series $\sum \text{Cos}(1/n)$ is:

(a) Convergent

(b) Divergent

(c) Cauchy

(d) Conditionally convergent

Answer: (b)

107. The value of 'a' for which given vector $f = (x + 2y) i + (y - 3x)j + (x + az) k$ is solenoidal.

(a) $a = -2$

(b) $a = -3$

(c) $a = 2$

(d) $a = 3$

Answer: (a)

108. Find the work done in moving a particle once round a circle C in the XY plane, if the circle has its centre at the origin and radius 2 units and the force field is given as F =(2x-y+2z)i+ (x+y-z)j + (3x-2y-5z)k .

(a) 2π

(b) 4π

(c) 8π

(d) 16π

Answer: (c)

109. If n and m are natural numbers then the equation. ($Z \in C$) $Zn = 1 + i$, $Z^m = 2 - i$

(a) Have two common solution

(b) Have one common solution

(c) Have no common solution

(d) Have more than two common solution

Answer: (c)

110. $Z = (5 + 2i)n + (5 - 2i)n$, $n \in N$ then which of the following option is correct.

(a) Z is Real for odd n

(b) Z is Real for even n

(c) Z is Purely imaginary

(d) Z is Real for all Naturals

Answer: (d)

111. "The intersection of two equivalence relations on a non-empty set A is an equivalence relation" the given statement is:

(a) Always True

(b) Always false

(c) Not true for some set

(d) True only for some set

Answer: (a)

112. Let A = {1, 2, 3, 4, 5}, and let R = {(1, 1),(1, 3),(1, 4),(2, 2),(2, 5),(3, 1),(3, 3),(3, 4),(4, 1),(4, 3),(4, 4), (5, 2),(5, 5), (5,1) (1,5)} be an equivalence relation on A. Which of the following is an equivalence class?

(a) {1, 2, 3}

(b) {2, 3 , 5}

(c) {1, 3, 4}

(d) {1, 2, 3, 4, 5}

Answer: (c)

113. If $\phi(n)$ is Eular's phi function then which of the following option is correct;

(a) $\phi(n)$ is even for all n

(b) $\phi(n)$ is even n>2

(c) $\phi(n)$ is odd n>2

(d) $\phi(n)$ is odd for all n

Answer: (b)

114. Number of zeros in 100! is:

(a) 25

(b) 100

(c) 1000

(d) 24

Answer: (d)

115. A prime p can be written as the sum of two squares if

(a) $p = 2$ or $p \equiv 1 \pmod 4$

(b) $p = 1$ or $p \equiv 2 \pmod 4$

(c) $p = 4$ or $p \equiv 1 \pmod 4$

(d) $p = 3$ or $p \equiv 1 \pmod 4$

Answer: (a)

116. If each Row sum of A is α then each row sum of A ;

(a) α.k

(b) α+k

(c) α-k

(d) α^k

Answer: (d)

117. If A is nXn is involutory matrix, then product of all eigen value is:

(a) -1 or 1 for every n

(b) zero for all n

(c) -n or n

(d) other than -1 or +1

Answer: (a)

118. Choose the correct option for system of equation.
X + 5x = -4, 2x + 4x + 3x = -2, 4x + 7x + x = -2 2 3 1 2 3 1 2 3

(a) Unique solution

(b) Consistent and infinite solution

(c) Inconsistent

(d) Finite no. of solution

Answer: (c)

119. Let 'A' be cantor set then Which of the following statement is false

(a) It is closed and bounded

(b) countable

(c) perfect

(d) measure is zero

Answer: (b)

120. Let S be any set then Derived set of S is

(a) Always open

(b) Always closed

(c) Always Infinite

(d) Always Uncountable

Answer: (b)

Discipline2

121. Arbitrary intersection of open set is:

(a) Always open

(b) Always closed

(c) may not be open

(d) Always non-Empty

Answer: (c)

122. If (a) = <(-1)nn> is sequence of Real number t , which of the following option is correct? n

(a) (an) monotonically increasing

(b) (an) monotonically decreasing

(c) (an) Oscillatory

(d) (an) bounded

Answer: (c)

124. Which of the following is spread disease model in a population of L individuals. Where y = y(t) is the number of individuals who have the disease at time t,

(a) dy/dt = ky(L − y)

(b) dt/dy = ky(L − y)

(c) dy/dt = ky(L +y)

(d) dy/dt = ky(L/y)

Answer: (a)

125. The value(s) of the constant A for which y = exp(Ax) is a solution to the differential equation y'' + 5y'− 6y = 0.

(a) A= 6 and A=1

(b) A=-6 and A=1

(c) A=-5 and A=1

(d) A=5 and A=1

Answer: (b)

126. The formula for exponential population growth is; (where dN= change in number, dt = change in time, r= the per head maximum potential growth rate, N= number of individuals in a population.)

(a) dN/rN=dt

(b) dt/dN=rN

(c) rN/dN=dt

(d) dN/dt=rN

Answer: (d)

127. Consider the differential equation dP/dt =kP(1 – P /5). Then which of the following is true

(a) critical point P = 5 is unstable,

(b) critical point P = 0 is stable,

(c) critical point P = 0 is unstable,

(d) P = 1 is critical point

Answer: (c)

128. Consider the first-order autonomous differential equation y' = (y – 1)^2 then choose correct answer

(a) y=1 is the only critical point

(b) y=1 is not a critical point

(c) y=0 is a critical point

(d) y=1 is not semi stable critical point

Answer: (a)

129. The differential equation $d^2y/dx^2 + y = 0$ satisfy y (0) = 1, y(π) = 1 has

(a) A unique solution

(b) A singly infinite family of solutions

(c) No solution

(d) A doubly infinite family of solution.

Answer: (c)

130. Let Y & Y are two solutions of second order non-homogeneous equation s.t Y (0)=0, Y' (0) =1 and Y (0)=1, Y' (0) = -1 , if Y (x) is non-zero 1 2 1 1 2 2 2 for all x and h(x)= Y (x)/Y (x), then h(x) is 1 2

(a) Increasing for all x in domain

(b) Decreasing for all x in domain

(c) Decreasing for some x.

(d) Neither increasing nor decreasing

Answer: (a)

131. The growth of a particular species of algae A, in time t is assumed to be jointly proportional to both $\sqrt{A}$ and 10 - A . What is the implied differential equation for A.

(a) $dA/dt = K\sqrt{A}$

(b) $dA/dt = K\sqrt{A}(10 - A)$

(c) $dA/dt = 0$

(d) $dy(t)/dt = -\alpha(y(t) - K)$.

Answer: (b)

132. consider the differential equation $y'(t)/\{y(1 - y/K)\} = r$ then choose correct answer

(a) y=K as $r \to 0$

(b) y=K as $r \to 1$

(c) y=K as $r \to \infty$

(d) y=K as $r \to 2$

Answer: (c)

133. Integrating factor of differential equation $y'+(2/t)y= t-1$ is

(a) t^2

(b) t^3

(c) t^-2

(d) 1/t

Answer: (a)

134. Let f and g be defined on $(0, \infty)$ and suppose li = L and lim g = ∞ as $x \to \infty$. Then lim fog as $x \to \infty$ is

(a) L

(b) ¥

(c) 0

(d) Does not exist

Answer: (a)

135. If f(x)= [x], then Which of the following statement is false at point x=0

(a) Right hand limit is 0

(b) left hand limit is -1

(c) limit does not exist

(d) limit exist at x=0

Answer: (d)

136. If f & g are real valued function and both are continuous at k then which of the following statement is false

(a) max{f, g} is also continuous at k

(b) min{f, g} is continuous at k

(c) $|f|$ is continuous at k

(d) max{f, g} is not continuous at k

Answer: (d)

137. If f(x)=x+[x] then which of the following is true

(a) differentiable at x=0

(b) not continuous at x=0

(c) continuous but not differentiable at x=0

(d) differentiable at any point

Answer: (b)

138. Let [x] denotes the greatest integer less than or equal to x. If f(x) = [xsinπx], then which is false for f(x)

(a) continuous at x=0

(b) continuous in (-1, 0)

(c) differentiable at x=1

(d) differentiable in (-1, 1)

Answer: (c)

139. If f (x) = 1-$x^2/2$ and g(x) = Cos x for all x ϵR then which is true -

(a) f(x) < g(x)

(b) f(x) ≤ g(x) for all x.

(c) f(x) ≤ g(x) only finite number of x.

(d) f(x) ≥ g(x) for all x.

Answer: (b)

Discipline3

141. Coefficient of x5 in Taylor series expa[illegible] of [illegible]) = e^x ln (1+x) is

(a) 1/3

(b) 3/20

(c) 3/40

(d) 1/40

Answer: (c)

142. Let m and n be positive integer then the lim $xny^m / x^2+ y^2$ at (0, 0) exist if

(a) m + n < -2

(b) m + n < 2

(c) m + n > 2

(d) 2 >m + n > 1

Answer: (c)

144. If f(x, y) = $(y-2)x^2 -y^2$ then f(x, y) at point (0, 0) is -

(a) Relative maximum

(b) Relative Minimum

(c) Neither maximum nor minimum

(d) None of these above

Answer: (a)

145. If $f(x, y) = 4+x^3+y^3-3xy$ then choose correct answer

(a) Relative minimum at (1,1)

(b) Relative minimum at (-1,-1)

(c) Relative minimum at (0,0)

(d) Relative maximum at (1,1)

Answer: (a)

146. Let A be the area bounded by $x+y < 1$ in first quadrant then value of $\int\int xy\ dx\ dy$ is -

(a) 1/24

(b) 5/24

(c) 1/48

(d) 1/96

Answer: (a)

147. Let V be the region bounded by the planes x = 0, x = 2, y = 0, z = 0 and y + z = 1, then the value of Integral $\int\int\int y\ dx\ dy\ dz$ is -

(a) 1/2

(b) 4/3

(c) 1

(d) 1/3

Answer: (d)

148. Let C be a positively oriented , piecewise smoo simple closed curve and let D be the region enclosed by the curve. If P and Q have continuous order partial derivatives on D then, $\int c(Pdx+Qdy)$ =

(a) $\int D\ (dQ/dx - dP/dy)\ dA$

(b) $\int\int D\ (dQ/dx - dP/dy)\ dA$

(c) $\int (dQ/dx)dA$

(d) $\int\int (dy/dp)dA$

Answer: (b)

149. Evaluate $\oint c\ y^3dx - x^3dy$ where c is positively oriented circle of radius 2 centered at origin.

(a) $4\prod$

(b) $(-4\prod)$

(c) $(-24\prod)$

(d) $24\prod$

Answer: (c)

152. If $f: [a,b] \to R$, is continuous then which of the following is correct;

(a) f must be integrable on [a,b]

(b) f is need not integrable on [a,b]

(c) f is integrable on R

(d) f is integrable on R-[a,b]

Answer: (a)

154. What conditions are necessary to prove that the upper and lower integrals of a bounded function exist?

(a) a, b ϵ R, a>b, and f:[a,b]→R

(b) a, b ϵ R, a<b, and f:[a,b]→R be bounded

(c) a, b ϵ R, a<b, and f:[a,b]→Z be bounded

(d) a, b ϵ Z, a<b, and f:[a,b]→R be bounded

Answer: (b)

155. A sequence of real numbers is a real-valued function defined on the set of:-

(a) whole number

(b) natural number i.e.,f:N→R

(c) irrational number

(d) rational number

Answer: (b)

157. If f is continuous on [a,b] , then f is :-

(a) differentiable

(b) integrable

(c) increasing

(d) decreasing

Answer: (b)

158. If d(x, y) = (x - y) 2 then which of the following i ue:

(a) 'd' is metric on R.

(b) 'd' is not metric on R.

(c) d' satisfies triangle inequality.

(d) 'd' does not satisfy symmetric properly.

Answer: (b)

160. Given set U $\in$ {(x, y) $\in R^2$: y > 0, x/y >7} is -

(a) Open

(b) Close

(c) Compact

(d) Semi open

Answer: (a)

Discipline4

161. Set {(x, y) $\in R^2$: (y/Sin (x^2y^3))>2} is -

(a) Open

(b) Close

(c) Compact

(d) Cl-Open

Answer: (a)

163. A function f:A →R is continuous on a set B ⊂ A if:

(a) if it is continuous at every point in B

(b) discontinuous in B

(c) discontinuous in both A and B

(d) discontinuous at every point of its domain A.

Answer: (a)

164. If Bx(.) and By(.) denote open balls in space X and Y respectively, f is continuous at x if.

(a) there exist ε > 0 : f[Bx(x : d)]Í By[f(x), ε]

(b) there exist δ > 0 : f[Bx(f(x) : d)]Í By[x, ε]

(c) there exist δ > 0 : f[Bx(x : d)]Í By[f(x), ε]

(d) there exist ε> 0 : f[Bx(f(x) : d)]Í By[x, ε]

Answer: (c)

166. Which of the following is compact in R

(a) [0, 2)

(b) [0, 2]

(c) {1/n: n is natural number}

(d) {n: n is natural number}

Answer: (b)

167. Let (A, ρ) and (B, τ) be metric spaces, and suppo that f : A → B be a continuous function from A to B. If A is connected, then

(a) Image f(A) is also connected.

(b) Image f(A) may not be connected.

(c) connected only if A is natural number

(d) connected only if B is connected

Answer: (a)

168. Which of the following is necessarily true?

(a) Automorphism group of a abelian group is abelian.

(b) Automorphism group of S3 has order 3.

(c) Automorphism group of Z is abelian.

(d) Automorphism group of Z is not abelian.

Answer: (c)

169. Which of the following is not true?

(a) U(8) is noisomorphic to U(10)

(b) U(8) is isomorphic to U(12)

(c) S4 is not isomorphic to D12

(d) U(8) is isomorphic to U(10)

Answer: (d)

170. Which of the following is not true?

(a) {Z\{0}, × } is a group.

(b) {Q\{0}, × } is a group.

(c) {R\{0}, × } is a group.

(d) {C\{0}, × } is a group.

Answer: (a)

171. The external direct product of additive group of integers Z with itself is?

(a) cyclic

(b) cyclic of finite order

(c) not cyclic

(d) Can not say

Answer: (c)

172. If external direct product of two groups A & B is abelian then

(a) only A is abelian

(b) only B is abelian

(c) A and B both are abelian

(d) A and B both are not abelian

Answer: (c)

173. How many subgroups of the permutation group S_3 have of order 3?

(a) 0

(b) 4

(c) 8

(d) Can not say

Answer: (b)

174. The product of an even permutation and an odd permutation is

(a) Even

(b) Odd

(c) not define

(d) zero

Answer: (b)

175. Which of the following is true?

(a) Group of order 31 is abelian.

(b) There does not exist a abelian group of order 2021.

(c) Every group of order 4 is cyclic.

(d) Every group of order 6 is abelian.

Answer: (a)

176. How many 3-Sylow Subgroup are there in the group of order 15?

(a) 0
(b) 1
(c) 3
(d) 5

Answer: (b)

177. What is the order of a 7-Sylow subgroup of GL3(Z7)?

(a) 1
(b) 7
(c) 49
(d) 343

Answer: (d)

178. If f(z)= (x+2)+5yi then for any z, f(z) is

(a) Differentiable for all z
(b) Not-differentiable for any z
(c) Differentiable for some z
(d) none of the above

Answer: (b)

179. Polar form of Cauchy - Riemann Integral is -

(a) U = -V /r & V = -U /r r θ r θ
(b) V = -U /r & U = V /r θ r θ r
(c) U = - V /r & V = -U /r r θ r θ
(d) U = V /r & V = -U /r r θ r θ

Answer: (b)

180. The rank of an integral - elementary function f is:-

(a) Integral elementary function
(b) the depth of the formula defining f.
(c) real analytic function
(d) continuous function

Answer: (b)

Discipline5

181. If all the zeros of a polynomial p(z) have negative real parts, then all the zeros of p'(z) must have

(a) Negative real part
(b) Positive real part
(c) both positive and negative real part
(d) Real part is zero

Answer: (a)

183. If f(z)= $z^3\{\cos(1/z)\}$ then residue of f(z) is

(a) 1/12

(b) 1/24

(c) -1/24

(d) -1/12

Answer: (b)

184. Which of the following is not P.I.D.?

(a) Z

(b) Z6

(c) Q

(d) Z[i]

Answer: (b)

185. Which of the following is not U.F.D.?

(a) R

(b) Z5

(c) Z[X]

(d) Z[√5]

Answer: (d)

186. If T be the linear operator on a finite dimensional P2(R) defined by T(f(x))= f'(x). Let B be corresponding matrix of T then which is true about F

(a) Rank of B is 1

(b) Rank of B is 3

(c) trace of B is zero

(d) Determinant of B is non zero

Answer: (c)

187. Let T be the linear operator on P2(R) defined by T(f(x)) =f(1)+f'(x)x+(f'(0)+f'''(0))x^2 then which is true for T

(a) T is Diagonalizable

(b) T is not Diagonalizable

(c) eigenvalue of T is purely imaginary

(d) all eigenvalue of T are equal

Answer: (b)

188. If A is an m×n matrix such that rank(A)= n, then which of the following is true

(a) A*A is not invertible

(b) A*A is invertible

(c) A*A is invertible only if A is identity matrix

(d) if m>n then AA*is invertible

Answer: (b)

189. Any orthogonal set of non-zero vectors in an inner product space V is
(a) linearly independent
(b) linearly Dependent
(c) empty
(d) may or may not be linearly independent
Answer: (a)

190. If A is normal matrix then what is true about A
(a) A need not be Hermitian matrix
(b) A is always real matrix
(c) A must be Hermitian matrix
(d) A is Always skew Hermitian matrix
Answer: (a)

Teaching Methodology

191. What does John Dewey emphasize on?
(a) That education should be a social process
(b) That education should be professional
(c) That education should be variable
(d) That education should be friendly
Answer: (a)

192. THE FOUR PILLARS OF EDUCATION FOR THE [illegible] CENTURY is _____.
(a) Learning to Know, Learning to do, L[illegible] Live and Learning to Be.
(b) Learning to go, Learning to work, Learning [illegible] write, Learning to read
(c) Learning for book, Learning to write , Learning to live and learning to do
(d) Learning for learn, learning to be, Learning for teaching, Learning to do
Answer: (a)

193. The other name of error correction is ____.
(a) Feedback
(b) Rectification
(c) Clarification
(d) Checking
Answer: (b)

194. Find one of the groups of the Biglan-Becher typology of academic disciplines.
(a) Pure and applied discipline
(b) Hard and soft discipline
(c) Soft and Applied disciplines
(d) Good and bad discipline
Answer: (c)

195. Symbolic interactionism (George Herbert Mead) is based specifically on _____.

(a) communication

(b) Genders

(c) Children

(d) Society

Answer: (a)

196. Social learning theory is one of the theories classified under socialisation theories. It is most closely associated with____.

(a) the work of psychologist Albert Bandura

(b) terms of gender development

(c) behaviourist tradition

(d) negative reinforcement

Answer: (a)

197. Discussion method aims at____ .

(a) Uniting and integrating the work

(b) Organizing and outlining

(c) Treatment of Wrong Answers

(d) Observation of Courtesy

Answer: (a)

198. Which of this is not a role of teacher?

(a) The teacher must be a person of high integr and must possess high self worth.

(b) The teacher must have pleasing pe depth knowledge and professional training .

(c) Teacher should enact as parent of studen

(d) Teachers should lead a true moral life.

Answer: (c)

199. The main objective of an assignment is to evaluate _____.

(a) Knowledge of subject matter

(b) Presentation skills of the students

(c) Interpersonal relationship

(d) Reading ability

Answer: (a)

200. How will you describe an inclusive classroom?

(a) a general education classroom in which students with and without disabilities learn together

(b) a private education classes in which students with and without disabilities learn together

(c) a government school provide education In which students can learn separately

(d) a private school where students can learn

Answer: (a)

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

General Awareness

21	**(a)**	22	**(c)**	23	**(d)**	24	**(c)**	25	**(c)**
26	**(b)**	27	**(a)**	28	**(a)**	29	**(d)**	30	**(a)**
31	**(b)**	32	**(b)**	33	**(a)**	34	**(c)**	35	**(d)**
36	**(d)**	37	**(b)**	38	**(c)**	39	**(a)**	40	**(d)**

Arithmetic Ability

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

General English

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

Discipline1

101	**(c)**	102	**(a)**	103	**(d)**	105	[illegible]	106	**(b)**
107	**(a)**	108	**(c)**	109	**(c)**	110	**(d)**	111	**(a)**
112	**(c)**	113	**(b)**	114	**(d)**	115	**(a)**	116	**(d)**
117	**(a)**	118	**(c)**	119	**(b)**	120	**(b)**		

Discipline2

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

Discipline3

141	**(c)**	142	**(c)**	144	**(a)**	145	**(a)**	146	**(a)**
147	**(d)**	148	**(b)**	149	**(c)**	152	**(a)**	154	**(b)**
155	**(b)**	157	**(b)**	158	**(b)**	160	**(a)**		

Discipline4

161	**(a)**	163	**(a)**	164	**(c)**	166	**(b)**	167	**(a)**
168	**(c)**	169	**(d)**	170	**(a)**	171	**(c)**	172	**(c)**
173	**(b)**	174	**(b)**	175	**(a)**	176	**(b)**	177	**(d)**
178	**(b)**	179	**(b)**	180	**(b)**				

Discipline5

181	**(a)**	183	**(b)**	184	**(b)**	185	**(d)**	186	**(c)**	187	**(b)**
188	**(b)**	189	**(a)**	190	**(a)**						

Teaching Methodology

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