1. वर्तमान शिक्षा व्यक्ति को जीवन से अलग करती है क्योंकि
   (1) यह जीवन का समय भाग नहीं है
   (2) यह व्यक्ति को दाना-पानी देने में असमर्थ है
   (3) यह व्यक्ति को नौकरी देने में असमर्थ है
   (4) यह व्यक्ति की मूलभूत आवश्यकताओं की पूर्ति नहीं करती है

2. शिक्षा की आधुनिक संकल्पना के अनुसार, एक अध्यापक को मुख्य भूमिका निभानी चाहिए
   (1) वर्णिनक की
   (2) भिन्न की
   (3) कार्यसहभागी की
   (4) अनुदेशक की

3. एक विषय पर सर्वविभागीय एवं आधुनिकीकृत ज्ञान किस स्रोत से प्राप्त होता है?
   (1) विश्वविद्यालय
   (2) इंटरनेट
   (3) नवीनतम अकादमिक पत्रिकाएं
   (4) अन्तर्राष्ट्रीय सम्मेलन

Directions: Answer the following questions by selecting the most appropriate option:

1. Present day education cuts off the man from life because
   (1) it is not an integral part of life
   (2) it is unable to provide bread and butter to man
   (3) it is unable to provide job to man
   (4) it is unable to fulfill the basic needs of a man

2. According to modern concept of teaching, teacher should play mainly the role of a
   (1) Philosopher
   (2) Friend
   (3) Working partner
   (4) Instructor

3. Which source will provide maximum and up-to-date information about a subject?
   (1) Encyclopaedias
   (2) Internet
   (3) Latest academic journals
   (4) International conferences
4. Some students of your class have become inattentive; which strategy would you use to regain their attention?

(1) A brief physical activity
(2) Suspending the class for sometime
(3) Asking children to be attentive
(4) Sending the class out for games

5. When a teacher enters in the class room for the first time he should talk about

(1) school building
(2) school headmaster
(3) textbook
(4) himself and students

6. The education system developed by Mahatma Gandhi is known as

(1) Basic education system
(2) Vocational education system
(3) Child centred education system
(4) Handicraft education system
7. Which of the following acts of the teacher does not help in creating proper learning environment?

(1) Providing the children with feeling of security
(2) Giving the children sense of freedom
(3) Allowing children to criticize other children
(4) Making children fearless

8. Which of the following is not the cause of truancy of students?

(1) Uninteresting school programme
(2) Teacher’s partial behaviour
(3) Too much home work
(4) Too many holidays

9. When a teacher gives the learner the sense of success, he is using

(1) the law of readiness
(2) the law of practice
(3) the law of effect
(4) the law of mental set

10. According to Naturalism, the centre of education should be

(1) Teacher
(2) Child
(3) Curriculum
(4) None of the above
11. A student of your class is in the habit of telling a lie. How would you deal with him?
   (1) tell him not to tell a lie
   (2) punish him
   (3) just ignore him
   (4) will take him into confidence and counsel

12. The best provision for the education of the talented children is
   (1) Ability grouping
   (2) Giving double promotion
   (3) Enriching programme
   (4) Providing special schools

13. As per National Policy on Education, 1986 percentage of national production must be invested on education
   (1) 6%    (2) 10%
   (3) 4%    (4) 3%

14. School administration assigned you some extra classes which are meant for weak students. What will be your reaction as a teacher?
   (1) Protest and not take classes
   (2) Request reconsideration of decision
   (3) Tell student to prepare on their own
   (4) Accept it as your responsibility
15. Study the following statements about lecturing as a method of teaching:

A. It is an efficient method of giving information.

B. It is an efficient way of making students think critically.

Which of these statements is/are correct?

(1) A only  (2) B only  
(3) Both A & B  (4) Neither A nor B

16. Before starting to teach a teacher must

(1) make the students stand  
(2) make the students mentally ready  
(3) clean the black board  
(4) ask the students to keep silence

17. While teaching if you realize that what you have taught is not correct, you would

(1) leave the topic unfinished and shift to another  
(2) tell the students that it was a mistake and correct it  
(3) divert the attention of the students  
(4) Scold students
18. Salim is very good in Music but is not able to do well in Mathematics. As a teacher of Mathematics, how will you handle Salim?

(1) Tell him that Music does not have a future
(2) Tell him to leave Music and study Maths
(3) Call his parents and talk to them
(4) Tell him that he can do well in Mathematics and explain the Mathematical concepts to him

19. A talented child can not be identified through observation because

(1) observation is not an objective technique
(2) observation is a subjective technique
(3) observation is used by those who are expert
(4) All of the above

20. While delivering a long lecture what a teacher should do?

(1) Should break in between
(2) Should speak continuously
(3) Should ask questions in between
(4) Should change own posture
21. A girl of your class is interested in sports and wants to pursue her career in sports. What will you suggest her?

(1) Girls have no future in sports

(2) She should put in hard work to achieve her ambition

(3) Ask her to be focused only in academics

(4) Girls can not excel in sports as they are not physically strong

22. Which is not true about intelligence?

(1) Intelligence is the ability to learn

(2) Intelligence is the ability to solve problems

(3) Intelligence is the ability to work hard

(4) Intelligence is the ability to adapt to novel situations

23. The most effective evaluation method is

(1) Annual examination method

(2) Examination with book method

(3) Semestral method

(4) Objective question paper method
24. Match the following:

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<th>A. Slide Projector (i) Visual mean</th>
<th>B. TV (ii) Audio mean</th>
<th>C. Chart (iii) Audio-visual mean</th>
<th>D. Voice Recorder (iv) Projective mean</th>
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25. The term 'comprehensive evaluation' means

(1) Evaluation conducted at several points of time
(2) Evaluation by a group of teachers
(3) Several test for long duration
(4) Evaluation of curricular & co-curricular aspects of pupil growth

26. The capacity to arrange objects serially is developed in the child when he is in

(1) Sensory motor stage
(2) Pre-operational stage
(3) Concrete operational stage
(4) Formal operational stage
27. For enhancing the ability of transfer of learning the teacher should **not**
   (1) encourage self activity
   (2) encourage the habit of rote learning
   (3) develop the habit of learning by insight
   (4) emphasise on generalization

28. When a child mispronounces a word, what will you do?
   (1) Tell - don’t say like this
   (2) Tell the correct pronunciation
   (3) Rebuке the child for wrong pronunciation
   (4) Ignore

29. The basis of effective and successful leadership is
   (1) Appreciation
   (2) The interest of entire group
   (3) Service of group
   (4) Self interest

30. How the virtue of good citizen can be inculcate among students?
   (1) By lecturing them on good citizenship
   (2) By familiarising them with national heroes
   (3) By assigning them some community service work
   (4) By familiarising them with Indian Constitution
31. निम्न में से ‘मुख्त’ के पर्यायवाची शब्दों का समूह है
(1) मंदाकिनी, भारीरथी, निपथग न
(2) कृष्ण, निपथग, अरकना
(3) मंदाकिनी, कलिन्दी, तरणि
(4) सरिता, शैलजा, तरणिनी

32. निम्न शब्दयुग्म का सही अर्थ चुनिए
‘लगन - लगन’
(1) उलझाह - मुहूर्त
(2) मुहूर्त - उलझाह
(3) एक कैवाहिक अवस्थान - लगाव
(4) एक तारा - निलिचित समय

33. ‘पश्चाय’ का अर्थ है
(1) मार्ग का भोजन (2) मार्ग
(3) पथ प्रदर्शक (4) अनुचर

34. ‘न’ प्रत्यय से निर्मित शब्द चुनिए
(1) खून (2) चलन
(3) दातुन (4) पतलून

35. कौन-सा शब्द विशेषण नहीं है?
(1) सजन (2) जल
(3) जलमय (4) जलीय

निर्देश: अथवा इत्यादि गद्यांश को पढ़कर दिये गये प्रश्नों (प्रश्न सं 36-39) के उत्तर सबसे उचित विकल्प चुनकर वीजिते हैं।

36. ‘दुर्गिवार’ का विलोम है
(1) कठिन (2) सरल
(3) आशंका गुण (4) पीड़ा दामक

37. मुनुष्ठ की नियति है
(1) दुखों में निमन्न रहना
(2) दुख व सुख दोनों की अपरिहार्यता
(3) निरंतर भीमते रहना
(4) गड्ढाओं का शिकार होना
38. ‘मंगल नाना के नाली’ से लेखक का ताल्पर्व है
(1) बहुत आशावादी होना
(2) बहुत निराशावादी होना
(3) बहुत वैधव्य होना
(4) बहुत उत्साहित होना

39. ‘सत अवध समाना’ का भाव है
(1) सी युगों के समान
(2) सात युगों के समान
(3) अल्प ऐठर्व युक्त
(4) उपर्युक्त में से कोई नहीं

निर्देश : अभ्योविचित गाध्य को पढ़कर दिये गये प्रश्नों
(प्रश्न सं. 40-44) के उत्तर सबसे उचित विकल्प
बुझकर बीजिए:

शिरीष वसन्त के आगमन के साथ लहक उठता है,
आवाज तक लौटिया रूप से मुस्त बना रहता है।
मन रम गया तो भावों में भी निर्वात फूलता रहता है।
इस प्रकार शिरीष कालनीय अवस्था की शांति जीवन की
अजीबता का मनोप्रकाश करता रहता है। शिरीष का फूल
संस्कृत साहित्य में बहुत कोमल माना गया है। शिरीष के
फूलों की कोमलता देखकर परम्परी कवियों ने समझा कि
उसका सब कुछ कोमल है। यह फूल है। इसके फल
इतने फुलघुत होते हैं कि नये फूलों के निकल आने पर
भी स्थान नहीं छोड़ते। जब तक नये फल पते मिलकर
विकाशकर उन्हें बहर नहीं कर देते तब तक वे डंगे
रहते हैं। वसन्त के आगमन के साथ जब समीत
वनस्पति पृथ्वी-पत्र से मनरित होती रहती है, शिरीष के
पुराने फल बुरी तरह खड़खड़ते रहते हैं। पुराने इनको
देखकर उन नेताओं की बात बद्दा आती है, जो किसी
प्रकार जमाने का रूप नहीं फहराते और जब तक नयी
पौधे के लोग उन्हें थक्का मारकर निकल नहीं देते तब
tक तक जमे रहते हैं।

40. ‘जो फरा सो धरा’ में तुलसीदास ने किस और
संकेत किया है?
(1) जीवन की शांतिता पर
(2) जीवन की सहारता पर
(3) जीवन की श्रद्धा सुधारता पर
(4) उपर्युक्त सबसे पर

41. संस्कृत साहित्य में किसे कोमल माना गया है?
(1) शिरीष के फलों को
(2) शिरीष के फूलों को
(3) शिरीष के पत्रों को
(4) शिरीष की शाखाओं को

42. ‘निर्गत’ का विलोम है?
(1) अपाध (2) आपाध
(3) निपाध (4) प्रगाढ़

43. लेखक के अनुसार नेताओं के साथ तुल्नीय है
(1) शिरीष के फल
(2) शिरीष के फूल
(3) वसन्त की रुद्रा
(4) पतंग की रुद्रा

44. शिरीष पुष्प का पत्तन योग्य है?
(1) जेठ में (2) आपाध में
(3) भाद्र में (4) वसन्त में
45. हिंदी शब्दकोश के अनुसार निम्न शब्दों का सही 
क्रम है

(1) ज्वाल, ज्वाल, ज्येष्ठ, जौहरी
(2) जौहरी, ज्वाल, ज्येष्ठ, ज्वाला
(3) ज्येष्ठ, ज्वाला, जौहरी, ज्वालन
(4) जौहरी, ज्येष्ठ, ज्वाला, ज्वालन

46. हमारे स्कूल में कई सुचिन तेंदुलकर हैं : इसलिए 
क्रिकेट में हम सदैव जीतते हैं। रेखांकित शब्द में 
तंत्र है

(1) अंतिमवाचक  (2) भाववाचक
(3) जानिएवाचक  (4) परिभाषा वाचक

47. ‘अनु ग्रह’ का सही शब्द है

(1) अनिश्चय  (2) अनिश्चित
(3) अनुस्पत  (4) अनिश्चित

48. संयुक्त अंतर्जन ‘श’ की व्यंजनाओं हैं

(1) ज् + अ  (2) ज् + ज् + अ
(3) ज् + न  (4) ज् + न + अ

49. ‘प्रवचन’ में उपसंध है

(1) प  (2) पः
(3) प्र  (4) प्रय

50. निम्न में से चर्चा की वृद्धि से शुद्ध शब्द चुनिए

(1) एकु  (2) संग्रहीत
(3) कोइलापिनी  (4) तुरपरान्त

51. ‘हर’ शब्द के अर्थों का सही समूह है

(1) विवेक, सिंह, गज
(2) विवेक, सिंह, बंदर
(3) अवश, बादल, विवेक
(4) विवेक, श्रव, नारद

52. ‘मुद्रासा’ में समात है

(1) तत्पुरुष  (2) द्रव्य
(3) बाह्यविचि  (4) अव्ययीभाव

53. दिये गये शब्द के लिए उचित पर्यायवाची चुनें

‘सरस्वती’

(1) शारदा  (2) वनिता
(3) नलिनी  (4) सुरक्षित

54. ‘दीत कारी रोडी’ मुहावरे का अर्थ है

(1) परस्पर धनियता होना
(2) परस्पर प्रतिबन्ध होना
(3) परस्पर धीर होना
(4) परस्पर ईच्छा होना

55. कीन-सा वाक्य मिश्र वाक्य नहीं है?

(1) शोभा मुझसे कहती है कि जाओ।
(2) एक जोर देखा जो भारी भरकम था।
(3) तुम इससे कैसे हो क्योंकि तुम मेहनती हो।
(4) दशका खुलने के कारण चोटी हो गई।

56. ‘सावन हरे न भादो सूखे’ लोकोक्ति का अर्थ है

(1) परवाह ना करना
(2) भेष योगा होना
(3) हमेशा एक हीसा रहना
(4) निर्लिप सहना

57. निम्न में से मूर्तिच्छ कर्ण है?

(1) अर  (2) इर
(3) अर  (4) एर

58. ‘प्रत्साहन’ का सब-विवेच है?

(1) प्र + उत्साहन  (2) प्र + उत्साहन
(3) प + उत्साहन  (4) प्र + साहन

59. ‘बन्ध’ शब्द का चिलोम चुनिए

(1) उर्मी  (2) उपनाल
(3) उर्मी  (4) बंतर

60. निम्न शब्दों में से तद्वभव शब्द है?

(1) पापाण  (2) परख
(3) प्रहरी  (4) पृष्ट
61. 'He hardly works.'
   The underlined word means
   (1) arduously  (2) mostly
   (3) scarcely   (4) strenuously

62. Choose the correct word for the following phrase:
   'Fear of foreigners'
   (1) Hydrophobia
   (2) Xenophobia
   (3) Homophobia
   (4) Claustrophobia

63. Give one word for 'That which can be eaten.'
   (1) edible     (2) chewable
   (3) palatable  (4) digestive

64. She had a headache; otherwise she .............. with me.
   (1) would come
   (2) would have come
   (3) came
   (4) will come

65. Which sentence is incorrect?
   (1) I left without any one knowing.
   (2) I hope you will excuse my leaving early.
   (3) As he was going up the hill, he saw an old temple.
   (4) I dislike your behaving in this way.

66. Complete the given sentence:
   'The human body is like an engine. It requires fuel to ......'
   (1) work     (2) keep it going
   (3) run from (4) keep it on action

67. He .......... not oppose me.
   (1) dare     (2) dares
   (3) did dare (4) was dare

68. Choose the correct Article for the blank:
   'Give me ........ yellow teapot which is on the table.'
   (1) a        (2) an
   (3) the      (4) Zero article

69. They told me that he .......... in Jaipur.
   (1) were     (2) was
   (3) will be  (4) can be

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P. T. O.
70. His score is higher than ........
   (1) you    (2) yours
   (3) your    (4) yourself

71. Choose the correct *Pronoun* for the blank:
   'He is the only person ........ can help you.'
   (1) who    (2) that
   (3) he    (4) which

72. Choose the correct *Preposition* for the blank:
   'One must abide ........ one's promise'.
   (1) in    (2) by
   (3) for    (4) to

73. I have been here ............. Monday.
   (1) from    (2) since
   (3) for    (4) till

74. Change the *Voice* of the following sentence:
   'We were let go.'
   (1) They let us go.
   (2) We were let to go.
   (3) They were let us to go.
   (4) Let us go.

75. Which word is wrongly spelt?
   (1) believe    (2) relieve
   (3) brief    (4) decieve

*Directions*: Read the passage given below and answer the questions that follow (Q. Nos. 76 to 85) by selecting the *most appropriate* option:

Conversation is indeed the most easily teachable of all arts. All you need to do in order to become a good conversationalist is to find a subject that interests you and your listeners. There are, for example, numberless hobbies to talk about. But the important thing is that you must talk about the other fellow's hobby rather than your own. Therein lies the secret of your popularity. Talk to your friends about the things that interest them and you will make your reputation for good fellowship, charming wit and a brilliant mind. There is nothing that pleases people more than your interest in their interest.

It is as important to know what subject to avoid, as what subjects to select for good conversation. If you don't want to be set down as a wet blanket or a bore, be careful to avoid certain unpleasant topics. Avoid talking about yourself, unless you are asked to do so. People are interested in their problems, not in yours. Sickness and death bore everybody. The only one who willingly listens to such talk is a doctor, but he gets paid for it. To be a good conversationalist you must know not only what to say but how to say it. Be civil and modest. Don't overemphasize your own happiness. Be mentally quick and witty, but don't hurt others with your wit.
Finally, try to avoid mannerism in your conversation. Don't bite your lips, or click your tongue, or roll your eyes, or use your hands excessively as you speak.

76. The secret of your popularity lies in

(1) cultivating good hobbies
(2) being able to converse about what is of interest to the listener
(3) having a knowledge about a large variety of hobbies
(4) talking about your hobby

77. The secret of becoming a good conversationalist is

(1) talking about problems
(2) avoiding mannerism in conversation
(3) using your wit
(4) knowing what to say and how to say it

78. A doctor is the only one who readily listens to conversation about sickness because

(1) it is his job and he earns from that
(2) he is not interested in anything's else
(3) sickness and death interest everybody
(4) he is a kind person

79. Courtesy and politeness are recommended through which word in the passage

(1) willingly
(2) civil
(3) overemphasize
(4) None of the above

80. To become a good conversationalist, you need to

(1) find a good teacher
(2) find an interesting subject
(3) practice the art of conversation
(4) converse about what you and the listener find interesting

81. You should avoid talking about yourself because

(1) you are a bore
(2) it will make you appear unpleasant
(3) you don't know how to choose the subject of a good conversation
(4) people are not interested in you or your problems

82. ‘Mannerism’ in the passage means

(1) not hurting others with your wit
(2) having good manners
(3) gesture or way of speaking typical to a person
(4) using polite language
83. Which word in the passage is the *opposite* of 'arrogant'?
   (1) witty
   (2) mentally quick
   (3) conversationalist
   (4) modest

84. What pleases people most is
   (1) your reputation for good fellowship
   (2) your clever use of language
   (3) your taking interest in what is of interest to them
   (4) your brilliant mind

85. Which word in the passage means to strongly stress that something is particularly important?
   (1) overemphasize
   (2) mentally
   (3) excessively
   (4) mannerism

86. I am ........... after ten years in the business.
   (1) wise
   (2) wisest
   (3) more wise
   (4) wiser

87. Choose the correct *Adverb* for the blank:
   'The sun ........ rises in the east'.
   (1) sometimes
   (2) often
   (3) always
   (4) rarely

88. The dumb ........ not speak.
   (1) has       (2) does       (3) is       (4) do

89. Choose the correct *Phrase* for the blank:
   'The craft in which I sailed rapidly ........ the open sea.'
   (1) made out
   (2) made up
   (3) made for
   (4) made off

90. He is poor, ........ he is satisfied with his situation.
   (1) yet       (2) but       (3) so       (4) while
91. खेल के किसी मैदान में \( x \) मीटर एवं \( 2x \) मीटर लंबे दो खबरे गाड़े हैं। यदि इनके आधार के बीच की दूरी 36 मीटर हो तथा इनके शीर्षों के बीच की दूरी 39 मीटर हो, तो \( x \) का मान है

(1) 10 मीटर  (2) 15 मीटर  
(3) 20 मीटर  (4) 25 मीटर

92. त्रिभुजों \( ABC \) और \( DEF \) में, \( AC = DF, \) 
\( BC = EF \) और \( \angle ABC = \angle DEF = 90^\circ, \) तो दोनों त्रिभुज सर्वांगसम होंगे

(1) RAS नियम से  
(2) SAS नियम से  
(3) ASA नियम से  
(4) SSS नियम से

93. निम्न में से कौन-सी अपरिमेय संख्या है?

(1) \( \left( \sqrt{3} + 3 \right)^2 \) 
(2) \( (5-\sqrt{5})(5+\sqrt{5}) \) 
(3) \( \frac{\sqrt{2} \cdot \sqrt{6}}{2\sqrt{3}} \) 
(4) इनमें से कोई नहीं

91. Two poles \( x \) m and \( 2x \) m high stand upright in a play ground. If their feet are 36 m apart and the distance between their tops is 39 m, then value of \( x \) is

(1) 10 m  (2) 15 m  
(3) 20 m  (4) 25 m

92. In triangles \( ABC \) and \( DEF, AC = DF, \) 
\( BC = EF \) and \( \angle ABC = \angle DEF = 90^\circ, \) then both triangle is congruent by

(1) RAS rule  
(2) SAS rule  
(3) ASA rule  
(4) SSS rule

93. Which of the following is irrational number?

(1) \( \left( \sqrt{3} + 3 \right)^2 \) 
(2) \( (5-\sqrt{5})(5+\sqrt{5}) \) 
(3) \( \frac{\sqrt{2} \cdot \sqrt{6}}{2\sqrt{3}} \) 
(4) None of these
94. The length of the common chord of the circles \((x-a)^2 + y^2 = a^2\) and \(x^2 + (y-b)^2 = b^2\) is

\[
\begin{align*}
(1) & \quad \frac{2ab}{\sqrt{a+b}} \\
(2) & \quad \frac{ab}{\sqrt{a^2 + b^2}} \\
(3) & \quad \frac{2a^2b^2}{\sqrt{a+b}} \\
(4) & \quad \frac{2ab}{\sqrt{a^2 + b^2}} 
\end{align*}
\]

95. The maximum value of the function \(z = 6x + 8y\), subject to the constraints \(2x + y \leq 30\), \(x + 2y \leq 24\) and \(x \geq 0, y \geq 0\), is

\[
\begin{align*}
(1) & \quad 120 \\
(2) & \quad 240 \\
(3) & \quad 60 \\
(4) & \quad 132 
\end{align*}
\]

96. The value of \(\frac{155 \times 155 \times 155 - 55 \times 55 \times 55}{155 \times 155 + 155 \times 55 + 55 \times 55}\) is

\[
\begin{align*}
(1) & \quad 55 \\
(2) & \quad 155 \\
(3) & \quad 100 \\
(4) & \quad 210 
\end{align*}
\]

97. If AM of two numbers is twice of their GM, then the ratio of the sum and difference of these numbers is

\[
\begin{align*}
(1) & \quad \pm \frac{\sqrt{3}}{2} \\
(2) & \quad \pm \frac{4}{3} \\
(3) & \quad \pm \frac{\sqrt{2}}{3} \\
(4) & \quad \pm \frac{2}{\sqrt{3}} 
\end{align*}
\]
98. The area between the curves $y^2 = 4x$ and $y = 2x$ is

(1) $\frac{1}{3}$  (2) $\frac{1}{4}$
(3) $\frac{1}{2}$  (4) $\frac{2}{3}$

99. The variance of first $n$ natural numbers is

(1) $\frac{n^2+1}{2}$
(2) $\frac{n^2-1}{12}$
(3) $\frac{(n+1)(2n+1)}{6}$
(4) $\frac{n(n+1)}{2}$

100. At what angle the hands of a clock are inclined at 15 minutes past 5?

(1) $72^{1\circ}\frac{1}{2}$  (2) $67^{1\circ}\frac{1}{2}$
(3) $58^{1\circ}\frac{1}{2}$  (4) $64^{1\circ}$

101. Function $f(x) = \frac{\sin x + \cos x}{\cos x + 2\cos x}$ is monotonically decreasing, if

(1) $ad - bc > 0$  (2) $ad - bc < 0$
(3) $ab - cd < 0$  (4) $ab - cd > 0$
102. For the inequation $\frac{x+3}{x-2} \leq 2$, the value of $x$ lies in the interval

(1) $(-\infty, \infty)$  (2) $(2, 7)$  
(3) $(7, \infty)$  (4) $[7, \infty)$

103. In the given figure, the value of $AB$ is

(1) $10$ m  (2) $20$ m  
(3) $10\sqrt{3}$ m  (4) $20\sqrt{3}$ m

104. A circle of maximum size is cut off from a rectangular card sheet of size $25$ cm $\times$ $21$ cm, then the area of remaining portion is

(1) $150$ cm$^2$  (2) $168.5$ cm$^2$  
(3) $178.5$ cm$^2$  (4) $180$ cm$^2$
105. The value of angle \((x + y)\) in the given figure is

\[ A = \begin{bmatrix} 2 & -1 \\ -1 & 2 \end{bmatrix} \]

and \(A^2 - 4A - nI = 0\), then the value of \(n\) is

(1) 3 \hspace{1cm} (2) -3 \hspace{1cm} (3) \frac{1}{3} \hspace{1cm} (4) -\frac{1}{3}

107. The domain of the function

\[ f(x) = \sqrt{\log\left(\frac{5x - x^2}{4}\right)} \]

is

(1) \((6, 8)\) \hspace{1cm} (2) \((5, 10)\) \hspace{1cm} (3) \([-1, 0]\) \hspace{1cm} (4) \((0, 5)\)
108. A man is reached from A to B with a speed of 30 km/hour and return back with a speed of 40 km/hour. If he takes total 14 hours for entire journey then distance between A to B is

(1) 240 Km  (2) 300 Km  (3) 250 Km  (4) 275 Km

109. The square root of \(-7 + 24i\) is

(1) \(\pm (-3 + 4i)\)  (2) \(\pm (4 + 3i)\)
(3) \(\pm (3 + 4i)\)  (4) \(\pm (-4 + 3i)\)

110. The median of the observations : 50, 42, 35, 2x + 10, 2x - 8, 12, 11, 8, 6 arranged in descending order is 25, then value of x is

(1) 15  (2) 14
(3) 13  (4) None of these

111. Quadratic equation corresponding to the roots \(1 + \sqrt{5}\) and \(1 - \sqrt{5}\) is

(1) \(x^2 - 2x - 4 = 0\)
(2) \(x^2 + 2x - 4 = 0\)
(3) \(x^2 - 2x + 4 = 0\)
(4) \(x^2 + 2x + 4 = 0\)
112. यदि दो इकाई सदिशों का अन्तर भी इकाई सदिश हो तो, उनके मध्य कोण है

(1) $\frac{\pi}{2}$  (2) $\frac{\pi}{3}$  
(3) $\frac{\pi}{4}$  (4) $\frac{2\pi}{3}$

113. $\Delta ABC$ में, $\angle C = 3\angle B = 2(\angle A - \angle B)$ लघुतम कोण है

(1) $\angle A$  (2) $\angle B$  
(3) $\angle C$  (4) $\angle A$ और $\angle B$ दोनों

114. यदि $x^3 - ky^3$ का एक गुणनखण्ड $(x + 2y)$ है, तो $k$ का मान है

(1) $-8$  (2) $8$  
(3) $-2$  (4) $2$

115. यदि $^n P_r = ^{n+1} P_{r+1}$ और $^n C_r = ^{n-1} C_{r-1}$ तो

(1) $n = 3, r = 2$  (2) $n = 4, r = 2$  
(3) $n = 4, r = 3$  (4) $n = 5, r = 2$

116. एक कमरे की चौड़ाई उसकी ऊँचाई से दुगुनी तथा लम्बाई की आधी है। यदि कमरे का आयतन 512 मी$^3$ है, तो कमरे की लम्बाई है

(1) 16 मी$^0$  (2) 32 मी$^0$  
(3) 12 मी$^0$  (4) 8 मी$^0$

112. If the difference of two unit vectors is also a unit vector, then the angle between them is

(1) $\frac{\pi}{2}$  (2) $\frac{\pi}{3}$  
(3) $\frac{\pi}{4}$  (4) $\frac{2\pi}{3}$

113. In a $\Delta ABC$, $\angle C = 3\angle B = 2(\angle A - \angle B)$. The smallest angle is

(1) $\angle A$  (2) $\angle B$  
(3) $\angle C$  (4) both $\angle A$ and $\angle B$

114. If $(x + 2y)$ is one factor of $x^3 - ky^3$, then value of $k$ is

(1) $-8$  (2) $8$  
(3) $-2$  (4) $2$

115. If $^n P_r = ^{n+1} P_{r+1}$ and $^n C_r = ^{n-1} C_{r-1}$, then

(1) $n = 3, r = 2$  (2) $n = 4, r = 2$  
(3) $n = 4, r = 3$  (4) $n = 5, r = 2$

116. The width is double of its height and half of its length of a room. If volume of the room is 512 m$^3$, then length of the room is

(1) 16 m  (2) 32 m  
(3) 12 m  (4) 8 m
117. \[ \tan \left( \sin^{-1} \left( \frac{4}{5} \right) \right) \] का मान है

(1) \( \frac{7}{24} \)  
(2) \( \frac{24}{7} \)  
(3) \( -\frac{7}{24} \)  
(4) \( -\frac{24}{7} \)  

118. \( x > 0 \) के लिए \( \lim_{x \to 0} \left( \frac{1}{x} \right)^{\sin x} + \left( \frac{1}{x} \right)^{\tan x} \) का मान है

(1) 0  
(2) -1  
(3) 2  
(4) इनमें से कोई नहीं  

119. यदि \( f(x) = (x + 1)^{\cot x} \), \( x = 0 \) पर संतत है, तो \( f(0) \) का मान है

(1) 0  
(2) 1  
(3) \( \frac{1}{e} \)  
(4) e  

120. यदि \( (x + 2), 4x^3 + 3x^2 - 4x + 3k \) का एक गुणनखंड है, तो \( k \) का मान है

(1) -4  
(2) 4  
(3) 3  
(4) -3  

117. The value of \( \tan \left( \sin^{-1} \left( \frac{4}{5} \right) \right) \) is

(1) \( \frac{7}{24} \)  
(2) \( \frac{24}{7} \)  
(3) \( -\frac{7}{24} \)  
(4) \( -\frac{24}{7} \)  

118. For \( x > 0 \), the value of \( \lim_{x \to 0} \left( \frac{1}{x} \right)^{\sin x} + \left( \frac{1}{x} \right)^{\tan x} \) is

(1) 0  
(2) -1  
(3) 2  
(4) None of these  

119. If \( f(x) = (x + 1)^{\cot x} \) is continuous at \( x = 0 \), then the value of \( f(0) \) is

(1) 0  
(2) 1  
(3) \( \frac{1}{e} \)  
(4) e  

120. If \( (x + 2) \) is a factor of \( 4x^3 + 3x^2 - 4x + 3k \), then the value of \( k \) is

(1) -4  
(2) 4  
(3) 3  
(4) -3  

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121. If the length of a rectangle is increased by 20% and width is increased by 5%, then what is the percentage increase in its area?

(1) 25%  (2) 26%  (3) 15%  (4) 16%

122. If one side of an Isosceles triangle is 8 cm and its perimeter is 18 cm, then its area is

(1) 15 cm²  (2) 20 cm²  (3) 12 cm²  (4) 18 cm²

123. The arithmetic mean of first ten odd natural numbers is

(1) 8  (2) 9  (3) 10  (4) -10

124. The number of all onto functions defined from \( A = \{ 1, 2, 3, \ldots, n \} \) to \( B = \{ 1, 2 \} \) is

(1) \( n \cdot p_2 \)  (2) \( 2^n - 2 \)  (3) \( 2^n - 1 \)  (4) \( 2^n + 1 \)

125. Distance between the line \( \frac{x - 1}{3} = \frac{y + 2}{2} = \frac{z - 1}{2} \) and the plane \( 2x + 2y - z = 6 \) is

(1) 9  (2) 2  (3) 3  (4) 1
126. The value of $2\sqrt{28} + 3\sqrt{7}$ is

(1) $\sqrt{4} + 3$  (2) $\sqrt{4} + 7$
(3) $4 + 3$  (4) $4 + 7$

127. If $\alpha, \beta$ are roots of $x^2 - 2x + 4 = 0$, then the value of $\alpha^3 + \beta^3$ is

(1) $-16$  (2) $8$
(3) $64$  (4) $-32$

128. If $\int \frac{dt}{\sqrt{t\sqrt{t^2 - 1}}} = \frac{\pi}{12}$, then the value of $x$ is

(1) $2\sqrt{2}$  (2) $\frac{\sqrt{3}}{2}$
(3) $2$  (4) $\pi$

129. If $P(A) = \frac{1}{4}$, $P(B) = \frac{1}{13}$ and $P(A \cap B) = \frac{1}{52}$, then the value of $P(A \cap \overline{B})$ is

(1) $\frac{4}{13}$  (2) $\frac{6}{13}$
(3) $\frac{9}{13}$  (4) $\frac{7}{13}$
130. \( \frac{\tan \theta}{\sec \theta - 1} + \frac{\tan \theta}{\sec \theta + 1} \) किसके बराबर है?

(1) cosec \( \theta \)
(2) sin \( \theta \)
(3) 2 cosec \( \theta \)
(4) 2 sin \( \theta \)

131. \( f(x) = | x - 2 | \) और \( g(x) = f [ f (x)] \), तब \( x > 20 \) के लिए \( g'(x) \) का मान है

(1) 1  
(2) -1  
(3) 0  
(4) \( e \)

132. रेखाओं \( r = \lambda k \) एवं \( r = (1-t)\hat{i} + t\hat{j} \) के मध्य लघुत्तम दूरी है

(1) \( \sqrt{2} \)  
(2) \( \frac{1}{\sqrt{2}} \)
(3) 2  
(4) 1

133. मिनट की दुई द्वारा 1 मिनट में बनाया गया कोण है

(1) 2°  
(2) 6°
(3) 15°  
(4) 20°

130. \( \frac{\tan \theta}{\sec \theta - 1} + \frac{\tan \theta}{\sec \theta + 1} \) is equal to

(1) cosec \( \theta \)
(2) sin \( \theta \)
(3) 2 cosec \( \theta \)
(4) 2 sin \( \theta \)

131. If \( f(x) = | x - 2 | \) and \( g(x) = f [ f (x)] \), then for \( x > 20 \) the value of \( g'(x) \) is

(1) 1  
(2) -1  
(3) 0  
(4) \( e \)

132. The shortest distance between lines \( r = \lambda k \) and \( r = (1-t)\hat{i} + t\hat{j} \) is

(1) \( \sqrt{2} \)  
(2) \( \frac{1}{\sqrt{2}} \)
(3) 2  
(4) 1

133. The angle framed by minute hand in a minute is

(1) 2°  
(2) 6°
(3) 15°  
(4) 20°
134. The diameter of a wheel, which makes 113 revolutions to travel 2 km 26 decameter, is

\( \frac{4}{13} \text{ m} \) \hspace{1cm} \( \frac{6}{11} \text{ m} \)

\( \frac{4}{11} \text{ m} \) \hspace{1cm} \( \frac{8}{11} \text{ m} \)

135. In the given figure lines \( l \) and \( m \) are parallel. The value of \( \angle x \) is

\( \frac{90}{135} \text{°} \) \hspace{1cm} \( \frac{85}{135} \text{°} \)

\( \frac{55}{11} \text{°} \) \hspace{1cm} \( \frac{45}{11} \text{°} \)

136. If \( \sin^{-1} x + \sin^{-1} y + \sin^{-1} z = \frac{3\pi}{2} \), 

\( -1 \leq x, y, z \leq 1 \), then the value of

\( x^{100} + y^{100} + z^{100} - \frac{9}{x^{101} + y^{101} + z^{101}} \)

is

\( 9 \) \hspace{1cm} \( 3 \)

\( 0 \) \hspace{1cm} \( -3 \)
137. The sum of two positive integers is 100. The probability that their product is greater than 1000, is

(1) \( \frac{7}{9} \) \hspace{1cm} (2) \( \frac{7}{10} \) \\
(3) \( \frac{2}{5} \) \hspace{1cm} (4) \( \frac{3}{8} \)

138. Solution of the equation \( x + \frac{1}{x} = \frac{41}{20} \) is

(1) \( x = \pm \frac{5}{4} \) \hspace{1cm} (2) \( x = \pm \frac{4}{5} \) \\
(3) \( x = \frac{5}{4}, \frac{4}{5} \) \hspace{1cm} (4) \( x = -\frac{5}{4}, \frac{4}{5} \)

139. For every \( n \in N \), the value of \( n(n + 3) \) is always

(1) even \hspace{1cm} (2) odd \\
(3) multiple of 4 \hspace{1cm} (4) multiple of 5

140. The circumferences of two concentric circle are 88 cm and 132 cm respectively, then area of ring shape region in between them is

(1) 750 cm\(^2\) \hspace{1cm} (2) 760 cm\(^2\) \\
(3) 770 cm\(^2\) \hspace{1cm} (4) 780 cm\(^2\)
141. If $\bar{x}$ is the mean of $n$ observations $x_1, x_2, \ldots, x_n$, then $\sum_{i=1}^{n} (x_i - \bar{x}) =$

1. $n$
2. $n(n-1)/2$
3. 1
4. 0

142. The order and degree of the differential equation representing family of curves $y^2 = 2k(x + \sqrt{k})$, $(k > 0)$ are

1. 1, 2
2. 2, 4
3. 1, 4
4. 1, 3

143. Curved surface area of a hemisphere of diameter $\pi$ is

1. $\pi^3$
2. $2\pi^3$
3. $\frac{1}{2}\pi^3$
4. $\frac{1}{4}\pi^3$

144. If the circumference of a circle is changed from $4\pi$ to $8\pi$, then the change occurs in its area is

1. Two times
2. Three times
3. Four times
4. Half times
145. In the given figure if \( \angle ACD = 120^\circ \) and \( AB = AC \), then which is true?
(1) \( \angle ACB = 60^\circ \)
(2) \( \angle A = \angle B \)
(3) \( AB = BC = CA \)
(4) All are true

146. In the expansion of \( \left( \frac{x}{3} + \frac{3}{2x^2} \right)^{10} \), the term independent of \( x \) has the value
(1) \( \frac{5}{16} \)
(2) \( \frac{5}{4} \)
(3) \( \frac{15}{8} \)
(4) \( \frac{5}{2} \)

147. If \( A = \{1, 4\}, B = \{2, 4, 5\} \), then value of \( (A \cap B) \times (A \cup B) \) is
(1) \( \{(4, 2), (4, 4), (4, 5)\} \)
(2) \( \{(4, 1), (4, 2), (4, 4), (4, 5)\} \)
(3) \( \{(4, 1), (4, 2), (4, 5)\} \)
(4) \( \{(4, 4), (4, 5)\} \)

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148. If the sum of the distances of a point from two perpendicular coplanar lines is 1, then the locus of this point is

(1) line  (2) pair of lines  (3) square  (4) circle

149. If $a$, $b$, $c$ are $p$th, $q$th and $r$th terms of a G. P., then the value of

$$ \begin{vmatrix} \log a & p & 1 \\ \log b & q & 1 \\ \log c & r & 1 \end{vmatrix} $$

is

(1) 0  (2) 1  (3) $\log abc$  (4) $pqr$

150. In the equation $\frac{21 - 8\sqrt{5}}{4 - \sqrt{5}} = a + b\sqrt{5}$, the value of $a$ and $b$ are

(1) $a = 4, b = 1$
(2) $a = -4, b = 1$
(3) $a = -4, b = -1$
(4) $a = 4, b = -1$