

PREVIOUS YEAR PAPER

UPTET 2021 Paper II (Junior) — 23 January 2022 (Series C) — Mathematics and Science

UPTET · 23 January 2022

150 questions · +1 for a correct answer, -0 for a wrong one · 150 minutes

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Questions from the Uttar Pradesh Education Service Selection Commission's paper of 23 January 2022. Each question is followed by its answer, and the answer key is repeated on the last page.

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Child Development and Teaching Method

1. The main characteristic of basic instinct is that which is found

- (a) Only in Cats and Rats
- (b) Only in human beings
- (c) All organism and it is inborn and natural
- (d) Only in Artists

Answer: (c)

2. The right to free and compulsory education for children between age group of 6 - 14 has been included in Indian Constitution as

- (a) Article 15
- (b) Article 26
- (c) Article 45
- (d) Article 21A

Answer: (d)

3. Kretschmer has classified the persons in one of the following main types

- (a) Athletic
- (b) Asthenic
- (c) Picnic
- (d) All of these

Answer: (d)

4. Purpose of T.E.T. is measure which of the following?

- (a) Aptitude
- (b) Intelligence
- (c) Attitude
- (d) Values

Answer: (a)

5. Consolidation theory explain which of the following?

- (a) Memory
- (b) Learning
- (c) Motivation
- (d) Creativity

Answer: (a)

6. Who has given the Concept of Educational Quotient for backward children?

- (a) Schonell
- (b) Gorden
- (c) Burton Hall
- (d) Cyril Burt

Answer: (d)

7. Which among the following is different from characteristics of a good test?

- (a) Validity
- (b) Reliability
- (c) Objectivity
- (d) Aptitude

Answer: (d)

8. Which of the following is not theory of intelligence?

- (a) Two factor theory
- (b) Unifactor theory
- (c) Theory of regression
- (d) Multifactor theory

Answer: (c)

9. Which one of the following is not ductless glands?

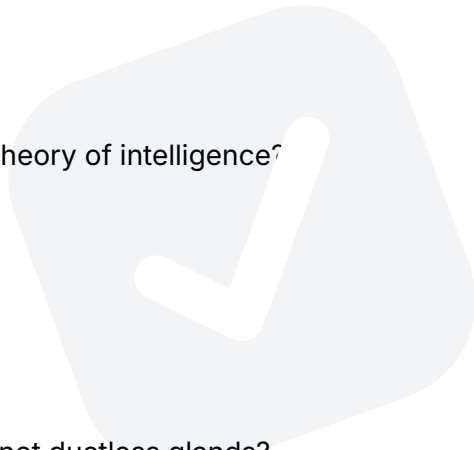
- (a) Pituitary glands
- (b) Adrenal glands
- (c) Salivary glands
- (d) Thyroid glands

Answer: (c)

10. According to Piaget the second stage of cognitive development is

- (a) Formal operations stage
- (b) Sensory-motor stage
- (c) Pre-operational stage
- (d) Concrete operations stage

Answer: (c)



11. Which of the following is the most subjective method of educational psychology?

- (a) Extrospection
- (b) Introspection
- (c) Observation
- (d) Experimentation

Answer: (b)

12. Albert Bandura is associated with which of the following?

- (a) Behavioural Theory
- (b) Social Learning Theory
- (c) Cognitive Development Theory
- (d) Psychosexual Development

Answer: (b)

13. Plateau in learning curve is caused due to

- (a) Motivation
- (b) Maturation
- (c) Fatigue
- (d) Interest

Answer: (c)

14. Mirror Drawing Test is used to measure

- (a) Transfer of learning
- (b) Rate of learning
- (c) Creativity
- (d) Interest

Answer: (a)

15. Cloud Picture Test is used to measure which of the following?

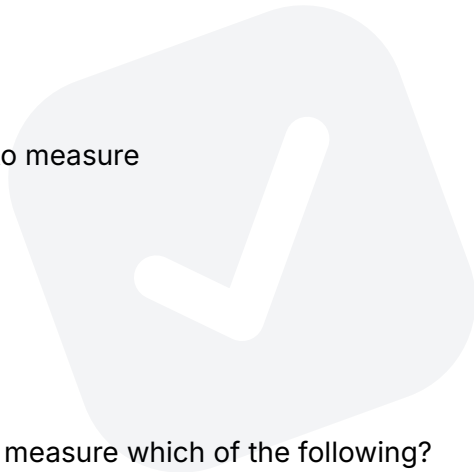
- (a) Personality
- (b) Intelligence
- (c) Aptitude
- (d) Interest

Answer: (a)

16. What is the factor influencing physical development in the following?

- (a) Environment
- (b) Heredity
- (c) Sports and exercise
- (d) All of these

Answer: (d)



17. Which of the following is correct formula to calculate I.Q.?

- (a) $C.A. / M.A.$
- (b) $(M.A. / C.A.) \times 100$
- (c) $(C.A. / M.A.) \times 100$
- (d) $M.A. / (C.A. \times 100)$

Answer: (b)

18. Who described 'Reflective Thinking' from the following?

- (a) Ross
- (b) Dewey
- (c) Woodworth
- (d) Drever

Answer: (b)

19. Which is not included in the levels of inductive reasoning?

- (a) Experiment
- (b) Observation
- (c) Generalization
- (d) Imagination

Answer: (d)

20. Failure in retention and recall of learnt content is

- (a) Memory
- (b) Forgetting
- (c) Retention
- (d) Thinking

Answer: (b)

21. Five years old Mohan has mental age of eight. What is his I.Q.?

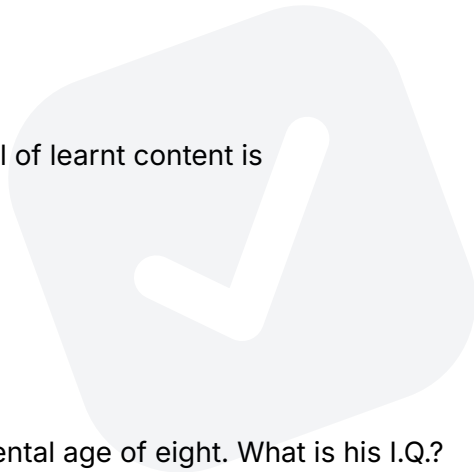
- (a) 160
- (b) 150
- (c) 140
- (d) 135

Answer: (a)

22. Which I.Q. range is called trainable I.Q. level of mentally retarded children?

- (a) 50 - 69
- (b) 70 - 79
- (c) 36 - 49
- (d) 35 and below

Answer: (c)



23. Rorschach ink blot test is used to measure which of the following?

- (a) Intelligence
- (b) Personality
- (c) Interest
- (d) Aptitude

Answer: (b)

24. It is not the cause of forgetting

- (a) Desire to remember
- (b) Under learning
- (c) Mental conflict
- (d) Defective methods of remembering

Answer: (a)

25. The science which deals with the method of collecting, classifying, presenting, comparing and interpreting numerical data is called

- (a) Mathematics
- (b) Statistics
- (c) Geometry
- (d) Probability

Answer: (b)

26. Find the odd one out.

- (a) 16 - P.F.
- (b) T.A.T.
- (c) Raven's test
- (d) Draw a man test

Answer: (c)

27. The median of 7, 8, 9, 10, 11, 12 is

- (a) 9
- (b) 8
- (c) 10
- (d) 9.5

Answer: (d)

28. Who has propounded the theory of insight?

- (a) Gestalt Psychologist
- (b) Thorndike
- (c) Hegarty
- (d) Skinner

Answer: (a)



29. According to McDougall, every instinct is associated with

- (a) Emotion
- (b) Cognition
- (c) Sensation
- (d) Thinking

Answer: (a)

30. Giving meaning to sensation on the basis of past experience is called

- (a) Perception
- (b) Sensation
- (c) Motivation
- (d) Imagination

Answer: (a)

Language I (Hindi)

31. निम्नलिखित में से वाचन शिक्षण की विधि नहीं है

- (a) अनुध्वनि विधि
- (b) ध्वनि साम्य विधि
- (c) व्याख्या विधि
- (d) समवेत पाठ विधि

Answer: (c)

32. निम्नलिखित में अभिवृत्त्यात्मक उद्देश्य है

- (a) साहित्य का रसास्वादन करना
- (b) स्वानुभूत विचारों व भावों को अभिव्यक्त करना
- (c) धैर्यपूर्वक सुनना
- (d) भाषा और साहित्य में रुचि

Answer: (d)

33. हिन्दी साहित्य के इतिहास के संबंध में 'मॉडर्न वर्नाक्यूलर लिटरेचर ऑफ हिन्दोस्तान' किसने लिखा है?

- (a) सुमित कुमार चटर्जी
- (b) जॉर्ज अब्राहम ग्रियर्सन
- (c) गार्सा द तासी
- (d) धीरेन्द्र वर्मा

Answer: (b)



34. 'विरहनी बावरी सी भई

ऊँची चढ़ि अपने भवन में टेरत हाय दई

ले अंचरा मुख अँसुवन पोंछत उधरे गात सही'

- किसकी पंक्ति है?

- (a) मीराबाई
- (b) सहजोबाई
- (c) झीमा चारिणी
- (d) दयाबाई

Answer: (a)

35. हिन्दी का पहला पत्र है

- (a) इतिहास तिमिरनाशक
- (b) उदंत मार्तण्ड
- (c) बनारस अखबार
- (d) हरिश्चन्द्र मैगज़ीन

Answer: (b)

Passage — for questions 36–40

निम्नलिखित अवतरण को ध्यानपूर्वक पढ़कर प्रश्न संख्या 36 से 40 तक का विकल्प चुनकर उत्तर दीजिए।

धर्म पालन करने के मार्ग में सबसे अधिक बाधा चित्त की चंचलता, उद्देश्य की स्थिरता और मन की निर्बलता से पड़ती है। मनुष्य के कर्तव्य मार्ग में एक ओर तो आत्मा के बुरे-भले कामों का ज्ञान दूसरी ओर आलस्य और स्वार्थपरता रहती है। बस मनुष्य इन्हीं दोनों के बीच में पड़ा रहता है। अंत में यदि उसका मन पक्का हुआ, तो वह आत्मा की आज्ञा मान कर धर्म पालन करता है, पर उसका मन दुविधा में पड़ा रहा है, तो स्वार्थपरता उसे निश्चित ही घेरेंगी और उसका चरित्र घृणा के योग्य हो जायेगा। इससे यह बहुत आवश्यक है कि आत्मा जिस बात को करने की प्रवृत्ति दें, उसे बिना स्वार्थ सोचे, झटपट कर डालना चाहिए। इस संसार में जितने बड़े-बड़े लोग हुए हैं सभी ने अपने कर्तव्य को सबसे श्रेष्ठ माना है, क्योंकि जितने कर्म उन्होंने किए उन सबने अपने कर्तव्य पर ध्यान देकर न्याय का बर्ताव किया। जिन जातियों में यह गुण पाया जाता है। वे ही संसार में उन्नति करती हैं और संसार में उनका नाम आदर से लिया जाता है। जो लोग स्वार्थी होकर अपने कर्तव्य पर ध्यान नहीं देते, वे संसार में लज्जित होते हैं और सब लोग उनसे घृणा करते हैं।

36. धर्म पालन करने में बाधा डालने वाली प्रवृत्तियाँ कौन-सी हैं?

- (a) धर्म का ज्ञान न होना।
- (b) कमजोर मन, उद्देश्य का निश्चित न होना तथा चंचल मनोवृत्ति का होना।
- (c) आलस्य की अधिकता।
- (d) जानकारी की कमी।

Answer: (b)

37. संसार के बड़े-बड़े लोगों ने सबसे श्रेष्ठ माना है

- (a) सदाचार को
- (b) उत्तम चरित्र को
- (c) परोपकार को
- (d) अपने कर्तव्य को

Answer: (d)

38. 'निर्बलता' शब्द में उपसर्ग और प्रत्यय का सही विकल्प है

- (a) निर + बल + ता
- (b) निर् + बल + ता
- (c) निर + बलत + आ
- (d) निर + बल + अता

Answer: (b)

39. 'कायर' की भाववाचक संज्ञा है

- (a) कायरतत्त्व
- (b) अकायरता
- (c) कायरपन
- (d) कायरता

Answer: (d)

40. 'अपना मतलब निकालने वाला' के लिए उचित शब्द क्या है:

- (a) स्वार्थपरता
- (b) स्वार्थी
- (c) स्वार्थपरक
- (d) कुटिल

Answer: (b)

41. पंकज में कौन-सा समास है?

- (a) द्विगु
- (b) द्वन्द्व
- (c) कर्मधारय
- (d) बहुव्रीहि

Answer: (d)



42. अयोगवाह कहा जाता है

- (a) अनुस्वार एवं विसर्ग को
- (b) महाप्राण को
- (c) संयुक्त व्यंजन को
- (d) अल्पप्राण को

Answer: (a)

43. एक ओर अजगरहि लखि एक ओर मृगराय।

विकल बटोही बीच ही पर्यो मूरछा खाय॥

इन पंक्तियों में प्रयुक्त रस है

- (a) वीर रस
- (b) रौद्र रस
- (c) भयानक रस
- (d) करुण रस

Answer: (c)

44. 'से' विभक्ति निम्न में से किस कारक के लिए प्रयुक्त होता है?

- (a) कर्म
- (b) कर्ता
- (c) सम्प्रदान
- (d) करण

Answer: (d)

45. 'उसने नहाकर भोजन किया' - इस वाक्य में 'नहाकर' निम्नांकित में से किस क्रिया का उदाहरण है?

- (a) प्रेरणार्थक क्रिया
- (b) संयुक्त क्रिया
- (c) द्विकर्मक क्रिया
- (d) पूर्वकालिक क्रिया

Answer: (d)

46. कौन-सा वाक्य शुद्ध है?

- (a) परशुराम के क्रोधाग्नि ने क्षत्रियों को जला दिया।
- (b) खेतों में लम्बे-लम्बे घास उग आए।
- (c) गलियों को चौड़ा करना आवश्यक है।
- (d) वृक्षों पर कोयल कूक रही है।

Answer: (c)

47. विद्यार्थी में कौन-सी सन्धि है?

- (a) वृद्धि सन्धि
- (b) दीर्घ सन्धि
- (c) गुण सन्धि
- (d) यण सन्धि

Answer: (b)

48. 'कानन' का पर्यायवाची शब्द है

- (a) विहिप
- (b) पुष्प
- (c) वन
- (d) इनमें से कोई नहीं

Answer: (c)

49. 'वाक्य विग्रह' का अर्थ है

- (a) वाक्य रचना करना।
- (b) शब्दों को जोड़ना।
- (c) वाक्य खंडों को अलग-अलग करके उनका सम्बन्ध बताना।
- (d) सन्धि और समास बताना।

Answer: (c)

50. बिनु पग चलै सुनै बिनु काना,
कर बिनु कर्म करै विधि नाना।

इन पंक्तियों में प्रयुक्त अलंकार है

- (a) विशेषोक्ति अलंकार
- (b) विभावना अलंकार
- (c) असंगति अलंकार
- (d) दृष्टान्त अलंकार

Answer: (b)

51. सूफी सन्तों की शैली है

- (a) मसनवी
- (b) मर्सिया
- (c) गज़ल
- (d) तर्जुमा

Answer: (a)



52. 'गुड़िया भीतर गुड़िया' के रचनाकार कौन है?

- (a) मैत्रेयी पुष्पा
- (b) कृष्णा सोबती
- (c) प्रभा खेतान
- (d) उषा प्रियंवदा

Answer: (a)

53. 'सौ अजान एक सुजान' के रचनाकार का नाम है

- (a) बालकृष्ण भट्ट
- (b) बदरीनारायण चौधरी
- (c) बालमुकुन्द गुप्त
- (d) सरदार पूर्ण सिंह

Answer: (a)

54. गोस्वामी तुलसीदास का निधन वाराणसी के किस घाट पर हुआ?

- (a) अस्सी घाट
- (b) दशाश्वमेध घाट
- (c) राम घाट
- (d) मणिकर्णिका घाट

Answer: (a)

55. 'भक्तमाल' के रचनाकार हैं

- (a) केशव दास
- (b) नाभा दास
- (c) विष्णु दास
- (d) सुन्दर दास

Answer: (b)

56. 'सुई' का तत्सम रूप क्या है?

- (a) सूचि
- (b) सुज्जा
- (c) सलाई
- (d) सूची

Answer: (a)



57. 'परिसीमन' का विलोम है

- (a) निरसीमन
- (b) ससीम
- (c) असीमन
- (d) ससीमन

Answer: (c)

58. 'धूसर' शब्द का पर्याय है

- (a) मेघ
- (b) अश्व
- (c) गर्दभ
- (d) अजा

Answer: (c)

59. 'भूतों अर्थात् जीवों द्वारा होने वाला (दुख)' - वाक्य के लिए एक शब्द बताइये।

- (a) आधिभौतिक
- (b) आधिदैविक
- (c) आधिदैहिक
- (d) आत्मघाती

Answer: (a)

60. 'ऊँट की चोरी निहुरे निहुरे' का अर्थ है

- (a) बड़े काम छिपकर नहीं किये जा सकते।
- (b) जान जोखिम में डालना।
- (c) उद्वंड व्यक्ति की दुष्टता।
- (d) किसी की वस्तु किसी दूसरे को देना।

Answer: (a)



Language II (English)

61. Bees are kept in

- (a) A nursery
- (b) A pantry
- (c) An apiary
- (d) An aquarium

Answer: (c)

62. The idiom 'green-eyed monster' means

- (a) To be sick
- (b) To be jealous
- (c) To be angry
- (d) To be blind

Answer: (b)

63. Select the sentence in which the article has been wrongly used.

- (a) Twelve inches make a foot.
- (b) He is a M.A.
- (c) A pupil should obey his teacher.
- (d) He is a European.

Answer: (b)

64. Pick the correct question tag from the options.

People shouldn't drink and drive, ____

- (a) should not they?
- (b) should they?
- (c) isn't it?
- (d) shall they?

Answer: (b)

65. Point out the part that has an error in the sentence

(A) You are learning English / (B) for the last one year (C) but you show / (D) no improvement at all.

- (a) B
- (b) A
- (c) C
- (d) D

Answer: (b)

Passage — for questions 66–70

Read the following passage and answer the questions from 66 to 70 based on it.

Work expands so as to fill the time available for its completion. The general recognition of this fact is shown in the proverbial phrase, 'It is the busiest man who has time to spare.' Thus, an elderly lady at leisure can spend the entire day writing a postcard to her niece. An hour will be spent in finding the postcard, another hunting for spectacles, half an hour to search for the address, an hour and a quarter in composition and twenty minutes in deciding whether or not to take an umbrella when going to the pillar box in the street. The total effort that would occupy a busy man for three minutes, all told, may in this fashion leave another person completely exhausted after a day of doubt, anxiety and toil.

66. What is the total time spent by the elderly lady in writing a postcard?

- (a) A full day
- (b) Three minutes
- (c) Four hours and five minutes
- (d) Half an hour

Answer: (a)

67. What happens when the time to be spent on some work increases?

- (a) The work is done leisurely
- (b) The work is done smoothly
- (c) The work consumes all the time
- (d) The work needs additional time

Answer: (c)

68. What does the expression 'pillar box' stand for?

- (a) A box in the pillar
- (b) A box attached to the pillar
- (c) Box office
- (d) A pillar-type post box

Answer: (d)

69. Who is the person likely to take more time to do work?

- (a) An elderly person
- (b) A busy man
- (c) A man of leisure
- (d) An exhausted person

Answer: (a)

70. Point out the most appropriate explanation of the sentence
'Work expands so as to fill the time available for its completion.'

- (a) Whatever time is available for a given amount of work, all of it will be used.
- (b) The more work there is to be done, the more time needed.
- (c) If you have more time, you can do more work.
- (d) If you have some important work to do, you should always have some additional time.

Answer: (a)

71. Choose the correct sentence.

- (a) The committee was one on this point.
- (b) The committee were one on this point.
- (c) The committee was divided on this point.
- (d) The committee have one on this point.

Answer: (a)

72. Which of the following is an example of Simile?

- (a) Life is a dream
- (b) I wandered lonely as a cloud
- (c) Anxiety is sitting on her face
- (d) A lie has no legs

Answer: (b)

73. Change the following sentence into Active Voice.

"The visitors were shown the new-born by the woman."

- (a) The woman has shown the new-born to the visitors.
- (b) The new-born was shown to the visitors by the woman.
- (c) The woman showed the visitors the new-born.
- (d) The woman might have shown the new-born.

Answer: (c)

74. Select the antonym for the word.

'Adverse'

- (a) Friendly
- (b) Hostile
- (c) Inimical
- (d) Unwilling

Answer: (a)

75. Fill in the blank with correct word to complete the proverb.

"Blood is ____ than water."

- (a) Thicker
- (b) Thinner
- (c) Purer
- (d) Precious

Answer: (a)

Passage — for questions 76–80

Read the given passage and answer the questions that follow (Q. No. 76 to 80) by selecting the most appropriate option.

Helicopters are very different from airplanes. They can do three things that airplanes cannot do. First, when airplanes move upward, they must also move forward, but helicopters can move straight up without moving ahead. Second, helicopters can fly backward, which airplanes cannot do. Third, helicopters can use their rotors to hover in the air, which is impossible for planes. Helicopters can perform actions that airplanes cannot, they are used for different tasks. Since helicopters can take off without moving forward, they do not need a runway for take off. They are used in congested areas where there is no room for airplanes or in isolated areas, which do not have airports. Because they can hover, they are used on fire fighting missions to drop water on fires. They are used in logging operations to lift trees out of forests. Helicopters are used as air ambulances to airlift patients out of situations, which are difficult to reach, by conventional ambulances. The police use helicopters to follow suspects on the ground or to search for cars on the ground. Of course, helicopters have military uses because of their design and capabilities.

76. The word 'congested' in the passage means

- (a) The place has no place
- (b) The place is roomy
- (c) The place can be accessed by police vans
- (d) The place has so much of smoke due to fire

Answer: (a)

77. A helicopter can hover while an aeroplane cannot, according to the passage. 'Hover' in the passage means

- (a) Move straight up in the air
- (b) Stay at one place in the air
- (c) Go backward in the air
- (d) Fly sideways

Answer: (b)

78. Point out the grammatical category of the word 'perform' in the passage.

- (a) Verb
- (b) Noun
- (c) Adverb
- (d) Helping verb

Answer: (a)

79. Why is a helicopter used as an ambulance?

- (a) It crosses all difficulties of traffic
- (b) Its movement can be manoeuvred easily
- (c) It reaches the inaccessible places easily
- (d) It can fire fight

Answer: (c)

80. Point out the grammatical category of the underlined word 'very' in the above passage.

- (a) Adjective
- (b) Adverb
- (c) Noun
- (d) Verb

Answer: (b)

81. Give one word substitution for:
The scientific study of insects.

- (a) Entomology
- (b) Criminology
- (c) Mycology
- (d) Meteorology

Answer: (a)

82. Point out the correct direct speech of the following.
I asked why he was looking through the keyhole.

- (a) 'Do not look through the keyhole' I said.
- (b) 'Are you looking through the keyhole?' I said.
- (c) 'Why are you looking through the keyhole?' I said.
- (d) 'You are looking through the keyhole?' I said.

Answer: (c)

83. Put the verbs in brackets into the correct present tense.

My daughter never (write) to me so I never (know) what she (do).

- (a) My daughter never write to me so I never knew what she does.
- (b) My daughter never wrote to me so I never knew what she do.
- (c) My daughter never writes to me so I never know what she is doing.
- (d) My daughter never writes to me so I never knew what she does.

Answer: (c)

84. Pick out the correct synonym of the word.

'Cantankerous'

- (a) Quarrelsome
- (b) Rash
- (c) Noisy
- (d) Disrespectful

Answer: (a)

85. Pick out the sentence that has a demonstrative adjective in it.

- (a) This kind of question is often asked in examinations.
- (b) It is a twenty-kilometers walk.
- (c) Each of them received ten rupees.
- (d) His written statement differs from his oral one.

Answer: (a)

86. 'To chew the cud' correctly means

- (a) To die on duty
- (b) Contrive against someone
- (c) To meditate
- (d) To inculcate virtues

Answer: (c)

87. Complete the following sentence with most appropriate choice.

'He was very much ashamed ____ his mischief.'

- (a) of
- (b) for
- (c) with
- (d) over

Answer: (a)

88. Complete the following sentence with appropriate choice.

'____ he stood first, he would have gone to America.'

- (a) Had
- (b) If
- (c) Have
- (d) Anyways

Answer: (a)

89. Fill in the blank.

'Of the sword and pen the ____ is more powerful.'

- (a) later
- (b) last one
- (c) latter
- (d) last

Answer: (c)

90. Which prefix can be used with the following words?

behave, guide, use

- (a) dis
- (b) in
- (c) mis
- (d) re

Answer: (c)

Mathematics and Science

91. Sound waves consist of 20 compressions and 20 rare in 10 meter length. The wavelength of wave is

- (a) 50 cm
- (b) 25 cm
- (c) 75 cm
- (d) 100 cm

Answer: (a)

92. If $\frac{4}{3}$ and $\frac{3}{2}$ be respectively the absolute refractive index of water and glass, then the refractive index of glass relative to water is

- (a) $\frac{9}{8}$
- (b) $\frac{8}{9}$
- (c) $\frac{4}{3}$
- (d) $\frac{3}{4}$

Answer: (a)

93. In Household wiring, what is the colour of "Earth wire"?

- (a) Green
- (b) Red
- (c) Black
- (d) White

Answer: (a)

94. Kirchhoff's current law based on conservation of

- (a) Momentum
- (b) Energy
- (c) Charge
- (d) Mass

Answer: (c)

95. The decimal number equivalent of binary number $(1101)_2$ is

- (a) 11
- (b) 9
- (c) 13
- (d) 15

Answer: (c)

96. What is silk farming?

- (a) Pisciculture
- (b) Epiculture
- (c) Sericulture
- (d) Agriculture

Answer: (c)

97. All organisms belonging to Kingdom Protista are

- (a) Unicellular and prokaryotic
- (b) Unicellular and eukaryotic
- (c) Multicellular and prokaryotic
- (d) Multicellular and eukaryotic

Answer: (b)

98. Which of the following pigment is associated with the germination of seeds?

- (a) Plastocyanin
- (b) Phytochrome
- (c) Chlorophyll
- (d) Xanthophyll

Answer: (b)

99. The tissue that connects one bone with the other bone is called

- (a) Cartilage
- (b) Adipose tissue
- (c) Epithelium
- (d) Ligaments

Answer: (d)

100. Viviparous germination of seeds occur in

- (a) Rhizophora
- (b) Mango
- (c) Potato
- (d) Sugarcane

Answer: (a)

101. SI unit of heat is

- (a) Erg
- (b) Joule
- (c) Calorie
- (d) Watt

Answer: (b)

102. If P, F and A represent pressure, force and area respectively, then

(a)

$$P = \frac{F}{A}$$

(b)

$$P = \frac{\vec{F}}{A}$$

(c)

$$\vec{P} = \frac{\vec{F}}{A}$$

(d)

$$P = \frac{\vec{F}}{A}$$

Answer: (a)

103. If the momentum of body increases from 10 unit to 25 unit in 5 sec, then working force acting on it is

- (a) 2 unit
- (b) 1 unit
- (c) 3 unit
- (d) 4 unit

Answer: (c)



104. Mica is used in cooking utensil because it is

- (a) Bad conductor of heat but good conductor of electricity
- (b) Good conductor of heat but bad conductor of electricity
- (c) Good conductor of both heat and electricity
- (d) Bad conductor of both heat and electricity

Answer: (b)

105. Angle of dip at magnetic pole of earth is

- (a) 45°
- (b) 0°
- (c) 90°
- (d) 135°

Answer: (c)

106. The source of oxygen liberated as byproduct during photosynthesis is

- (a) Water
- (b) Carbon dioxide
- (c) Glucose
- (d) Chlorophyll

Answer: (a)

107. The component of blood that prevents its clotting in contact blood vessels is

- (a) Heparin
- (b) Antibody
- (c) Thrombin
- (d) Haemoglobin

Answer: (a)

108. Islets of Langerhans are present in

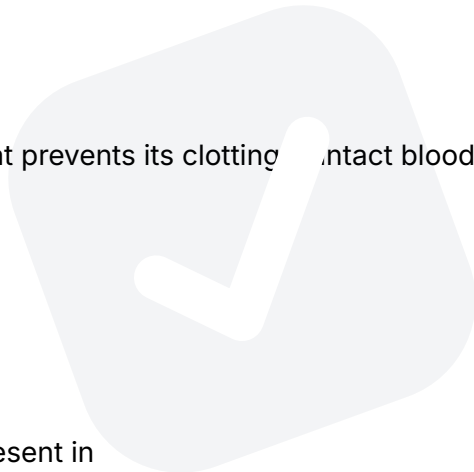
- (a) Liver
- (b) Stomach
- (c) Pancreas
- (d) Heart

Answer: (c)

109. Enzymes are chemically

- (a) Acid
- (b) Lipid
- (c) Carbohydrate
- (d) Protein

Answer: (d)



110. Which of the following acid is also a vitamin?

- (a) Ascorbic acid
- (b) Formic acid
- (c) Malic acid
- (d) Palmitic acid

Answer: (a)

111. The monomer of natural rubber is

- (a) Isoprene
- (b) Neoprene
- (c) Terylene
- (d) Orlon

Answer: (a)

112. Which compound has highest boiling point?

- (a) Isopentane
- (b) n-pentane
- (c) Neopentane
- (d) Isobutane

Answer: (b)

113. The number of π -electrons in molecule of aromatic compound is

- (a) $4n + 1$
- (b) $4n$
- (c) $4n + 2$
- (d) $2n + 4$

Answer: (c)

114. Rutherford's alpha (α) particles scattering experiment resulted into discovery of

- (a) Nucleus in the atom
- (b) Proton
- (c) Electron
- (d) Atomic mass

Answer: (a)

115. Which one of the following is not a heterogeneous mixture?

- (a) Milk
- (b) Air
- (c) Smoke
- (d) Jelly

Answer: (b)

116. Which of the following is not a constituent of petroleum?

- (a) Coke
- (b) Petrol
- (c) Paraffin wax
- (d) Lubricating oil

Answer: (a)

117. A metal 'M' does not liberate hydrogen from acids, but reacts with oxygen to give a black colour product. Identify 'M'.

- (a) Mg
- (b) Na
- (c) Cu
- (d) Ca

Answer: (c)

118. Which of the following has maximum number of atoms?

- (a) 16 g of CO₂
- (b) 16 g of N₂
- (c) 16 g of CH₄
- (d) 16 g of O₂

Answer: (c)

119. In laboratory, ethylene and acetylene can be distinguished by

- (a) KMnO₄/OH⁻/H₂O
- (b) Br₂/H₂O
- (c) Tollen's reagent
- (d) Fehling solution

Answer: (c)

120. In which of the given compound oxidation number of oxygen is +2?

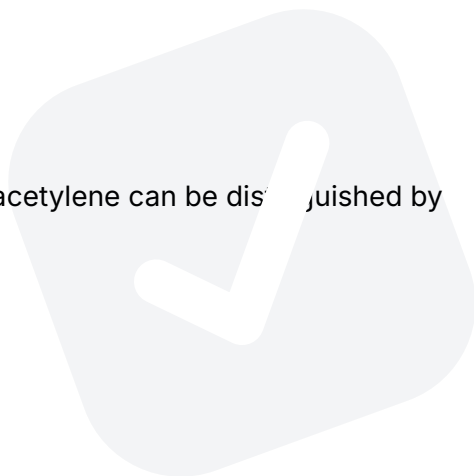
- (a) Na₂O
- (b) OF₂
- (c) NaO₂
- (d) NaO₃

Answer: (b)

121. A company makes an advertisement to collect a capital of Rs. 25 lacs of shares. If the printed price of one share is Rs. 100, then find the number of shares circulated by the company

- (a) 25000 shares
- (b) 20000 shares
- (c) 30000 shares
- (d) 15000 shares

Answer: (a)

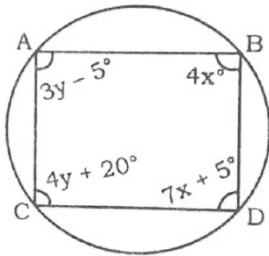


122. From a pack of 52 playing cards one card is drawn at random. What is the probability that the card is a spade or an ace?

- (a) $6/13$
- (b) $4/13$
- (c) $8/13$
- (d) $2/5$

Answer: (b)

123. In figure ABCD is a cyclic quadrilateral, then the ordered pair (x, y) is



- (a) $(10^\circ, 15^\circ)$
- (b) $(15^\circ, 25^\circ)$
- (c) $(15^\circ, 35^\circ)$
- (d) $(40^\circ, 35^\circ)$

Answer: (b)

124. For what value of x the mode of the following data is 27?

25, 26, 27, 23, 27, 26, 24, x , 27, 26, 25, 25

- (a) 24
- (b) 27
- (c) 25
- (d) 26

Answer: (b)

125. If $x = 2$, $y = 1$, $z = -3$, then $x^3 + y^3 + z^3 - 3xyz$ equals

- (a) 2
- (b) 6
- (c) 8
- (d) 0

Answer: (d)

126. Jatin buys an article for 10% less than its value and sells it for 10% more than its value, his gain is

- (a) $22\frac{7}{9}\%$
- (b) 20%
- (c) $22\frac{2}{9}\%$
- (d) None of these

Answer: (c)

127. If the roots of the equation $x^2 - px + 54 = 0$ are in the ratio 2 : 3, then the value of p is

- (a) 21
- (b) 18
- (c) -21
- (d) 15

Answer: (d)

128. Ratio of the heights of two right circular cones is 25 : 64 and ratio of their diameters is 4 : 5. The ratio of their volumes is

- (a) 1 : 4
- (b) 1 : 3
- (c) 5 : 8
- (d) 1 : 2

Answer: (a)

129. If $A = \{x : x \text{ is a letter in word BELOW}\}$, $B = \{x : x \text{ is a letter in word WOOL}\}$ and $C = A - B$, then the number of subsets of C is

- (a) 2
- (b) 1
- (c) 3
- (d) 4

Answer: (d)

130. The perimeter of a rhombus whose diagonals are 10 cm and 24 cm is

- (a) 34 cm
- (b) 120 cm
- (c) 68 cm
- (d) 52 cm

Answer: (b)

131. Which of the following statement is true?

- (a) Equations can be learnt without learning arithmetic.
- (b) Different branches of mathematics viz. Algebra, Geometry etc. are dependent on each other.
- (c) Congruence of triangles can be learnt without learning algebra.
- (d) Statistics can be learnt without learning algebra.

Answer: (b)

132. Which among the following is the best pedagogical way to teach mathematics?

- (a) Find the weakness and teach only those parts
- (b) Motivate the learners to develop their existing capabilities
- (c) Find the gaps and address only them
- (d) Teach every student with the same approach

Answer: (b)

133. If A's salary is 25% more than that of B, then how much percent is B's salary less than that of A?

- (a) 18%
- (b) 25%
- (c) 20%
- (d) 15%

Answer: (c)

134. Sum of two natural numbers is 8. Determine the numbers if the sum of their reciprocal is $\frac{8}{15}$.

- (a) 4, 4
- (b) 1, 7
- (c) 2, 6
- (d) 3, 5

Answer: (d)

135. The expenditure of a family in a month is given in figure (a pie chart: Education 25%, House Rent 20%, Travel 15%, Food 20%, Savings 20%). If the difference of expenditure between education and travel is ₹ 4,000; what will be the total income of the family?

- (a) ₹ 40,000
- (b) ₹ 50,000
- (c) ₹ 60,000
- (d) ₹ 30,000

Answer: (a)

136. In a religious gathering the ratio of number of ladies to that of gents was 3 : 2. When 20 more gents joined, the ratio was reversed. The number of ladies was

- (a) 40
- (b) 36
- (c) 16
- (d) 24

Answer: (d)

137. For three non-zero real numbers a, b, c if $\frac{a}{2} = \frac{b}{3} = \frac{c}{4} = \frac{(2a - 3b + 5c)}{K}$, the value of K is

- (a) 15
- (b) 10
- (c) 20
- (d) 25

Answer: (a)

138. If A and B be any two sets such that $A - B = A$, then $A \cap B$ is

- (a) A
- (b) ϕ
- (c) B
- (d) $A \cup B$

Answer: (b)

139. If the roots of the equation $x^2 - bx + c = 0$ are two consecutive integers, then $b^2 - 4c$ is

- (a) -1
- (b) 1
- (c) 0
- (d) 2

Answer: (b)

140. The HCF and LCM of two numbers is 13 and 1989 respectively. If one of the number is 117, then the other number is

- (a) 221
- (b) 222
- (c) 223
- (d) 225

Answer: (a)

141. If a , $a + 2$, $a + 4$ are prime numbers, then the number of values of ' a ' are

- (a) Two
- (b) One
- (c) Three
- (d) More than three

Answer: (b)

142. Find the biggest 4 digit number which is a perfect square.

- (a) 1899
- (b) 9999
- (c) 9000
- (d) 9801

Answer: (d)

143. When $x^{13} + 1$ is divided by $x - 1$, then what is the remainder?

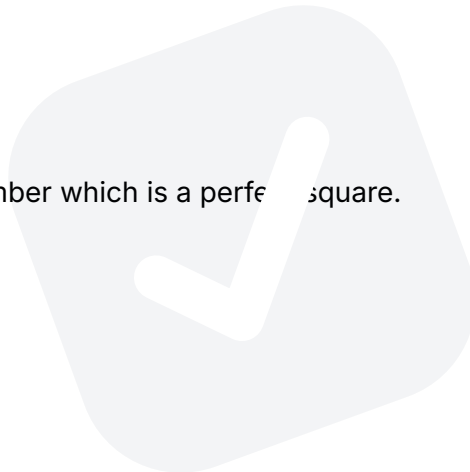
- (a) 1
- (b) 0
- (c) 2
- (d) -1

Answer: (c)

144. If A and B are non-empty subsets of a set C , then $A \cup (A \cap B)$ is equal to

- (a) $A \cup B$
- (b) $A \cap B$
- (c) A
- (d) B

Answer: (c)



145. The population of a village increases by 5% yearly. If at present the population of the village is 4410, then what was the population before 2 years?

- (a) 4430
- (b) 4420
- (c) 4200
- (d) 4000

Answer: (d)

146. The number of observations in a survey is 40. If the mean of first 10 observations is 4.5 and that of remaining is 3.5, then the mean of whole survey is

- (a) 3.80
- (b) 2.82
- (c) 3.75
- (d) 4.25

Answer: (c)

147. A right circular cylinder of maximum volume is cut from a solid cube of edge 14 cm. The total surface of cylinder is

- (a) 1134 cm^3
- (b) 924 cm^3
- (c) 2464 cm^3
- (d) 616 cm^3

Answer: —

148. There are 50 numbers. Each number is subtracted from 53 and the mean of the numbers so obtained is -3.5. The mean of the given numbers is

- (a) 53.5
- (b) 49.5
- (c) 46.5
- (d) 56.5

Answer: (d)

149. Ten observations 5, 9, 14, 15, $x + 1$, $2x - 13$, 26, 30, 32, 34 are written in an ascending order. The median of the data is 24. Find the value of x .

- (a) 19
- (b) 20
- (c) 21
- (d) 16

Answer: (b)

150. 44 cows can graze a field in 9 days. How many less/more cows will graze the same field in 12 days?

- (a) 11 cows more
- (b) 15 cows more
- (c) 11 cows less
- (d) 15 cows less

Answer: (c)



Answer key

Answer key from the Uttar Pradesh Education Service Selection Commission's official answer key for this sitting.
"—" means the key gave none.

Child Development and Teaching Method

1	(c)	2	(d)	3	(d)	4	(a)	5	(a)	6	(d)	7	(d)	8	(c)
9	(c)	10	(c)	11	(b)	12	(b)	13	(c)	14	(a)	15	(a)	16	(d)
17	(b)	18	(b)	19	(d)	20	(b)	21	(a)	22	(c)	23	(b)	24	(a)
25	(b)	26	(c)	27	(d)	28	(a)	29	(a)	30	(a)				

Language I (Hindi)

31	(c)	32	(d)	33	(b)	34	(a)	35	(b)	36	(b)	37	(d)	38	(b)
39	(d)	40	(b)	41	(d)	42	(a)	43	(c)	44	(d)	45	(d)	46	(c)
47	(b)	48	(c)	49	(c)	50	(b)	51	(a)	52	(a)	53	(a)	54	(a)
55	(b)	56	(a)	57	(c)	58	(c)	59	(a)	60	(a)				

Language II (English)

61	(c)	62	(b)	63	(b)	64	(b)	65	(b)	66	(a)	67	(c)	68	(d)
69	(a)	70	(a)	71	(a)	72	(b)	73	(c)	74	(a)	75	(a)	76	(a)
77	(b)	78	(a)	79	(c)	80	(b)	81	(a)	82	(c)	83	(c)	84	(a)
85	(a)	86	(c)	87	(a)	88	(a)	89	(c)	90	(c)				

Mathematics and Science

91	(a)	92	(a)	93	(a)	94	(a)	95	(c)	96	(c)	97	(b)	98	(b)
99	(d)	100	(a)	101	(b)	102	(a)	103	(c)	104	(b)	105	(c)	106	(a)
107	(a)	108	(c)	109	(d)	110	(a)	111	(a)	112	(b)	113	(c)	114	(a)
115	(b)	116	(a)	117	(c)	118	(c)	119	(c)	120	(b)	121	(a)	122	(b)
123	(b)	124	(b)	125	(d)	126	(c)	127	(d)	128	(a)	129	(d)	130	(b)
131	(b)	132	(b)	133	(c)	134	(d)	135	(a)	136	(d)	137	(a)	138	(b)
139	(b)	140	(a)	141	(b)	142	(d)	143	(c)	144	(c)	145	(d)	146	(c)
147	—	148	(d)	149	(b)	150	(c)								