KVS PGT MATHS 2013

Question Booklet   *Subject*: Mathematics (Code:9)

Booklet Series: A │ Question Booklet No. 183961

Important: Please consult your Admit Card/Roll No. slip before filling your roll number on the test booklet and OMR answer sheet

Roll No. in Figures:

Roll No. in Words:

OMR Answer Sheet Serial No.

Duration of Exam.: 2½ hours   Max. Marks: 200

The Question Booklet consists of 200 multiple choice questions as per the details given below:

Paper	Description	Medium
Objective type Paper 200 questions.	There are three sections – A, B & C.	
	Section-A (Languages): 40 questions Hindi - 20; General English - 20	Respective language
	Section-B: 80 questions Gen. Awareness-30; Gen.Intelligence,Numerical Ability& Reasoning-30; &Teaching Aptitude-20.	English and Hindi
	Section-C: (Knowledge of the Subject): 80 questions	English and Hindi

Signature of Candidate:_____Signature of Invigilator: _____

In case there is any discrepancy/doubt in Hindi Version, please consult the English Version.

DO NOT OPEN THE SEAL OF THE BOOKLET UNTIL ASKED TO DO SO.

Section – A (Languages)

1. If"V dk foyke "kCn gî &

   A) ej.k   B) iy;   C) of"V   D) ek{k

2. ^txy eî yxuî okyh vkx* okD;k"k dk yd "kCn cryky\

   A) tBjkuy   B) cMokuy   C) dkekuy   D) nkokuy

3. ^ge"kk jgu okyk* & yd "kCn cryky \

   A) "kk"or   B) lelkef;d   C) ik.knk   D) ikfFko

4. fuEu eî l l;qDr okD; dk p;u dhfty &

   A) tk ifjJe djrk g] ogh vkx c<rk g A

   B) eî i<rk g vkj og xkrk gî

   C) D;k ej fcuk og i< ughî ldrk gî

   D) ifjJeh 0;fDr gh lQyrk iklr djrk gA

5. ^vM dk "kgtknkk* egkoj dk vFkî gî &

   A) detkj 0;fDr   B) pkykd 0;fDr   C) vuHkoh 0;fDr   D) vuHkoghu 0;fDr

6. ^pgj ij gokb;k mMuk* dk vFkZ g%

   A) rth l pyuk   B) ?kcjk tkuk   C) ŭkokbc u nuk   D) Ølf/r gkuk

7. ^NNUnj d flj eî peyh dk ry* dk vFkî g&

   A) nku dî fyy lik=k u gkuk

   B) xtî 0;fDr dî flj ij lxfU/r ry yxkuk

   C) fcYdy vui< 0;fDr dkî /u feyuk

   D) v;ksX; 0;fDr dk vŭkd in feyuk

8. ^pk;* fdl Hkkk"kk dk "kCn gî\

   A) phuh   B) tkikuh   C) iîp   D) vxth

9. ftu "kCnkî dh mRifÙk dk irk ughî pyrk] mUgî dgk tkrk g&

   A)   rRle   B) rnHko   C) n"kt   D) ldj

10. ^og ?kj l ckgj x;k*& bl okD; eî ^l* dku&lk dkjd gî\

   A) drk   B) de   C) dj.k   D) viknku

11. fuEufyf[kr eî l dkïulk "kCn gî tk lîno L=khfyx eî i;qDr gkrk gî\

   A) i{kh   B) ckt   C) edMh   D) xMk

12. fuEufyf[kr lKk&fo"k"k.k tkMh eî dkïulk lgî ughî g&

   A) fo"kk&fo"kyk   B) firk&irk   C) vkfn&vkfne   D) ikr&ifrd

13. ^lUnj* dh Hkkookpd lKk gî\

   A) lUnjrk   B) lkUn;   C) doy 'A'   D) 'A' o 'B' nkuk

14. ^fnd + xt* dh lf/ gî&

   A) fndxt   B) fnXxt   C) fnxt   D) dkîbî ughî

15- fo/ku djus olys "kCnk dh fo"k"krk crykuokyk "kCn fdl dgrs gS\

    A) lKk   B) louke   C) fo"k"k.k   D) fØ;k&fo"k"k.k

16- ^lh<h dl lgkj es tgkt ij tk igpk* okD; es ^lh<h dl lgkj* D;k gS\

    A) lk/kj.k mnn';   B) fo/; foLrkjd   C) mnn'; o¼d   D) dkb ugh

17- Hkk"kk dh lcl NksVh bdkb gS &

    A) "kCn   B) ek=kk   C) o.k   D) dkb ugh

18- vuukfld 0;tu dksu&ls gkrk gS\

    A) oxi dk iFkek{kj   B) oxi dk rrh;k{kj   C) oxi dk ptFkk 0;tu   D) oxi dk ipek{kj

19- orulh dh nf"V ls dksu&ls "kCn lgh gS\

    A) lU;klh   B) lu;klh   C) lU;klh   D) lu;klh

20- fuEufyf[kr es ls dksu lk okD; "k¼ gS\

    A) es xku dh dljr djrk gS A   B) es xku dk "k¼d dj jgk gS A

    C) es xku dk vH;kl dj jgk gS A   D) es xku dk 0;k;ke dj jgk gS A

Directions Qs.21-24: Mark the correct opposites, out of the four choices given, of the following words :-

21. Adroit
    A) Clumsy   B) Clever   C) Awakened   D) Inaudible

22. Adventitious
    A) Defiant   B) Planned   C) Snobbish   D) Ruthless

23. Convalesce
    A) Visible   B) Brittle   C) Deteriorate   D) Scattered

24. Exasperation
    A) Agony   B) Capability   C) Bravery   D) Pleasure

Directions Qs.25-28: Mark, out of the four given choices, the correct meaning of the italicized idioms/phrases:-

25. *Beyond the black stump*:-
    A) beyond the limits of settled, and therefore civilized, life   B) beyond the limits of tolerance
    C) beyond one's ambitions   D) beyond one's capabilities

26. Chickens come home to roost
    A) a state of indecisiveness
    B) one's past mistakes or wrongdoings will eventually be the cause of present troubles
    C) a state of extreme tiredness
    D) a state of certainty.

27. *Dip one's pen in gall*
    A) seek support from others by one's writings
    B) take decisive action to put an end to an undesirable situation
    C) write spitefully
    D) stay calm despite provocations

28. *A Judas kiss :*
    A) affirmation of friendship despite differences
    B) neutralized propaganda
    C) a day dream
    D) act of betrayal especially one disguised as a gesture of friendship

Directions Qs. 29-32: Choose the correct preposition, out of four options , to be filled in the blanks of the following sentences :-

29.   Saina Nehwal's performance is not consistent __her talent.
      A) with   B) for   C) at   D) into
30.   India's economy is, at present, infested__problems
      A) to   B) with   C) in   D) about
31.   He should not be covetous____others' riches.
      A) on   B) off   C) of   D) for
32.   Satish's errors may be ascribed___his carelessness.
      A) at   B) with   C) for   D) to

Directions Qs. 33-36: Choose the correct synonyms of the following words:-

33.   Contagion
      A) Infection   B) Container   C) Capacity   D) Inability
34.   Conspectus
      A) Suspense   B) Summary   C) Clarity   D) Callousness
35.   Grotto
      A) Grotesque   B) Opponent   C) Cave   D) Criticism
36.   Insouciant
      A) Irreverent   B) Irrelevant   C) Impatient   D) Indifferent

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

37.   Up as adverb:-
      A) Prices are up.   B) Let us go up the hill
      C) The next up train will leave soon.   D) We should not be afraid of ups and downs in life.
38.   Well as adverb:-
      A) Let well alone.   B) Well begun is half done.
      C) I hope you are now well.   D) Well, who would have thought it?

39. Still as noun:-
    A) With his name the mothers still their babies.   B) Still waters run deep.
    C) Sita's sobs could be heard in the still of night.   D) He is still in business.
40. All as noun
    A) He lost his all in speculation.   B) All men are mortal.
    C) He was all alone when I saw him.   D) All spoke in her favour.

Section – B

41. Acid rain is caused due to pollution of atmosphere by
    A) Carbon Dioxide   B) Methane Gas
    C) Ozone & Carbon Dioxide   D) Nitrous Oxide & Sulphur Dioxide

42. Longitude measures the angular distance, expressed in degrees of a point on the Earth's surface:
    A) east or west of prime meridian   B) north or south of the equator
    C) only east of prime meridian   D) only west of the prime meridian

43. The filament of an electric bulb is made of
    A) iron   B) nichrome   C) tungsten   D) graphite

44. Which of the following vitamins is considered to be a hormone?
    A) A   B) B   C) C   D) D

45. The technique used to transmit audio signals in television broadcasts is
    A) Amplitude Modulation   B) Frequency Modulation
    C) Pulse Code Modulation   D) Time Division Multiplexing

46. Who proposed the Preamble before the Drafting Committee of the Constitution?
    A) Jawahar Lal Nehru   B) B.R. Ambedkar   C) B.N. Rau   D) Mahatma Gandhi

47. National song has been taken from
    A) Bharat Vidhata article written by B.C. Chatterjee   B) Totva-Bodhini Patrika edited by Tagore
    C) Novel Durgesh Nandini by B.C. Chatterjee   D) Novel Anand Math by B.C. Chatterjee

48. Which data input method do banks mainly use for processing bank cheques?
    A) OMR   B) Bar Code Reader   C) MICR   D) Light Pen

49. Which of the following has been appointed as brand ambassador of the Gujarat State Election Commission?
    A) Amitabh Bachan   B) Cheteshwar Pujara   C) Ravinder Jadeja   D) Irfan Khan

50. Which of the following movies has won the Golden Peacock Award (2013) for the Best film category in the 44th International Film Festival of India (IFFI) held at Goa ?
    A) 12 Years a slave   B) Dallas Buyers Club   C) Gravity   D) Beatriz's War

51. What is the rank of India in Global Corruption Perception Index 2013, according to Transparency International ?
    A) 94th   B) 77th   C) 104th   D) 116th

52. Which one is not a constituent of Human Development Index ?
    A) Life expectancy   B) Infant mortality rate
    C) Real per capita income   D) Adult literacy rate

53. Which of the following is a port town of Indus Valley Civilization?
   A) Harappa   B) Alamgirpur   C) Banawali   D) Lothal
54. The first electronic computer in the world was
   A) UNIVAC   B) EDVAC   C) ENIAC   D) none of the above
55. Which of the following railway platforms located in India has recently been declared as the Largest Railway Platform in the world?
   A) Kharagpur   B) Sonpur   C) Bombay V.T.   D) Gorakhpur
56. Who of the following women became the first woman chairperson of State Bank of India?
   A) Naina Lal Kidwai   B) Chanda Kochar   C) Shikha Sharma   D) Arundhati Bhattacharya
57. Tax Administration Reform Commission has been set up under the Chairmanship of :
   A) Parthsarthi Shome   B) Kaushik Basu   C) Y.V. Reddy   D) Vijay Kelkar
58. What is true about Bitcoin ?
   A) It is currency with high intrinsic value
   B) It is currency with no intrinsic value
   C) Bank of Thailand accepted it as legal
   D) Since its inception the price of Bitcoin has always been lower than Dollar
59. Bermuda Triangle extend upto which of the following places?
   1. Southern Florida   2. Puerto Rico   3. Hawaii Islands
   Which of the statement(s) given above is/are correct ?
   A) 1,2 and 3   B) 1 and 2 only   C) 2 and 3 only   D) 1 and 3 only
60. The famous book, "Chronicle of a Corpse Bearer" is written by:
   A) Vikram Seth   B) Kuldeep Nayar   C) Arundhati Roy   D) Cyrus Mistry.
61. Which of the following countries has won the Men's Hockey Asia Cup 2013?
   A) South Korea   B) Pakistan   C) Malaysia   D) India
62. Which country has qualified for the first time to play in the 11th ICC Cricket World Cup?
   A) Nepal   B) Afghanistan   C) Netherland   D) UAE
63. Which of the following languages has recently been approved as the sixth classical language of India by the Union Cabinet?
   A) Malayalam   B) Kannada   C) Odia   D) Telugu
64. Which of the following writers was awarded the Sahitya Akademi Award 2013 in English?
   A) Ruskin Bond   B) Temsula Ao   C) Vikram Seth   D) Ramchandra Guha
65. Name the India's nuclear-capable strategic missile, with a strike range of about 4000 km tested successfully
   A) Akash   B) Prithvi-II   C) Agni-IV   D) Trishul
66. World Intellectual Property Day is observed on :
   A) 24th December   B) 26th April   C) 29th June   D) 26th June
67. 23 December 2013 was observed across India as :
   A) Working Women's Day   B) Rashtriya Sadbhavana Diwas
   C) Rashtriya Vigyan Diwas   D) Kisan Diwas

68. Which of the following cities has bagged the Best Heritage City award for 2012-13 ?
A) Jaipur   B) Tirupathy   C) Udaipur   D) Hyderabad

69. Which of the following personalities was awarded the Gandhi Peace Prize for 2013?
A) M.S. Swaminathan   B) Angela Merkel   C) Chandi Prasad Bhatt   D) Medha Patekar

70. Who among the following was crowned Miss Earth 2013?
A) Bea Rose Santiago   B) Maria Gabriela Isler   C) Megan Young   D) Alyz Henrich

71. 'Duma' is related to 'Russia' in the same way as 'Knesset' is related to :
A) Malaysia   B) Afghanistan   C) France   D) Germany

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

72. Contamination : Food :: Infection : ?
A) Germs   B) Disease   C) Body   D) Medicine

73. 42 : 56 :: 110 : ?
A) 132   B) 136   C) 140   D) 120

74. Select the pair of words that has the same relationship as in the given pair:
Hymn : Praise
A) Dirge : Grief   B) Prayer : Congregation   C) Liturgy : Rite   D) Lullaby :Child

75. Three of the following four are alike in a certain way and so form a group. Which is the one that does not belong to the group?
A) Volume   B) Size   C) Large   D) Shape

76. Which of the following does not fit in the letter number series ?
A) DG2   B) EK5   C) JR6   D) PY8

77. If BRIGHTEN is written as HJSCMDSG. How is COMPLETE written in that code ?
A) DSDKQNPD   B) QNPDDSDK   C) QNPDFUFM   D) OLNBFUFM

78. In a certain language, 'min fin bin gin' means 'trains are always late'; 'gin din cin hin' means 'drivers were always punished'; 'bin cin vin rin' means 'drivers stopped all trains' and 'din kin fin vin' means 'all passengers were late'. The 'Drivers were late' would be written as :
A) min cin din   B) cin din fin   C) fin din gin   D) gin hin min

79. 'YPCUIAT' are jumbled letters of a meaningful word. Rearrange these letters and select from the given alternatives, a word which is opposite in meaning to the rearranged word:
A) Surplus   B) Scarcity   C) Presence   D) Richness

80. If ÷ stands for greater than; × stands for addition; + stands for division; – stands for equal to; > stands for multiplication; = stands for less than; < stands for minus, then which of the following is correct ?
A) $3 + 2 < 4 \div 6 > 3 \times 2$ B) $3 \times 2 < 4 \div 6 + 3 < 2$
C) $3 > 2 < 4 - 6 \times 3 \times 2$ D) $3 \times 2 \times 4 = 6 + 3 < 2$

Direction (Q. Nos. 81-83) : Ten students A, B, C, D, E, F, G, H, I and J are sitting in a row facing west. B and F are not sitting on either of the edges; G is sitting to the left of D and H is sitting to the right of J. There are four persons between E and A. I is to the north of B and F is to the South of D. J is between A and D and G is between E and F. There are two persons between H and C.

81. Who among the following is definitely sitting at one of the ends?

    A) C   B) H   C) E   D) None of above

82. Who are the immediate neighbours of I?

    A) B and C   B) B and H   C) A and H   D) B & C or B & H

83. If G and A interchange their positions then who become immediate neighbours of E ?

    A) G & F   B) F only   C) A only   D) F & A

84. In a class of boys and girls, Ajay's rank is 12th and Anu's rank is 8th, Ajay's rank among boys is 6th and Anu's rank among girls is 3rd. In the class, Anu's rank is 52nd from the other end. From the other end, Ajay's rank among the boys is 26th. Which of the following is Anu's rank among girls from other end?

    A) 23rd   B) 28th   C) 26th   D) None of the above

85. Pointing to a lady in the photograph, 'Rekha said, 'Her son's father is the son-in-law of my mother'. How is Rekha related to that lady?

    A) Aunt   B) Sister   C) Mother   D) Cousin

86. If 'A × B' means that A is sister of B, 'A÷ B' means that A is daughter of B, 'A–B' means that A is son of B. Then how is P related to S in the relationship 'P–Q × R ÷ S'?

    A) Brother   B) Son   C) Grandson   D) Daughter's son

87. Ram drives 10 Kms towards South from his house and turns left and drives another 10 Kms. He again turns left and drives 40 Kms. straight, then he turns right and drives for another 5 Kms to reach the bank where he works. How far and in which direction is Ram's bank from his house?

    A) 33 Kms. North East   B) 45 Kms. North   C) 65 Kms. East   D) 39 Kms. North West

88. At the end of a business conference, 10 people present shake hands with each other once. How many hand shakes will be there all together ?

    A) 20   B) 45   C) 55   D) 90

Direction (Q. Nos. 89-90): Read the pattern of letters/ numbers/terms and find the missing term from the given alternatives:

89. IAZ, KEB, ? , OOF, QUH

    A) MDD   B) MII   C) MIO   D) MID

90. 266, 339, 528, ?

    A) 630   B) 730   C) 830   D) 930

91. In the following series some letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternatives:

    aac_a_cbab_b_accab_ba_cb

    A) bcacba   B) acbaba   C) cbcacb   D) cabcab

92. A person was asked to state his age in years. His reply was, 'take my age three years hence, multiply it by 3 and then subtract three times my age three years ago and you will know how old I am'. What was the age of the person?

   A) 18 years   B) 20 years   C) 24 years   D) 32 years

Direction (Q.Nos. 93-94): 120 candidates appeared for examination in three subjects, namely, English (E), Maths (M) and Science (S). The number of candidates who failed in E, M and S are shown in the diagram given below:
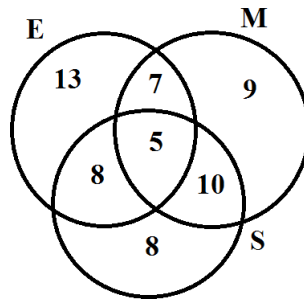
93. The number of candidates who failed in at least one subject is :
   A) 25   B) 30   C) 60   D) None of the above

94. The percentage of candidates who failed in at most two subjects is :
   A) 20.83   B) 25   C) 45.83   D) 95.83

95. How many triangles are there in the following figure?
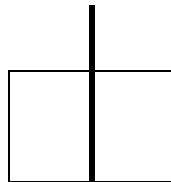
   A) 17   B) 16   C) 19   D) 21

96. A painter has painted a cubical box with six different colours for different faces of the cube. Red face is between yellow and brown faces. Green face is adjacent to the silver face. Pink face is adjacent to the green face. Brown face is at the bottom. Silver and pink faces are opposite to each other. The face opposite to red will be:
   A) Yellow   B) Green   C) Pink   D) Silver

97. A clock seen through a mirror shows quarter past three. What is the correct time?
   A) 9.45   B) 9.15   C) 8.45   D) 3.15

98. A train X starts from A at 4 PM and reaches B at 5 PM. While another train Y starts from B at 4 PM and reaches A at 5.30 PM. Two trains will cross each other at:
   A) 4.36 PM   B) 4.42 PM   C) 4.48 PM   D) 4.50 PM

Direction (Q. No. 99-100) : **Five members A,B,C,D and E of a family eat Grapes, Apple, Watermelon, Pomegranate and Pineapple one by one after their lunch from Tuesday to Saturday. Each of them eats only one fruit a day. No two members eat the same fruit on a day. Neither B nor E eats watermelon or grapes on Wednesday. A eats pomegranate on Thursday. D eats apple on Tuesday. E does not eat pineapple on Tuesday. B eats pomegranate on Friday. C eats grapes on Saturday. A eats watermelon on Tuesday. D eats pineapple on Wednesday.**

99. Which fruit does E eat on Friday?

    A) Grapes   B) Watermelon   C) Apple   D) Pomegranate

100. On which day does D eat watermelon?

    A) Wednesday   B) Friday   C) Saturday   D) Thursday

101. If students do not understand what is taught in the classroom, the teacher should:-

    A) Explain it in a different way   B) Feel terribly bored

    C) Feel that he is wasting time   D) Pity the students

102. Which of the following will not hamper effective communication in the classroom?

    A) A lengthy statement

    B) A precise statement

    C) An ambiguous statement

    D) A statement which allows the listener to draw her/his own conclusions.

103. With specific reference to classroom environment , all except one of the major components of listening is:-

    A) Hearing   B) Being attentive

    C) Answering   D) Understanding and remembering.

104. In order to modify the undesirable behaviour of a student, the most effective method is:-

    A) To punish the student

    B) To bring it to the notice of parents

    C) To make her/him conscious of the consequences of her/his actions

    D) To find out the reasons for her/his undesirable behavior and provide remedies.

105. If students are not able to follow the topic which is being taught in the classroom, the teacher in the classroom should:-

    A) Illustrate the topic with suitable examples.   B)Give them prompt reply.

    C) Change the contents of the topic.   D) Punish them.

106. The most important indicator of quality of education in an educational institute is :-

    A) Infrastructural facilities of a school.   B) Student achievement level.

    C) Textbook and teaching-learning material.   D) Classroom system

107. Kothari Commission Report on Education was entitled as :-

    A) Learning to be   B) Diversification of Education

    C) Education and National Development   D)Education for all.

108. Integral Education Concept is propounded by:-

    A) M.K.Gandhi   B) S.Radhakrishnan   C) Swami Dayananda   D) Sri Aurobindo

109. Navodaya Schools have been established to:-
    A) Provide good education in rural areas.
    B) Increase number of schools in rural areas.
    C) Complete 'Sarva Shiksha Abhiyan'
    D) Check wastage of education in rural areas.

110. Kindergarten system of education was constituted by
    A) T.P.Nunn.   B) Froebel   C) Spencer   D) Montessori

111. The main purpose of the new education policy is:-
    A) To provide equal opportunity of education to all.
    B) To link education with employment
    C) To improve the whole education system
    D) To spiritualize the education system

112. Family is the main agency of :-
    A) Formal education   B) Technical education   C) Secular education   D) Informal education

113. The aim of education should primarily be:-
    A) To prepare the students to face the challenges of practical life
    B) To develop vocational skills of the students
    C) To prepare the students for examinations
    D) To inculcate in them a spirit of cut-throat competition.

114. The quality of school level education primarily depends on :-
    A) International collaboration
    B) The quality of teachers' education
    C) Financial provisions
    D) Infrastructural facilities.

115. One of the important theories of moral developments was proposed by:-
    A) Louis Fischer   B) Erik Fromm   C)Laurence Kohlberg   D) Bertolt Brecht

116. The name of Yashpal Committee Report (1993) is:-
    A) I.C.T. in Teacher Education
    B) Learning through Moral Values
    C) Learning through Broadcasting
    D) Learning without Burden

117. The term 'kindergarten' means:
    A) Children's playground
    B) Children's school
    C) Children's home
    D) Children's theatre

118. 'Spare the rod and spoil the child'- this assumption is related to the type of discipline which has been advocated :-
    A) By naturalist philosophy
    B) In Victorian Era
    C) By pragmatist philosophy
    D) In Democratic Era

119. The heuristic approach is based on :-
    A) Rote memorization   B) Home work   C) Spirit of Inquiry   D) Pleasure-seeking

120. Symposium is a type of :-
    A) Discovery method   B)Lecture method   C)Demonstration method   D)Discussion method

Section – B

4। ok;qe.My d in"k.k d dkj.k vEy of"V fd I }kjk dh tkrh g%
    A) dkcu MkbvkDlkbM
    B) ehFksu xIl
    C) vktku vkj dkcu MkbvkDlkbM
    D) ukbVl vkDlkbM vkj IYQj MkbvkDlkbM

42- n"kkUrj dk.kh; njh dk ekirk g ftl dk iFoh dh lrg ij fcUn dh fMfx;k ei 0;Dr fd;k tkrk g%

A) vkfn&j[kk"k d io vFkok if"pe
B) Hieè;j[kk d mÙkj vFkok nf{k.k
C) vkfn&j[kk"k d doy io
D) vkfn&j[kk"k d doy if"pe

43- fctyh d cYc dk fQykeUV fdl dk cuk gkrk g%

A) ykgk   B) ukbØke   C) VxLVu   D) xQkbV

44- fdl foVkfeu dh gkeku ekuk tkrk g%

A) A   B) B   C) C   D) D

45- Vfyfotu ilkj.k ei vkfM;ks flXuyk dk lØe.k d fyy i;Dr rduhd g%

A) vk;ke fu;a=k.k   B) vkofÙk fu;=k.k   C) iYl dkM fu;=k.k   D) le; foHkktu cgfo/dj.k

46- Ifo/ku dh MkfÝYx lfefr d vkx ilrkouk fdl u ilrkfor dh Fkh%

A) tokgj yky ug: B) ch- vkj- vcMdj   C) ch- yu- jko   D) egkRek xk/h

47- jk"Vh; xku dgk l fy;k x;k g%

A) ch- Ih- pVth }kjk jfpr Hkkjr fo/krk fucU/   B) Vxkj }kjk lkfnr if=dk rkRok&c/f/uh
C) ch- Ih- pVth dk miU;kl nx"k ufInuh   D) ch- Ih- pVth dk miU;kl vkun eB

48- cd e[;r% cd pdk dh ikfflx ei fdl MkVk bUiV fof/ dk i;ksx djr g%

A) OMR   B) ckj dkM jhMj   C) MICR   D) ykbV iu

49- xtjkr jkT; fuokZpu vk;ksx dk cM yecMj fdl dh fu;Dr fd;k x;k g%

A) vferkHk cÇpu   B) pr'oj itkj   C) jkfonj tMtk   D) bjQku [kk

50- xkok ei gy Hkkjr d 44&o vrjkk"Vh; fQYe mRlo (IFFI) ei J"B fQYe dh dkfV ei xkYMu ihdkd ijLdkj (2013) fdl fQYe dk fn;k x;k g%

A) 12 Years a slave   B) Dallas Buyers Club
C) Gravity   D) Beatriz's War

51- ikjxkeh vrjkk"Vh; ILFkk (Transparency International) d vulkj] fo'o HÇ"Vkpkj iR;{k.k lpdkd 2013 ei Hkkjr dk jd D;k g%

A) 94&ok   B) 77&ok   C) 104&ok   D) 116&ok

52- ekuo fodkl lpkd dk ?kVd dkiu&lk ugh g%

A) thou iR;k'kk   B) f'k"kk eR; nj
C) okLrfod ifr 0;fDr vk;   D) ik< lk{kjrk nj

53- flU/ ?kkVh IH;rk dk cnjxkg "kgj dkiu&lk g%

A) gMiik   B) vkyexjiij   C) cuokyh   D) ykFkky

54- fo'o ei igyk bysDVkfud dliVj Fkk%

A) UNIVAC   B) EDVAC   C) ENIAC   D) bu ei dkb Hkh ugh g%

55- Hkkjr ei fLFkr fdl jyo lVQke dh gky gh ei fo'o ei lc l cM jyo lVQke ?kkf"kr fd;k x;k g%

A) [kMxij   B) lkuij   C) cEcb oh- Vh-   D) xkjkij

56- LVV cd vkWQ bfUM;k dh igyh efgyk vè;{k dk uke g%

A) u;uk yky fdnob   B) pUnk dkNM   C) f'k[kk "keek   D) v:u/fr HkVVkpk;Z

57- dj i'kkdu l/kj vk;kx fdl dh vè;{krk ei LFkkfir fd;k x;k g%

A) ikFkZlkFkh lke   B) dif"kd ckl   C) okb- oh- jMMh   D) fot; dydj

58- fcVdkbu dk ckj e Igh D;k g%

A) ;g mǔp vkrfjd eY; dh enk g   B) ;g fdlh Hkh vkrfjd eY; dh enk ugha g

C) FkkbySM dk ckd u bl o/ enk dh :Ik e Lohdkj fd;k

D) bld vkjHk Ilydj fcVdlibu dh dher ge"kk gh Mkyj I de jgh g

59- ceMk f=kHkt fdl txg rd tkrh g%

1- nf{k.kh ÝytjMk   2- IohVt jhdk   3- gokbl }hi

mi;qDr dFkuk e Ilduk Ik@I Igh g@gi %

A) 1]2 vkj 3   B) doy 1 vkj 2   C) doy 2 vkj 3   D) doy 1 vkj 3

60- ifl¼ iLrd 'Chronicle of a Corpse Bearer' dk ys[kd dku g%

A) foØe IB   B) dynhi u;j   C) v:U/fr jk;   D) Ik;jl feL=kh

61- fdl n"k u in"kk dk gldh yf"k;k di 2013 thrk g%

A) nf{k.k dkfj;k   B) ikfdLrku   C) eyf"k;k   D) Hkkjr

62- fdl n"k u 11&oa ICC fØfdV fo'o di e igyh ckj [ksyu dh vgrk iklr dh g%

A) uiky   B) vQxkfuLrku   C) uhnjySM   D) UAE

63- fdl Hkk"kk dks dUnh; eU=ke.My u gky gh e Hkkjr dh NBh Dykfldh Hkk"kk Lohdkj fd;k g%

A) ey;ye   B) dUuM   C) vkfM;k   D) ryx

64- fdl ys[kd dk vxzt e 2013 dk IkfgR;dkneh iqjLdkj iznku fd;k x;k Fkk%

A) jfLdu ckUM   B) rslyk vkvk   C) foØe IB   D) jkepUn xgk

65- Hkkjr dk ijek.k&k;kX; ;k.kuhfrd vL=k dk uke crkvi ftl dk 4000km igkj ijkl dk IQyrkiod ijh{k.k fd;k x;k g%

A) vkdk"k   B) iFoh&II   C) vfXu-IV   D) f=k"ky

66- fo'o ck¼d IEifÙk fnol dc euk;k tkrk g%

A) 24 fnlcj   B) 26 viy   C) 29 tu   D) 26 tu

67- 23 fnlcj 2013 dk lii.kz Hkkjr e fdl dk :Ik e euk;k x;k Fkk%

A) dk;Zdkjh efgyk fnol   B) jk"Vh; InHkkouk fnol

C) jk"Vh; foKku fnol   D) fdlku fnol

68- fdl 'kgj u 2012&13 dk fyy Iolùe fojklr ijLdkj iklr fd;k g%

A) t;ij   B) fr:iifr   C) mn;ij   D) gnjkckn

69- fdl 0;fDr dks 2013 dk fyy xk/h "kkfUr ijLdkj fn;k x;k Fkk%

A) ye· yl· LokfeukFku   B) yUtyk edy

C) pUMh iIkn HkVV   D) e/k ikVdj

70- fdl dks fel vÉk 2013 dk rkt iguk;k x;k Fkk %

A) cvk jktt IkfVVkokl   B) ekfj;k xcjhyk bLyj   C) exku ;ax   D) yfyt gfud

71- 'Duma' ^:l* I mlh rjg IcaÉr g tl 'Knesset' _____ I Icaéèr g%

A) eyf"k;k   B) vQxfuLrku   C) Ql   D) teuh

fun"k % (i'u Uk- 72&73) % fn, x, pkj fodYiksa esa ,d fodYi dk puuk mlh lc/ dk n"kkrk gS tks fpUg :: dh ckb± vkj nk ®kCnk@l[;kvks es gS%

72- In"k.k % vkgkj :: lØe.k % \
A) jksxk.kq B) jksx C) "kjhj D) nokbz

73- 42 % 56 %% 110 % \
A) 132 B) 136 C) 140 D) 120

74- ml "kCn&tksM dks pu ftl dk ogh lc/ gS tks fny xy tksM es gS%
Hktu % Lrfr
A) "kkdxhr % "kkd B) ikFkZuk % lHkk C) mikluk i¼fr % vu"Bku D) ykjh % cǔpk

75- fuEukafdr pkj esa ls rhu fdlh rjhdk ls leku gS vkj blfiyy yd leg cukrs gS A og yd dku&lk gS tks bl leg ls lcf/r ugha g\
A) okY;e B) vkdkj C) cMk D) :Ik

76- v{kj l[;k vuØe esa dku&lk fQV ugha gkrk%
A) DG2 B) EK5 C) JR6 D) PY8

77- ;fn BRIGHTEN dk HJSCMDSG fy[kk tkrk g] rks ml dkM es COMPLETE dks dl fy[kk tkrk g%
A) DSDKQNPD B) QNPDDSDK C) QNPDFUFM D) OLNBFUFM

78- yd fo'k"k Hkk"kk es 'min fin bin gin' dk eryc g 'trains are always late'; 'gin din cin hin' dk eryc g 'drivers were always punished'; 'bin cin vin rin' dk eryc g 'drivers stopped all trains' vkj 'din kin fin vin' dk eryc g 'all passengers were late'. 'Drivers were late' dks dl fy[kk tkyxk%
A) min cin din B) cin din fin C) fin din gin D) gin hin min

79- 'YPCUIAT' yd vkfZi.k "kCn dl ?kkkyey v{kj gA bu v{kjks dk iu% Øec¼ dj vkj fny xy fodYils esa ls ml "kCn dks puu tks iu% Øec¼ "kCn ls vFk es fon¼kFkkd gS%
A) Surplus B) Scarcity C) Presence D) Richness

80- ;fn ÷ dk eryc ^l ǔ;knk*; × dk eryc ^tek*; + dk eryc ^Hkkx*; − dk eryc ^cjkcj* g; > dk eryc ^x.kk*; = dk eryc g ^l de*; < dk eryc g ^ĺ.k&fpUg*; rks fuEukafdr esa ls dku&lk lgh g%
A) 3 + 2 < 4 ÷ 6 > 3 × 2 B) 3 × 2 < 4 ÷ 6 + 3 < 2
C) 3 > 2 < 4 − 6 × 3 × 2 D) 3 × 2 × 4 = 6 + 3 < 2

fun"k% (i'u u- 81&83)% A, B, C, D, E, F, G, H, I vkj J nl fo|kFkhk if'pe dh fn"kkk esa eg dj ,d ifDr es cSB gSA B vkj F fdlh Hkh lkj ij ugha cSB gS_ G, D dh ckbz vkj vkj H, J d nkbz vkj cSBk gSA E vkj A d njfe;ku pkj 0;fDr cSB gSA I, B d mÙkj dh vkj vkj F, D d nf{k.k dh rjQ cSBk g A J, A vkj D d njfe;ku g vkj G, E vkj F d njfe;ku gA H vkj C d njfe;ku nk 0;fDr cSB gSA

81- fuEukafdr esa ls dku fuf'pr :Ik es yd flj ij cSBk g%
A) C B) H C) E D) bue ls dkbz Hkh ugha g

82- I d fcYdy lkFk dku cSB g%
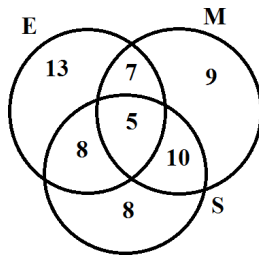A) B vkj C B) B vkj H C) A vkj H D) B vkj C vFkok B vkj H

83- ;fn G vkj A viuu LFkku yd nlj ls cny y] rks E d fcYdy ikl dku g\
A) G vkj F B) doy F C) doy A D) F vkj A

84- yMdk vkj yMfd;ks dh d{kk e vt; dk jd 12&oa g vkj v.k dk jd 8&oa gA yMds e vt; dk jd 6&oa g vkj yMfd;k e v.k dk jd rhljk gA d{kk e nlj flj l v.k dk jd 52&oa gA yMds e] nlj flj l vt; dk jd 26&oa gA nlj flj l yMfd;k e v.k dk jd fdruk g\

A) 23&oa B) 28&oa C) 26&oa D) bu e l dkbZ Hkh ugh g

85- rlohj e yd efgyk dh vkj b'kkjk djr gy] j[kk u dgk; ^ml dk cVk dk firk ejh ekrk dk nkekn g*A j[kk dk ml efgyk l D;k fj'krk g\

A) vkV B) cgu C) ekrk D) dtu

86- ;fn 'A × B' dk eryc g fd A, B dh cgu g] 'A ÷ B' dk eryc g fd A,B dh cVh g] 'A–B' dk eryc g fd A, B dk cki g rk 'P – Q × R ÷ S' d fj'kr e P dk S l D;k fj'krk g\

A) Hkkbz B) cVk C) ikrk@nkrk D) cVh dk cki

87- jke viu ?kj l xkMh e 10 kms nf{k.k dh rjQ tkrk g] cky eMrk g vkj 10 kms vkj tkrk gA og ckbz vkj eMrk g vkj lh/k 40 kms tkrk g] fQj nkbz vkj eMrk g vkj cd rd igpu d fyy 5 kms tkrk g tgk og dke djrk gA jke dk cd mld ?kj l fdruh njh ij vkj fdl fn'kk e g\

A) 33 kms, mÙkj io B) 45 kms, mÙkj C) 65 kms, io D) 39 kms, mÙkj if'pe

88- yd dkjckjh lEeyu e] mifLFkr 10 yksx yd nlj l yd ckj gkFk feykr gA dy fdru gkFk feyk, xy gkx\

A) 20 B) 45 C) 55 D) 90

funZ'k (i'u u- 89&90) % v{kjk@l[;kvk@inka d iVuZ dk i< vkj fuEukfdr fodYik e l xk;c in ekye dj%

89- IAZ, KEB, ? , OOF, QUH
A) MDD B) MII C) MIO D) MID

90- 266] 339] 528] \
A) 630 B) 730 C) 830 D) 930

91- fuEukfdr yMh e dN v{kj xk;c g tl mlh Øe e yd fodYi d :Ik e uhp fn, xy gA lgh fodYi dk pu%
aac_a_cbab_b_accab_ba_cb
A) bcacba B) acbaba C) cbcacb D) cabcab

92- yd 0;fDRk dk ml dh vk;q dk lkyk e crku d fyy dgk x;k FkkA ml dk mÙkj Fkk] ^ejh rhu lky d ckn dh vk;q dk ys] ml dk 3 l x.kk dj vkj ejh rhu lky igys dh vk;q dk 3 x.kk dj bl e l ?kVkvk] rks vki dk irk py tyxk fd ejh vk;q fdruh gA 0;fDr dh vk;q D;k Fkh\
A) 18 lky B) 20 lky C) 24 lky D) 32 lky

fun"k (i"u u- 93&94)% 120 fo|kFkh vxt+h (E) xf.kr (M) vkj foKku (S) rhu fo"k;k ei ijh{kk ei cBA
tk fo|kFkh E, M vkj S ei Qy g, mu di l[;k dk uhp fn, x, j[kkfp=k ei fn[kk;k x;k Gi

93- tk fo|kFkh de l de yd fo"k; ei Qy gy] mudh l[;k g%

A) 25   B) 30   C) 60   D) bue l dkbi Hkh ugh gi

94- tk fo|kFkhZ vf/d l vf/d ni fo"k;ks ei Qy gy] mu dh ifr"krrk gi %

A) 20-83   B) 25   C) 45-83   D) 95-83

95- uhp fny j[kkfp=k ei fdrui f=kHkt g%
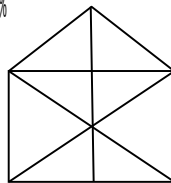
A) 17   B) 16   C) 19   D) 21

96- yd iVj u yd f=k?kkkrh cDl dk bl d fofHkUu e[kk dk Ng fHkUu jxt l iV fd;k gA yky e[k iy vkj Hji e[k d njfe;ku gA gjk e[k jfter e[k d vkslUu gA xykch e[k gj e[k d vkslUu gA Hjk e[k uhp gA jfter vkj xykch e[k yd nlj d lkeu gA yky d lkeu dk e[k g%gxl%

A) ihyk   B) gjk   C) xykch   D) jfter

97- ni.k ei n[kh ?kMh ei lok rhu ct gA lgh oDr D;k g%

A) 9-45   B) 9-15   C) 8-45   D) 3-15

98- yd jyxkMh X, A l "kke 4 ct pyrh gi vkj B ij "kke 5 ct igp rh gA tcfd yd nlj jyxkMh Y, B l "kke 4 ct pyrh gi vkj A ij "kke 5-30 ct igp tkrh gA nkuk jyxkfM;ki yd nljh dk dc Økl djxh%

A) "kke 4-36   B) "kke 4-42   C) "kke 4-48   D) "kke 4-50

fun"k (i"u u- 99&100) % ,d ifjokj d ikp lnL; A,B,C,D, vkj E exyokj l "kfuokj rd nkigj dk [kku dk cknk ,d ,d dj vxj] lc rjct] vukj vkj vuUkkl [kkr gA dkbi nk lnL; ,d gh Qy dk ,d fnu ei ugh [kkrA u B vkj u gh E c/okj dk rjct ;k vxj [kkr gA A x:okj dk vukj [kkrk gA D exyokj dk lc [kkrk gA E exyokj dk vUkUkkl ugh [kkrkA B "kØokj dk vukj [kkrk gA C "kfuokj dk vxj [kkrk gA A exyokj dk rjct [kkrk gA D c/okj dk vUkUkkl [kkrk g A

99- E "kØokj dk dlu&lk Qy [kkrk g%

A) vxj   B) rjct   C) lc   D) vukj

100- D fdl fnu rjct [kkrk g%

A) c/okj   B) "kØokj   C) "kfuokj   D) x:okj

101- ;fn d{kk e t+ dN i<k;k tk jgk g] og fo|kFkhi dk le> e u vk jgk gh] rk vè;kid dk %

A) bl dh nljh rjhd ls 0;k[;k djuh pkfgy
B) vfr vf/d ij"kuu gkuk pkfgy
C) ;g eglll djuk pkfgy fd og le; ccin dj jgk g
D) fo|kFkh;ls ij rjl [kkuk pkfgy

102- d{kk e iHkkodkjh lpkj e D;k ck/k ugh gksxk %

A) yEck dFku
B) lfuf'pr dFku
C) vLi"V dFku
D) og dFku tk Jkrkvksdk viu viu ifj.kke fudkyu dh [ky nrk gs

103- d{kk d egyy d fo"k"k lnHkˆ e] luu dk yd e[; vo;o g%

A) Jo.k
B) ydkx jguk
C) mÙkj nuk
D) le>uk vkj ;kn j[kuk

104- fo|kFkhi dh vkifÙktud 0;ogkj dk :ikrjr dju dk fyy] vfrvf/d iHkkodkjh fof/ g%

A) fo|kFkhi dk ltk nuk
B) ekrk&firk dk ukfVl e;ykuk
C) ml ds ml ds dk; dh fyy lko/ku djuk
D) mldk vkifÙktud 0;ogkj d dkj.kls dk ekye djuk vkj bykt djuk

105- ;fn fo|kFkhi d{kk e i<ky tk jg fo"k; dh le> uk ik jg gk] rk vè;kid dk d{kk e%

A) fo"k; dh mi;;Dr mnkgj.kls l le>kuk pkfgy
B) mudls rjUr mÙkj nuk pkfgy
C) fo"k; d lkjRo dk cny ysuk pkfgy
D) mu dls ltk nuh pkfgy

106- f"k{kk lLFkk e f"kkk dh x.krk dk egRoiˆ lkrrd g%

A) Ldy dh vk/kjHkˆr&ljpuk dh lfo/ky
B) fo|kFkhi dk miyfC/ Lrj
C) ikB;iLrd vkj vè;kiu&vf/xe lkexh
D) d{kk 0;oLFkk

107- f"k{kk ij dkBkijh vk;kx fjikV dk "kh"kid D;k Fkk %

A) Hkkoh vf/xe
B) f"k{kk dk foo/hdj.k
C) f"k{kk vkj jk"Vh; fodkl
D) lo f"k{kk

108- lekdfyr f"k{kk vo/kj.kk fdl u iLrr dh g%

A) ye· d· xkˌh
B) yl· jk/kd".ku
C) Lokeh n;kun
D) Jh vjfcnk

109- uokn; Ldyk dk ILFkkiu fdl d fyy fd;k x;k g%

A) xkeh.k {k=kk e vˇÚNh f"k{kk inku dju d fyy
B) xkeh.k {k=kk e Ldyks dh l[;k c<kuk d fyy
C) ^lo f"k{kk vfHk;ku* dh lii.k dju d fyy
D) xkeh.k {k=kkls e f"k{kk dh ccknh dk jkdu d fyy

110- f"k{kk dh fdMjxkVu i.kkkyh fdl }kjk lfikfVr dh xb Fkh%

A) Vh· ih· uu
B) Q̊icy
C) LiUlj
D) ekUVljh

111- ub f"k{kk uhfr dk e[; i;ktu g%

A) lHkh dk f"k{kk dk lekku voljinku djuk
B) f"k{kk dk jkstxkj l tkMuk
C) li.k f"k{kk 0;oLFkk e l/kj ykuk
D) f"k{kk 0;oLFkk dk vè;kRehdj.k djuk

112- ifjokj fdl dh e[; ytÙkh g%

A) vkipkfjd f"k{kk
B) rduhdh f"k{kk
C) /eˆ&fujij{k f"k{kk
D) vukipkfjd f"k{kk

113- f"k{kk dk y{; e[;r% gkuk pkfgy%

A) fo|kfFkˆ;ls dh 0;kogkfjd thou dh pukˇfr;ks dk lkeuk dju d fyy r;kj djuk
B) fo|kfFkˆ;k dh 0;koklkf;d d"kyrkls dk fodflr djuk
C) fo|kfFkˆ;k ds ijh{kkvks d fyy r;kj djuk
D) mu d eu e ?kkrd ifr;kfxrk dh Hkkouk ds cˇUkuk

114. Ldy Lrj dh f"k{kk dh x.krk e[;r% fdl ij fuHkj djrh g%

A) vrjjk"Vh; lg;ksx
B) vè;kid dh f"k{kk dh x.krk
C) foÙkh; iko/ku
D) vk/kjHkrr&ljpuk dh lfo/ky

115. ufrd fodkl d yd egÙoiw.k% fl¼kUr dl fdl u iLrr fd;k Fkk%

A) ywbl fQ'kj
B) yfjd iÙke
C) ykjl dkgycx
D) crÙYr cpr

116. ;"kiky lfefr fjiiVZ (1993) dk uke g%

A) vè;kid f"k{kk e I.C.T.
B) ufrd eY;k }kjk f"k{kk&ikfolr
C) illkj.k }kjk f"k{kk&ikfolr
D) Hkkj&eDr f"k{kk&ikfllRk

117. ^fdMjxkVu* in dk vFk g%

A) cǔpk dk [ky dk enku
B) cǔpk dk Ldy
C) cǔpk dk ?kj
D) cǔpk dh jx"kkyk

118. ^vf/kd ykM&I;kj cǔpk dl fcxkM nrk g*& ;g ekU;rk vu"kklu d yd idkj l lcf/r gftl dk lekFku%

A) idfroknh n"lu u fd;k g
B) f0kDVfj;k ;x e fd;k x;k g
C) 0;kogkfjdroknh n"ku u fd;k g
D) ykdrf=kd ;qx e fd;k x;k g

119. vÙo"k.k.k mikxe fdl ij vk/kfjr g%

A) jVu dBLFkdj.k
B) xg dk;Z
C) iN&rkN Hkkouk
D) l[k ikflr

120. ifjpp.k fdl dk idkj g%

A) [kkt fof/
B) ysDpj fof/
C) in"ku fof/
D) fopkj&foe"k fof/

Section – C (Subject Knowledge)

121. Dimension of a subspace W = { $(x, y, z, t) : x + z + t = 0, y + z + t = 0$ } of $\mathbb{R}^4$ is

(A) 4   (B) 3   (C) 1   (D) 2

122. If S = { (1, 1, 0), (2, 1, 3) } is a subset of $\mathbb{R}^3$ then which one of the following vectors of $\mathbb{R}^3$ is not in the linear span of S?

(A) (0, 0, 0)   (B) (3, 2, 3)   (C) (1, 2, 3)   (D) (4/3, 1, 1)

123. The set { e^{2x}, e^{3x} } for $x \in \mathbb{R}$ is

(A) L.I. over $\mathbb{R}$ (B) L.D. over $\mathbb{R}$ (C) L.I. over $\mathbb{R}\backslash\{0\}$ (D) none of these

124. Let T: $\mathbb{R}^3 \to \mathbb{R}^2$ be a linear transformation defined by T(x, y, z) = (x + y, x - z). Then dimension of null space of T is

(A) 1   (B) 2   (C) 0   (D) none of these

125. Let T: $\mathbb{R}^2 \to \mathbb{R}^3$ be a linear transformation defined by T(x, y) = (x + y, x – y, y). Then Rank of T is

(A) 3   (B) 2   (C) 0   (D) none of these

126. If A and B are symmetric matrices of the same order, then $(AB^t – BA^t)$ is

(A) symmetric   (B) null matrix   (C) skew symmetric   (D) none of these

127. If A is skew symmetric matrix, then A^2 is a

    (A) null matrix   (B) unitary matrix   (C) skew symmetric (D) symmetric

128. If R = $\begin{bmatrix} 1 & 0 & -1 \\ 2 & 1 & -1 \\ 2 & 3 & 2 \end{bmatrix}$, then the top row of R^{-1} is

    (A) $\begin{bmatrix} 5 & 6 & 4 \end{bmatrix}$ (B) $\begin{bmatrix} 5 & -3 & 1 \end{bmatrix}$ (C) $\begin{bmatrix} 2 & -1 & \frac{1}{2} \end{bmatrix}$ (D) $\begin{bmatrix} 2 & 0 & -1 \end{bmatrix}$

129. The matrix $\begin{bmatrix} 1 & 2 & 4 \\ 3 & 0 & 6 \\ 1 & 1 & p \end{bmatrix}$ has one Eigen Value equal to 3. The sum of other two

    Eigen Values is

    (A) p – 2   (B) p – 1   (C) p   (D) none of these

130. At what point the line $y = x + 1$ is a tangent to the curve $y^2 = 4x$?

    (A) (1, –2) ✓   (B) (1, –2), (1, 2)   (C) (1, 2)   (D) none of these

131. The parametric equation of a parabola is $x = t^2 + 1$, $y = 2t + 1$. The Cartesian equation of

    its directrix is

    (A) $y = 1$ (B) $x = 1$ (C) $y = 0$ (D) $x = 0$

132. The slope of a line, which passes through the origin, and mid-point of the line segment

    joining the points P(0, – 4) and B(8, 0) is

    (A) $\frac{1}{2}$ (B) $-\frac{1}{2}$ (C) 1   (D) none of these

133. The value of x for which the points $(x, –1)$, $(2, 1)$ and $(4, 5)$ are collinear is

    (A) – 1   (B) 2   (C) 1   (D) none of these

134. The distance between the directrices of the ellipse $9x^2 + 4y^2 = 36$ is

    (A) $2\sqrt{5}$ (B) $\sqrt{5}$ (C) $\frac{9}{\sqrt{5}}$ (D) $\frac{18}{\sqrt{5}}$

135. The distance of the point (2, 3, 4) from the plane $3x – 6y + 2z + 11 = 0$ is

    (A) 1   (B) 21   (C) 10   (D) none of these

136. Let x and y be real numbers and X = $\{(x, y) \mid y = \frac{1}{x}, x \neq 0\}$, Y = $\{(x, y) \mid y = -x\}$ be two sets

    then

    (A) X ∩ Y = X   (B) X ∩ Y = Y   (C) X ∩ Y = φ   (D) none of these

137. If $f(x) = sin^2(x) + 3 \cos x – 5$, then $f(x)$ is

    (A) an even function (B) an odd function (C) monotonic   (D) none of these

138. 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

139. What is the inverse of the function $y = 5^{\log}$?

(A) $x = 5^{\frac{1}{\log y}}$ (B) $x = y^{\frac{1}{\log 5}}$ (C) $x = 5 \log y$ (D) none of these

140. The limit of the sequence $S_n = \{ \frac{(3n+1)(n-2)}{(n+3)} \}$ is

(A) 0 (B) 1 (C) 2 (D) 3

141. The number of elements in the set S = $\{(a, b) | 2a^2 + 3b^2 = 35;$ a, b are integers$\}$, is

(A) 8 (B) 4 (C) 2 (D) 12

142. The series $\sum_{n=1}^{\infty} \frac{n}{e^n}$ is

(A) not bounded below (B) convergent (C) divergent (D) none of these

143. The series $\sum_{n=1}^{\infty} \frac{n! 2^n}{n^n}$ is

(A) convergent (B) conditional convergent (C) divergent (D) none of these

144. The limit of the sequence $S_n = \{ \frac{3 + 2\sqrt{n}}{\sqrt{n}} \}$ is

(A) 0 (B) 1 (C) 2 (D) none of these

145. Value of the limit $\lim_{x \to 0} 2x \sin \frac{1}{2x}$ is equal to

(A) 1 (B) 0 (C) not defined (D) none of these

146. hich of the following statement is true for $f(x) = \sin x^2$ in $(0, \infty)$?

(A) $f(x)$ is not uniformly continuous (B) $f(x)$ is not continuous

(C) $f(x)$ is not defined at some points (D) none of these

147. Which one of the following is uniformly continuous in $(0, \infty)$?

(A) $f(x) = \sin \frac{1}{x}$ (B) $\frac{1}{x}$ (C) $f(x) = \frac{1}{x^2}$ (D) none of these

148. The function $f(x) = |x| + 3$ is

(A) continuous as well as differentiable on $\mathbb{R}$

(B) not continuous on $\mathbb{R}$

(C) continuous but not differentiable anywhere on $\mathbb{R}$

(D) continuous on $\mathbb{R}$ and differentiable on $\mathbb{R} \setminus \{0\}$.

149. The value of the integral $\int_0^{\frac{\pi}{2}} \frac{\sqrt{\tan x}}{1 + \sqrt{\tan x}} dx$ is

(A) $\frac{\pi}{2}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{6}$ (D) none of these

150. Value of the Integral $\int_0^{\infty} \int_0^{\infty} e^{-x^2} e^{-y^2} dx\, dy$ is

(A) $\sqrt{\frac{\pi}{2}}$ (B) $\sqrt{\pi}$ (C) π (D) none of these

151. Value of the Integral $\iint (x^2 + y^2)\, dx\, dy$ over the area bounded by the curves $y = x^2$ and $y^2 = x$ is

(A) $\frac{6}{35}$ (B) $\frac{2}{3}$ (C) $\sqrt{\pi}$ (D) none of these

152. The radius of convergence R of the power series $\sum \frac{x^n}{n!}$ is

(A) 0   (B) 1   (C) 2   (D) none of these

153. The decimal number 1.23657657657657…… is equal to the rational number

(A)   123/99   (B) 1235/9990   (C) 123657/100000 (D) 123534/99900

154. In a school there are 20 teachers who teach mathematics or physics. Of these, 12 teach mathematics and 4 teach both physics and mathematics. How many teach only physics?

(A) 12   (B) 8   (C) 16   (D) none of these

155. How many integers from 1 to 500 are divisible by at least one of 3, 5 and 7?

(A) 271   (B) 266   (C) 337   (D) none of these

156. The sup. of the set S = {2 sin x - 3 cos x} is

(A) $\sqrt{11}$ (B) $\sqrt{12}$ (C) $\sqrt{13}$ (D) none of these

157. Determine for which values of x, the function $y = x^4 - \frac{4x^3}{3}$ is increasing ?

(A) $1 \leq x \leq 3$ (B) $x \leq 1$ (C) $-\infty \leq x \leq \infty$ (D) $x \geq 1$

158. The value of the limit $\lim_{n \to \infty} (n)^{\frac{1}{n}}$ is

(A) 1   (B) e (C) $\frac{1}{e}$ (D) none of these

159. A stone is dropped in quite lake and waves move in circles at the speed of 5 cm s⁻¹. At the instant when the radius of the circular wave is 8 cm, how fast is the enclosed area increasing?

(A) 40 π cm² s⁻¹   (B) 80 π cm² s⁻¹   (C) 60 π cm² s⁻¹   (D) none of these

160. If $C^n_r = \frac{n!}{r!(n-r)!}$ Then the sum $C^n_r + C^n_{r-1}$ is equal to

(A) C^{n+1}_r (B) C^n_{r+1} (C) C^{n+1}_{r+1} (D) none of these

161. If z_1, z_2 are two non-zero complex numbers such that $|z_1 + z_2| = |z_1| + |z_2|$ then $\arg(z_1) - \arg(z_2)$ is equal to

(A) π (B) $-\pi$ (C) 0   (D) 1

162. Common roots of the equations $z^3 + 2z^2 + 2z + 1 = 0$ and $z^{1985} + z^{100} + 1 = 0$ are

(A) $-\omega, -\omega^2$ (B) 1, ω, ω^2 (C) $-1, \omega, \omega^2$ (D) ω, ω^2

163. The vector $- 4\hat{\imath} + 5\hat{\jmath}$ is turned counterclockwise through an angle of 180^0 and stretched $1\frac{1}{2}$ times. The complex number corresponding to the newly constructed vector is

(A) $6 - \frac{15}{2}i$ (B) $- 6 + \frac{15}{2}i$ (C) $6 + \frac{15}{2}i$ (D) none of these

164. If $|z^2 - 1| = |z|^2 + 1$, then z lies on

(A) circle   (B) Real axis   (C) Imaginary axis   (D) ellipse

165. The reflection of the complex number $\frac{4+3i}{1+2i}$ in the straight line $iz = \bar{z}$ is

(A) $1 - 2i$ (B) $4 - 3i$ (C) $3 + 4i$ (D) $2 + i$

166. If $|z + 4| = 3$ then the maximum value of $|z + 1|$ is

(A) 10   (B) 4   (C) 0   (D) 6

167. The average of the squares of the numbers 0, 1, 2, ..., n is

(A) $\frac{1}{2} n (n +1)$ (B) $\frac{1}{6} n (2n +1)$ (C) $\frac{1}{6} (n +1)(2n +1)$ (D) none of these

168. Mean of five observations is 4 and their variance is 5.2. If three of them are 1, 2, 6 then other two are

(A) 2, 9   (B) 5, 6   (C) 2, 10   (D) 4, 7

169. In a frequency distribution, the mean and median are 21 and 22 respectively, then its mode is approximately

(A) 20.5   (B) 25.5   (C) 24   (D) 22

170. Mean of 100 observations is 45. It was later found that two observations 19 and 31 were recorded incorrectly as 91 and 13, then the correct mean is

(A) 44.46   (B) 44   (C) 45   (D) none of these

171. The AM of $C^{2n+1}_0, C^{2n+1}_1, C^{2n+1}_2, \dots, C^{2n+1}_n$ is

(A) $\frac{2^n}{(n+1)}$ (B) $\frac{2^{2n}}{(n+1)}$ (C) $\frac{2^n}{n}$ (D) none of these

172. The probability that in a family of 5 members, exactly two members have birthday on Sunday, is

(A) $\frac{12 \times 5^3}{7^5}$ (B) $\frac{10 \times 6^2}{7^5}$ (C) $\frac{2}{5}$ (D) $\frac{10 \times 6^3}{7^5}$

173. A five digit number is formed by using the digits 1, 2, 3, 4, 5 in a random order without repetitions. Then the probability that the number is divisible by 4 is

(A) 3/5   (B) 18/5   (C) 1/5   (D) 6/5

174. A coin is tossed 3 times. The probability of getting head and tail alternatively is

(A) 1/4   (B) 1/8   (C) 1/2   (D) 3/8

175. Probability that in a year of 22nd century chosen at random has 53 Sundays, is

    (A) 3/28   (B) 5/28   (C) 7/28   (D) none of these

176. Solution of the differential equation $xdy - ydx = \sqrt{x^2 + y^2}\ dx$ is

    (A) $y + \sqrt{x^2 + y^2} = cx$ (B) $y + \sqrt{x^2 + y^2} = cx^2$

    (C) $y - \sqrt{x^2 + y^2} = xc^2$ (D) none of these

177. The integrating factor for $ydx - xdy = 0$ is

    (A) $\frac{x}{y}$ (B) $\frac{y}{x}$ (C) $\frac{1}{x^2+y^2}$ (D) none of these

178. The directional derivative of $\Psi(x, y, z) = xy^2 + 4xyz + z^2$ at the point (1, 2, 3) in the direction of $3i + 4j - 5k$ is

    (A) $\frac{78}{5\sqrt{2}}$ (B) $\frac{218}{5\sqrt{2}}$ (C) $\frac{148}{5\sqrt{2}}$ (D) none of these

179. A particle moves along the curve $x = t^3 + 1$, $y = t^2$ and $z = 2t + 5$ where t is the time. The component of velocity at $t = 1$ in the direction of $v = i + j + 3k$ will be

    (A) $\sqrt{12}$ (B) $\sqrt{13}$ (C) $\sqrt{10}$ (D) $\sqrt{11}$

180. Area of the triangle formed by the tips of the vectors $a, \bar{b}$ and e is

    (A) $\frac{1}{2}(a - \bar{b})(a - e)$ (B) $\frac{1}{2}|(a - \bar{b}) \times (a - e)|$ (C) $\frac{1}{2}|a \times \bar{b} \times e|$ (D) none of these

181. If $r = xi + yj + zk$ then value of $div.\ \frac{r}{r^3}$ will be

    (A) 1   (B) 2   (C) 0   (D) none of these

182. The value of $curl\ (grad\ f)$ i.e. $\nabla \times \nabla f$ is equal to

    (A) 1   (B) $\nabla^2 f$ (C) $\nabla f \cdot \nabla f$ (D) 0

183. Find the unit normal vector to the level surface $x^2 + y - z = 4$ at the point (-3, 1, 6).

    (A) $\frac{-6i + j - k}{\sqrt{38}}$ (B) $\frac{-i + j - k}{\sqrt{3}}$ (C) $\frac{-i + 2j - k}{\sqrt{6}}$ (D) none of these

184. Find the angle of intersection of the curves $y^2 = x$ and $x^2 = y$ at point (1, 1).

    (A) $sin^{-1}\frac{3}{4}$ (B) $tan^{-1}\frac{3}{4}$ (C) $tan^{-1}\frac{4}{5}$ (D) none of these

185. The local maximum values of the function $f(x) = 3x^4 + 4x^3 - 12x^2 + 12$ are

    (A) 1   (B) 2   (C) – 2   (D) 0

186. The order of the differential equation $\frac{d^2y}{dx^2} + 5\left(\frac{dy}{dx}\right)^3 + 9\,y = 0$ is

    (A) 3   (B) 1   (C) 2   (D) 5

187. The general solution of the differential equation $(y + x^3)\ dx + (x + 10y^3)\ dy = 0$ is

    (A) $4xy + x^4 + 10y^4 = c$ (B) $4xy + x^4 + y^4 = c$ (C) $4xy + y^4 = c$ (D) none of these

188. Every homogeneous equation $f(x, y, z) = 0$ represents

(A) Sphere with centre at origin   (B) Cone with vertex at origin

(C) Cylinder   (D) None of these

189. The differential equation of all lines passing through the origin is

(A) $y = \sqrt{x}\,\dfrac{dy}{dx}$ (B) $\dfrac{dy}{dx} = x + y$ (C) $\dfrac{dy}{dx} = y - x$ (D) none of these

190. How many terms of the G. P. $3, \dfrac{3}{2}, \dfrac{3}{4}, \ldots$, are needed to give the sum $\dfrac{3069}{512}$?

(A) 8   (B) 10   (C) 9   (D) none of these

191. If altitudes of a triangle are in AP then sides of the triangle are in

(A) GP   (B) AP   (C) HP   (D) AG

192. In an arithmetic progression sum of terms, equidistant from the beginning and the end is equal to the

(A) Last term   (B) First term   (C) Second term   (D) Sum of the first and last term

193. If $\log 2, \log (2^n - 1), \log (2^n + 3)$ are in AP, then n is equal to

(A) $\log_2 5$ (B) $\log_3 5$ (C) 5   (D) 2^5

194. Number of subsets of a finite set with *n* elements are

(A) 2^n (B) $n!$ (C) n^2 (D) n^n

195. If $\cos^2 A + \cos^2 C = \sin^2 B$ then triangle ABC is

(A) equilateral   (B) right angled   (C) isosceles   (D) none of these

196. Let $R = \{ (x, y) \mid x + 2y = 8 \}$ be a relation on $\mathbb{N}$, then domain of R is

(A) $\{1, 2, 3\}$ (B) $\{1, 2, 3, 4, 5, 6\}$ (C) $\{2, 4, 6\}$ (D) $\{1, 3, 5\}$

197. If ω is a cube root of unity then ω is equal to

(A) 3   (B) $\dfrac{1-i\sqrt{3}}{2}$ (C) $\dfrac{1+i\sqrt{3}}{2}$ (D) $\dfrac{-1+i\sqrt{3}}{2}$

198. If $x^2 - 3\,|x| + 2 < 0$ then x belongs to

(A) $(-2, -1) \cup (1, 2)$ (B) $(-2, 1)$ (C) $(-2, 2)$ (D) none of these

199. The largest interval, among the following, for which $x^{12} - x^9 + x^4 - x + 1 > 0$ is

(A) $(-4, 0)$ (B) $(0, \infty)$ (C) $(-4, 4)$ (D) $(-100, 100)$

200. The value of $\sin (\cot^{-1} x)$ is:

(A) $\sqrt{1 + x^2}$ (B) x (C) $\dfrac{1}{\sqrt{1+x^2}}$ (D) $\dfrac{1}{x}$

121. $\mathbb{R}^4$ dh milef"V W = { $(x, y, z, t) : x + z + t = 0, y + z + t = 0$ } dk ?kkr g%

A) 4   B) 3   C) 1   D) 2

122. ;fn S = { $(1, 1, 0), (2, 1, 3)$ } $\mathbb{R}^3$ dk mi&lV g] rc $\mathbb{R}^3$ dk dku lk fuEufdr oDVj] S dk jf[kd Liu ugh g%

(A) $(0, 0, 0)$ (B) $(3, 2, 3)$ (C) $(1, 2, 3)$ (D) $(4/3, 1, 1)$

123. $x \in \mathbb{R}$ d fyy lV { e^{2x}, e^{3x} } g%

A) L.I vkoj $\mathbb{R}$ B) L.D vkoj $\mathbb{R}$ C) L.I vkoj $\mathbb{R}\setminus\{0\}$ D) bue lk dkb Hkh ugh g

124. eku ys T$(x, y, z) = (x + y, x - z)$ }kjk ifjHkkf"kr jf[kd :ikrj.k T: $\mathbb{R}^3 \to \mathbb{R}^2$ rc T dk uy Lil dk ?kkr g%

A) 1   B) 2   C) 0   D) bue lk dkb Hkh ugh g

125. eku ys T$(x, y) = (x + y, x – y, y)$ }kjk ifjHkkf"kr jf[kd :ikrj.k T: $\mathbb{R}^2 \to \mathbb{R}^3$ rc T dk jd g%

A) 3   B) 2   C) 0   D) bue lk dkb Hkh ugh g

126. ;fn A vkj B leku ?kkr dh lefer efVDl g] rc $(AB^t – BA^t)$ g

A) lefer   B) uy efVDl   C) fo"ke lefer   D) bue lk dkb Hkh ugh g

127. ;fn A fo"ke lefer efVDl g] rc A^2 g%

A) uy efVDl   B) yfdd efVDl   C) fo"ke efVDl   D) lefer efVDl

128. ;fn R = $\begin{bmatrix} 1 & 0 & -1 \\ 2 & 1 & -1 \\ 2 & 3 & 2 \end{bmatrix}$ rc R^{-1} dh "kh"Zt ifDr g%

(A) $[5 \quad 6 \quad 4]$ (B) $[5 \quad -3 \quad 1]$ (C) $[2 \quad -1 \quad \frac{1}{2}]$ (D) $[2 \quad 0 \quad -1]$

129. efVDl $\begin{bmatrix} 1 & 2 & 4 \\ 3 & 0 & 6 \\ 1 & 1 & p \end{bmatrix}$ dk yd okLrfod eY; (Eigen value) 3 d cjkcj gA vU; nk okLrfod eY;k dk tkM g%

A) p – 2   B) p – 1   C) p   D) bue lk dkb Hkh ugh g

130. fdl fcUn ij j[kk y =x + 1, oØ $y^2 = 4x$ dh Li"kh j[kk g %

A) $(1,-2)$ B) $(1,-2), (1,2)$ C) $(1,2)$ D) bue lk dkb Hkh ugh g

131. ijoy; dk ikpfyd lehdj.k $x = t^2 + 1, y = 2t + 1$ gA bld fu;Urk dk dkVft;u lehdj.k g %

A) $y = 1$ B) $x = 1$ C) $y = 0$ D) $x = 0$

132. yd j[kk dh <yku] tk P(0, - 4) vkj B(8,0) fcUnvk dk feykuu oky j[kk&[kM d ey vkj eè;&fcUn lk xtjrh g] g %

A) $\dfrac{1}{2}$ B) $-\dfrac{1}{2}$ C) 1   D) bue lk dkb Hkh ugh g

133. x dk eY;] ftl d fyy $(x, – 1), (2,1)$ vkj $(4,5)$ fcUn lj[k g] g %

A) -1 B) 2   C) 1   D) bue lk dkb Hkh ugh g

134. nh?¿oÙk $9x^2 + 4y^2 = 36$ d¼ fu;Urkv¼s d¼ njfe;ku njh g%

(A) $2\sqrt5$ (B) $\sqrt5$ (C) $\frac{9}{\sqrt5}$ (D) $\frac{18}{\sqrt5}$

135. **lery $3x - 6y + 2z + 11 = 0$ l¼ fcUn¼ (2,3,4) dh njh g%**

A) 1   B) 21   C) 10   D) buesa l¼ dksb¼ Hkh ugha g¼

136. eku ys¼a x vkSj y okLrfod l¼[;ky g¼ vkSj X = {(x, y) | $y = \frac{1}{x}$, x ≠ 0}, Y = {(x, y) | $y = -x$} nks lV g] r¼

A) X ∩ Y = X   B) X ∩ Y = Y   C) X ∩ Y = φ   D) buesa l¼ dksb¼ Hkh ugha g¼

137. ;fn $f(x) = sin^2(x) + 3 \cos x - 5$, r¼ $f(x)$ g%

A) leQyu   B) fo"ke Qyu   C) ydleku   D) bu esa l¼ dksb¼ Hkh ugha g¼

138. ;fn g = {(1, 1), (2, 3), (3, 5), (4, 7)}, g(x) = $ax + b$, }kjk of.kr Qyu g] r¼ a vkSj b dk D;k eY; nu pkfgy % &

(A) 1, 1   (B) 1, -2   (C) 2, -1   (D) -2, -1

139. Qyu $y = 5^{\log}$ dk ifryke D;k g%

(A) $x = 5^{\frac{1}{\log y}}$ (B) $x = y^{\frac{1}{\log 5}}$ (C) $x = 5 \log y$ D) buesa l¼ dksb¼ Hkh ugha g¼

140. $S_n = \{\frac{(3n+1)(n-2)}{(n+3)}\}$ vuqØe dh lhek g%

(A) 0   (B) 1   (C) 2   (D) 3

141. lV S = {(a, b) | $2a^2 + 3b^2 = 35$; a, b i.kd¼ g¼ }, es¼ vodyk dh l¼[;k g%

A) 8   B) 4   C) 2   D) 12

142. J¼.kh $\sum_{n=1}^{\infty} \frac{n}{e^n}$ g%

A) uhp l¼ vfijc/   B) vfHkdlkjh   C) vil¼kjh   D) bu esa l¼ dksb¼ Hkh ugha g¼

143. J¼.kh $\sum_{n=1}^{\infty} \frac{n! 2^n}{n^n}$ gS

A) vfHkdlkjh   B) ifrc/d vfHkkdkjh   C) vil¼kjh   D) bu esa l¼ dksb¼ Hkh ugha g¼

144. vuqØe $S_n = \{\frac{3+2\sqrt{n}}{\sqrt{n}}\}$ dh lhek g%

A) 0   B) 1   C) 2   D) buesa l¼ dksb¼ Hkh ugha g¼

145. lhek $\lim_{x\to 0} 2x \sin\frac{1}{2x}$ dk eY; cjkcj g%

A) 1   B) 0   C) fuf"pr ugha g¼   D) buesa l¼ dksb¼ Hkh ugha g¼

146. (0, ∞) es¼ $f(x) = \sin x^2$ d¼ fyy dku&lk dFku lgh g%

A) $f(x)$ ydleku v[k.M ugha g¼   B) $f(x)$ v[k.M ugha g¼

C) dN fcUnvks ij $f(x)$ ifjHkkf"kr ugha g¼   D) buesa l¼ dksb¼ Hkh ugha g¼

147. (0, ∞) es¼ dku&lk ydleku v[k.M ugha g%

(A) $f(x) = \sin\frac{1}{x}$ (B) $\frac{1}{x}$ (C) $f(x) = \frac{1}{x^2}$ D) buesa l¼ dksb¼ Hkh ugha g¼

148. Qyu $f(x) = |x| + 3$ g%

A) ℝ ij v[k.M vdj vodyuh;   B) ℝ ij v[k.M ugh

C) v[k.M ijUr ℝ ij dgh Hkh vodyuh; ugh   D) ℝ ij v[k.M vdj ℝ\{0} ij vodyuh;

149. lekdy $\int_0^{\frac{\pi}{2}} \frac{\sqrt{\tan x}}{1+\sqrt{\tan x}}\, dx$ dk eY; g %

(A) $\frac{\pi}{2}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{6}$ D) buea l dkbz Hkh ugh ga

150. lekdy $\int_0^\infty \int_0^\infty e^{-x^2} e^{-y^2}\, dx\, dy$ dk eY; g %

(A) $\sqrt{\frac{\pi}{2}}$ (B) $\sqrt{\pi}$ (C) π D) buea l dkbz Hkh ugh ga

151. $y = x^2$ vdj $y^2 = x$ o/k }kjk c¼ {k=kQy ij lekdy $\iint (x^2 + y^2)\, dx\, dy$ dk eY; g%

(A) $\frac{6}{35}$ (B) $\frac{2}{3}$ (C) $\sqrt{\pi}$ D) buea l dkbz Hkh ugh ga

152. ?kkr J.kh $\sum \frac{n^2}{n!}$ dk vfHklj.k R dk 0;kk/ g%

A) 0   B) 1   C) 2   D) buea l dkbz Hkh ugh ga

153. n'keyo l[;k 1.23657657657657...... cjkcj g ifje; l[;kk%

(A) 123/99   (B) 1235/9990   (C) 123657/100000   (D) 123534/99900

154. yd Ldy e 20 vè;kid ga tk xf.kr vFkok Hkkfrdh i<krs gA bue l] 12 xf.kr i<krs ga vkj 4 xf.kr vkj Hkkfrdh fdru vè;kid i<rs gA doy Hkkfrdh fdru vè;kid i<krs g%

A) 12   B) 8   C) 16   D) buea l dkbz Hkh ugh ga

155. 1 l 500 rd fdru i.kkd 3]5 vkj 7 e l de l de yd }kjk Hkkÿ; g%

A) 271   B) 266   C) 337   D) buea l dkbz Hkh ugh ga

156. lV $S = \{2 \sin x - 3 \cos x\}$ dh sup. g %

(A) $\sqrt{11}$ (B) $\sqrt{12}$ (C) $\sqrt{13}$ D) buea l dkbz Hkh ugh ga

157. fu/kfjr dj fd x d fdu eY;k d fyy Qyu $y = x^4 - \frac{4x^3}{3}$ c< jgk g%

(A) $1 \le x \le 3$ (B) $x \le 1$ (C) $-\infty \le x \le \infty$ (D) $x \ge 1$

158. lhek $\lim_{n \to \infty} (n)^{\frac{1}{n}}$ dk eY; g%

(A) 1   (B) e (C) $\frac{1}{e}$ D) buea l dkbz Hkh ugh ga

159. yd "kUdk >hy e iRFkj Qdk tkrk g vkj rjx oÙk e 5cm s^{-1} dh xfr l pyrh gA yd {k.k ij tc oÙkdkj rjx dk 0;kkk/ 8cm g] rk ifjc¼ {k=k fdruh rth l c< jgk g%

(A) 40 π cm² s^{-1} (B) 80 π cm² s^{-1} (C) 60 π cm² s^{-1} D) buea l dkbz Hkh ugh ga

160. ;fn $C_r^n = \frac{n!}{r!(n-r)!}$ rk $C_r^n + C_{r-1}^n$ dk tkM cjkcj g%

(A) C_r^{n+1} (B) C_{r+1}^n (C) C_{r+1}^{n+1} D) buea l dkbz Hkh ugh ga

161. ;fn z_1, z_2 nk xj&'kU; lfEeJ l[;ky g rkfd $|z_1 + z_2| = |z_1| + |z_2|$ rk $\arg(z_1) - \arg(z_2)$ cjkcj g%

(A) π (B) $-\pi$ (C) 0   (D) 1

162. $z^3 + 2z^2 + 2z + 1 = 0$ vkSj $z^{1985} + z^{100} + 1 = 0$ lehdj.k dks lkef ey g\

(A) $-\omega, -\omega^2$ (B) $1, \omega, \omega^2$ (C) $-1, \omega, \omega^2$ (D) ω, ω^2

163. oDVj $-4\hat{i} + 5\hat{j}$ dks 180^0 dh dk.k }kjk ifr&nf{k.kkoÙkZ ?kek fn;k tkrk gS vkSj $1\frac{1}{2}$ xuk Qyk fn;k tkrk gSA uy cu oDVj dk vu:i lfEeJ l[;k gS\

(A) $6 - \frac{15i}{2}$ (B) $-6 + \frac{15i}{2}$ (C) $6 + \frac{15i}{2}$ D) bue l dkbZ Hkh ugh g

164. ;fn $|z^2 - 1| = |z|^2 + 1$, rks z fdl ij fLFkr gksxk\

A) oÙk   B) okLrfod v{k   C) dkYifud v{k   D) bue l dkbZ Hkh ugh g

165. yd l?/h j[kk $iz = \bar{z}$ es lfEeJ l[;k $\frac{4+3i}{1+2i}$ dk ijkoru g\

(A) $1 - 2i$ (B) $4 - 3i$ (C) $3 + 4i$ (D) $2 + i$

166. ;fn $|z + 4| = 3$ rks $|z + 1|$ dk vf/dre eY; g\

A) 10   B) 4   C) 0   D) 6

167. $0, 1, 2, \ldots, n$ l[;kvks dh oxks dk vkSlr g\

(A) $\frac{1}{2} n (n+1)$ (B) $\frac{1}{6} n (2n+1)$ (C) $\frac{1}{6} (n+1)(2n+1)$ D) bue l dkbZ Hkh ugh g

168. iakp i{k.kks dk ekè; 4 gS vkSj budk iljk.k 5·2 gSA ;fn bue l rhu 1]2]6 g] rks vU; nks g\

A) 2,9   B) 5,6   C) 2,10   D) 4,7

169. vkofÙk forj.k e] ekè; vkSj ekfè;dk dk Øe'k 21 vkSj 22 g] rks bldk cgyd yxHkx g\

A) 20.5   B) 25.5   C) 24   D) 22

170. 100 i{k.kks dk ekè; 45 gS ckn e ekyye gvk fd 19 vkSj 31 nks i{k.kks dks 91 vkSj 13 d :Ik e xyr fjdkMZ fd;k x;k FkkA rks lgh ekè; g\

A) 44.46   B) 44   C) 45   D) bue l dkbZ Hkh ugh g

171. $C_0^{2n+1}, C_1^{2n+1}, C_2^{2n+1}, \ldots, C_n^{2n+1}$ dk AM g\

(A) $\frac{2^n}{(n+1)}$ (B) $\frac{2^{2n}}{(n+1)}$ (C) $\frac{\frac{n}{2}}{n}$ D) bue l dkbZ Hkh ugh g

172. ;g lHkkouk fd 5 lnL;ks d yd ifjokj e] nks lnL;ks dk tUefnu Bhd Bhd brokj dks g] g\

(A) $\frac{12 \times 5^3}{7^5}$ (B) $\frac{10 \times 6^2}{7^5}$ (C) $\frac{2}{5}$ (D) $\frac{10 \times 6^3}{7^5}$

173. yd crjrhc Øe e fcuk nksgjky 1]2]3]4]5 vdk dk i;kx l yd 5 vdk dh l[;k cukbZ tkrh gSA og l[;k 4 }kjk HkkÎ; gS] bldh lHkkouk g\

A) 3/5   B) 18/5   C) 1/5   D) 6/5

174. yd flDdk dks 3 ckj mNkyk tkrk gSA vodfYkd rkj ij fpÙk vkSj iV vku dh lHkkouk g\

A) 1/4   B) 1/8   C) 1/2   D) 3/8

175. 22&oh 'krkCnh e ;knïPNd <x l puh yd o"k e 53 brokj gkus dh lHkkouk g\

A) 3/28   B) 5/28   C) 7/28   D) bue l dkbZ Hkh ugh g

176. vody lehdj.k $xdy - ydx = \sqrt{x^2+y^2}\, dx$ dk gy g%
(A) $y + \sqrt{x^2+y^2} = cx$
(B) $y + \sqrt{x^2+y^2} = cx^2$
(C) $y - \sqrt{x^2+y^2} = xc^2$
(D) buel dkbi Hkh ugh gi

177. $ydx - xdy = 0$ di fyy lekdyd Qyu g%
(A) $\frac{x}{y}$　(B) $\frac{y}{x}$　(C) $\frac{1}{x^2+y^2}$　D) buel dkbi Hkh ugh gi

178. $3i + 4j - 5k$ dh fn'kk esa fcUnq (1]2]3) ij $\Psi(x, y, z) = xy^2 + 4xyz + z^2$ dk fn'kkRed 0;qRiknd g%
(A) $\frac{78}{5\sqrt{2}}$　(B) $\frac{218}{5\sqrt{2}}$　(C) $\frac{148}{5\sqrt{2}}$　D) buel dkbi Hkh ugh gi

179. yd d.k o0 $x = t^3 + 1, y = t^2$ and $z = 2t + 5$ di lkFk pyrk gi tgk ij t le; gA $v = i + j + 3k$ fn'kk esa t=1 ij ox dk ?kVd gksxk%
(A) $\sqrt{12}$　(B) $\sqrt{13}$　(C) $\sqrt{10}$　(D) $\sqrt{11}$

180. oDVjli $a, \bar{b}$ and e di vxHkkxksa }kjk cukbi f=kHkqt dk {ks=kQy g%
(A) $\frac{1}{2}(a - \bar{b})(a - e)$　(B) $\frac{1}{2}|(a - \bar{b})\times(a - e)|$　(C) $\frac{1}{2}|a \times \bar{b} \times e|$　D) buel dkbi Hkh ugh gi

181. ;fn $r = xi + yj + zk$ rks $div.\ \overline{r3}$ dk eY; gksxk%
A) 1　B) 2　C) 0　D) buel dkbi Hkh ugh gi

182. curl (grad f) i.e. $\nabla \times \nabla f$ dk eY; cjkcj g%
(A) 1　(B) $\nabla^2 f$　(C) $\nabla f \cdot \nabla f$　(D) 0

183. (-3, 1, 6) fcUnq ij $x^2 + y - z = 4$ lery lrg di fyy ;fUkV lkekU; oDVj ekye djk%
(A) $\frac{-6i + j - k}{\sqrt{38}}$　(B) $\frac{-i + j - k}{\sqrt{3}}$　(C) $\frac{-i + 2j - k}{\sqrt{6}}$　D) buel dkbi Hkh ugh gi

184. (1,1) fcUnq ij $y^2 = x$ vkj $x^2 = y$ oØks dk ifrNsn dk.k ekye djk%
(A) $sin^{-1}\frac{3}{4}$　(B) $tan^{-1}\frac{3}{4}$　(C) $tan^{-1}\frac{4}{5}$　D) buel dkbi Hkh ugh gi

185. Qyu $f(x) = 3x^4 + 4x^3 - 12x^2 + 12$ di lhfer vf/dre eY; g%
A) 1　B) 2　C) -2　D) 0

186. vody lehdj.k $\frac{d^2y}{dx^2} + 5\left(\frac{dy}{dx}\right)^3 + 9y = 0$ dk ?kkr g%
A) 3　B) 1　C) 2　D) 5

187. vody lehdj.k $(y + x^3)\, dx + (x + 10y^3)\, dy = 0$ dk lekdU; gy g%
(A) $4xy + x^4 + 10y^4 = c$
(B) $4xy + x^4 + y^4 = c$
(C) $4xy + y^4 = c$
D) buel dkbi Hkh ugh gi

188. gjd le?kkso lehdj.k $f(x, y, z) = 0$ fu:fir djrk g%
A) eyfcUni ij dUni lfgr xksyk　B) eyfcUni ij dUni lfgr 'kdq
C) cyu　D) buel dkbi Hkh ugh gi

189. eyfcUn l xtjrh lHkh j[kkvksa dk vody lehdj.k gS
(A) $y = \sqrt{x}\dfrac{dy}{dx}$ (B) $\dfrac{dy}{dx} = x + y$ (C) $\dfrac{dy}{dx} = y - x$ D) buesa l dksbh Hkh ugha gS

190. G. P. 3, $\dfrac{3}{2}$, $\dfrac{3}{4}$, ..., ds fdrus inksa dh t:jr gS fd tksM $\dfrac{3069}{512}$ gks tky

A) 8   B) 10   C) 9   D) buesa l dksbh Hkh ugha gS

191. ;fn f=kHkqt ds "kh"kZyEc AP esa gS] rks f=kHkqt dh Hkqtk;sa fdl esa gS%
A) GP   B) AP   C) HP   D) AG

192. vdxf.krh; J.kh es vkjHk vkj var l lekrjkyh inksa dk tksM cjkcj gS%
A) vfre in   B) igyk in   C) nljk in   D) igy vkj vfre in dk tksM

193. ;fn $\log 2$, $\log(2^n - 1)$, $\log(2^n + 3)$ AP, esa gS] rks n cjkcj gS%
(A) $\log_2 5$ (B) $\log_3 5$ (C) 5 (D) 2^5

194. n ?kVdksa lfgr ifjfer lV ds mi&lVksa dh l[;ky gS%
(A) 2^n (B) $n!$ (C) n^2 (D) n^n

195. ;fn $\cos^2 A + \cos^2 C = \sin^2 B$ rks f=kHkqt ABC gS%
A) leHkqt   B) lekdk.k   C) lef}ckgq   D) buesa l dksbh Hkh ugha gS

196. ekuk ysa $R = \{ (x, y) \mid x + 2y = 8 \}$ ℕ, ij lc/ gS] rks R dk ikUr gS%
(A) {1, 2, 3}   (B) {1, 2, 3, 4, 5, 6}   (C) {2, 4, 6}   (D) {1, 3, 5}

197. ;fn ω bdkbh dk ?kuey gS] rks ω cjkcj gS%
(A) 3 (B) $\dfrac{1-i}{\frac{\sqrt{3}}{2}}$ (C) $\dfrac{1+i\sqrt{3}}{2}$ (D) $\dfrac{-1+i\sqrt{3}}{2}$

198. ;fn $x^2 - 3\,|x| + 2 < 0$ rks x fdl l lcf/r gS%
(A) $(-2, -1) \cup (1, 2)$ (B) $(-2, 1)$ C) $(-2, 2)$ D) buesa l dksbh Hkh ugha gS

199. fuEukafdr esa lc l cMk vrjky] ftl ds fyy $x^{12} - x^9 + x^4 - x + 1 > 0$ gS%
(A) $(-4, 0)$ (B) $(0, \infty)$ (C) $(-4, 4)$ (D) $(-100, 100)$

200. $\sin(\cot^{-1} x)$ dk eY; gS %

(A) $\sqrt{1 + x^2}$ (B) x (C) $\dfrac{1}{\sqrt{1+x^2}}$ (D) $\dfrac{1}{x}$

ROUGH WORK

Instructions :

1. Write your roll number on the Question Booklet and also on the OMR Answer Sheet only in the space provided and nowhere else.

2. Enter the Question Booklet Number and Series on the OMR Answer Sheet by darkening the corresponding bubbles with Black/Blue Ball Point Pen only.

3. To open the Question Booklet, remove the Staple Pin gently.

4. Check that the Question Booklet contains 200 Objective Type questions with multiple choice answers. In case of any discrepancy, inform the Invigilator within 10 minutes of the start of test.

5. Each question has four alternative answers A, B, C & D, of which only one is correct. Darken only one bubble A, B, C or D, whichever you think is the correct answer, on the OMR Answer Sheet with BLACK/BLUE BALL POINT PEN only.

6. All questions are of 1 mark each. **THERE IS NEGATIVE MARKING**. 1/4 marks will be deducted for every wrong answer.

7. Rough work is to be done on the question booklet only.

8. Do not make any identification mark on the OMR Answer Sheet or Question Booklet.

9. The Answer Sheet is designed for computer evaluation. If the instructions are not followed properly, the candidate alone shall be responsible for the resultant loss so caused.

10. After the test, hand over the Question Booklet and OMR Answer Sheet to the Invigilator on duty.

11. Telecommunication equipments, such as calculators, pager, cellular phone, wireless & blue tooth devices etc. and weapons are not permitted inside the examination hall.

12. Nothing is to be copied/noted from the given OMR Answer Sheet and Question Booklet, and be taken out of the Examination Hall. Any candidate found doing so would be expelled from the examination.

13. A candidate who creates disturbance of any kind or changes his/her seat, or is found in possession of any paper possibly of any assistance, or found giving or receiving assistance, or found using any other unfair means during the examination will be expelled from the examination. The decision of the Observer shall be final.

14. The candidates will not be allowed to leave the Examination Hall before the expiry of time.

Key PGT(MATHS-9) 1.6.2014

Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.
1	B	41	D	81	C	121	D	161	C
2	D	42	A	82	D	122	C	162	D
3	A	43	C	83	C	123	C	163	A
4	B	44	B	84	C	124	A	164	C
5	D	45	C	85	B	125	B	165	A
6	B	46	A	86	D	126	C	166	D
7	D	47	D	87	A	127	D	167	B
8	A	48	C	88	B	128	B	168	D
9	C	49	B	89	D	129	A	169	C
10	D	50	D	90	A	130	C	170	A
11	C	51	A	91	C	131	D	171	B
12	D	52	B	92	A	132	B	172	D
13	D	53	D	93	C	133	C	173	C
14	B	54	C	94	D	134	D	174	A
15	D	55	D	95	A	135	A	175	B
16	B	56	D	96	B	136	C	176	B
17	C	57	A	97	C	137	A	177	C
18	D	58	B	98	A	138	C	178	A
19	A	59	B	99	B	139	B	179	D
20	C	60	D	100	D	140	D	180	B
21	A	61	A	101	A	141	A	181	C
22	B	62	B	102	B	142	B	182	D
23	C	63	C	103	C	143	A	183	A
24	D	64	B	104	D	144	C	184	B
25	A	65	C	105	A	145	B	185	D
26	B	66	B	106	B	146	A	186	C
27	C	67	D	107	C	147	C	187	A
28	D	68	B	108	D	148	D	188	B
29	A	69	C	109	A	149	B	189	D
30	B	70	D	110	B	150	C	190	B
31	C	71	B	111	C	151	A	191	C
32	D	72	C	112	D	152	B	192	D
33	A	73	A	113	A	153	D	193	A
34	B	74	A	114	B	154	B	194	A
35	C	75	A	115	C	155	A	195	B
36	D	76	C	116	D	156	C	196	C
37	A	77	B	117	A	157	D	197	D
38	B	78	B	118	B	158	A	198	A
39	C	79	A	119	C	159	B	199	B
40	D	80	B	120	D	160	A	200	C