PREVIOUS YEAR PAPER

UP Junior Aided Teacher 2021 Paper I — Science and Math (Series A)

UP Junior Aided Teacher · 17 October 2021

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

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Questions from the Examination Regulatory Authority, Uttar Pradesh, Prayagraj's paper of 17 October 2021. Each question is followed by its answer, and the answer key is repeated on the last page.

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General Knowledge

1. In which year Akbar ended the Jiziya Tax for the first time ?
   (a) 1564
   (b) 1567
   (c) 1565
   (d) 1566
   Answer: (a)

2. Who was elected as the President of Indian Nation Congress in 1938 ?
   (a) Abul Kalam Azad
   (b) Subhash Chandra Bose
   (c) J. B. Kriplani
   (d) Pattabhi Sitaramaiya
   Answer: (b)

3. In which of the following years Surendra Nath Banerjee was removed from Civil Service ?
   (a) 1870
   (b) 1878
   (c) 1867
   (d) 1874
   Answer: (d)

4. Brahmi script was deciphered by
   (a) S. R. Rao
   (b) Charles Masson
   (c) Alexander Cunningham
   (d) James Princep
   Answer: (d)

5. Arrange the following dynasties in the chronological order by using the codes given below.
I. Shung dynasty
II. Haryank dynasty
III. Nand dynasty
IV. Maurya dynasty
Codes :

(a) II I III IV

(b) II III IV I

(c) I II III IV

(d) III I II IV

Answer: (b)

6. As per census 2011, literacy rate in India is

(a) 74.04%

(b) 69.32%

(c) 65.55%

(d) 77.25%

Answer: (a)

7. How much allocation given for 'Mukhya Mantri Samagra Sampada Vikas Yojana' under the Budget – 2021-22 of Uttar Pradesh ?

(a) 1,000 crores

(b) 500 crores

(c) 2,000 crores

(d) 5,000 crores

Answer: (a)

8. Find the agent/agents of soil erosion among the following.
A. Running water
B. Ground water
C. Sea waves

(a) Only A

(b) None of these

(c) A and C

(d) A, B and C

Answer: (d)

9. Biodiversity is
A. Genetic variations
B. All biological species present on earth
C. Variations among biological communities
D. Variations in ecosystems

(a) Only B
(b) All of these
(c) Both B and C
(d) A, B and C

Answer: (b)

10. Intensity of Noise Pollution is measured in

(a) Centimeter
(b) Decibel
(c) Decimeter
(d) Deciliter

Answer: (b)

11. Which of the following disease is caused by virus ?

(a) Typhoid
(b) Leukaemia
(c) Filaria
(d) Rabies

Answer: (d)

12. ECG is a graphical representation of the e[illegible] activity of which organ ?

(a) Heart
(b) Liver
(c) Kidney
(d) Lungs

Answer: (a)

13. $^{12}_{6}C$ and $^{1}_{4}6C$; $^{1}1H$ and $^{3}1H$; $^{3}517Cl$ and $^{3}717Cl$ are examples of

(a) Isotones
(b) Isomers
(c) Isotopes
(d) Isobars

Answer: (c)

14. Which of the following acid is mainly present in tomato ?

(a) Lactic acid
(b) Tartaric acid
(c) Acetic acid
(d) Citric acid and Malic acid

Answer: (d)

15. In which year 21st United Nation Climate Change Summit was held in Paris ?

(a) 2014
(b) 2017
(c) 2015
(d) 2016

Answer: (c)

16. Which one of the following is not correctly matched ?

(a) Ascorbic acid – Lemon
(b) Formic acid – Milk
(c) Maltose – Malt
(d) Acetic acid – Curd

Answer: —

17. 'Sarthak' launched by the Ministry of Defense Government of India in August 2020 is related to which of the following ?

(a) Smart bomb
(b) Light combat aircraft
(c) Rocket launcher
(d) Offshore patrol ship

Answer: (d)

18. Which one of the following became first 100% or ıic Union Territory of India ?

(a) Lakshadweep
(b) None of these
(c) Puducherry
(d) Andaman and Nicobar Islands

Answer: (a)

19. Arrange the following events in a chronological order and select the correct answer from the codes given below.
I. Appointment of Simon Commission
II. Jallianwala Bagh Massacre
III. Mahatma Gandhi's Dandi March
IV. Death of Ferozshah Mehta
Codes :

(a) IV, II, I, III
(b) IV, III, II, I
(c) I, II, IV, III
(d) II, III, IV, I

Answer: (a)

20. Who among the following leaders founded the revolutionary organization – 'Abhinav Bharat Society' ?

(a) Bhagat Singh
(b) Putin Bihari
(c) Vinayak Damodar Savarkar
(d) Barindra Kumar Ghosh

Answer: (c)

21. What was the percentage of India's population to the World Population in 2011 ?

(a) 17.0
(b) 16.5
(c) 18.0
(d) 17.5

Answer: (d)

22. The Kumaun Himalaya is situated between rivers

(a) Kali and Tista
(b) Tista and Brahmaputra
(c) Indus and Satluj
(d) Satluj and Kali

Answer: (d)

23. Green Revolution is related with

(a) Production of cereal crop
(b) Production of meat
(c) Production of milk
(d) Production of cotton

Answer: (a)

24. Which Coast of India frequently affected by cyclone ?

(a) Gujarat
(b) West Bengal
(c) Kerala
(d) Odisha

Answer: (d)

25. Which of the following is largest rail zone of India ?

(a) North-Eastern Railway Zone
(b) North-Central Railway Zone
(c) Northern Railway Zone
(d) Central Railway Zone

Answer: (c)

26. F : 216 : : L : ?
(a) 1700
(b) 1728
(c) 1600
(d) 1723
Answer: (b)

27. In the coding language, if GANGA is described by 711471, then the code of SARJU is
(a) 191181021
(b) 198111021
(c) 174117
(d) 911810112
Answer: (a)

28. A man walks 8 km towards West, then walks 6 km towards North. How far he is from the starting point ?
(a) 12 km
(b) 20 km
(c) 10 km
(d) 14 km
Answer: (c)

29. What will be the angle between two needles (hou nd minute) at 2 hour 30 minutes ?
(a) 120°
(b) 95°
(c) 105°
(d) 170°
Answer: (c)

30. Find analogy.
Prayagraj : Ganga : : Ayodhya : ?
(a) Gomati
(b) Saraswati
(c) Yamuna
(d) Saryu
Answer: (d)

31. The soil which transport along with water is called
(a) Alluvial
(b) Muck
(c) Colluvial
(d) Peat
Answer: (a)

32. Sequence of species related to each other as prey and predator is termed as

(a) Food chain
(b) Animal cycle
(c) Niche
(d) Eutrophication

Answer: (a)

33. Animals living at the bottom of the sea are called

(a) Lentic
(b) Pelagic
(c) Lotic
(d) Benthic

Answer: (d)

34. The power of a power house is 200 Megawatt. The electrical energy produced by this power house per day will be

(a) 200 Megawatt hour
(b) 4800 Joule
(c) 4800 Megawatt hour
(d) 4800 Megawatt

Answer: (c)

35. National Science Day is celebrated on

(a) 28th January
(b) 28th April
(c) 28th February
(d) 28th March

Answer: (c)

36. The target of the mission 'Jal-Jeevan' – 'A tap in every home' started by Indian Central Government has been firstly achieved by which State ?

(a) Goa
(b) Madhya Pradesh
(c) Sikkim
(d) Gujarat

Answer: (a)

37. "Thai Poosam", a religious festival celebrated in which Indian State ?

(a) Andhra Pradesh
(b) Karnataka
(c) Odisha
(d) Tamil Nadu

Answer: (d)

38. Which State launched 'Kisan Kalyan Mission' to promote the income of farmers ?
(a) Uttar Pradesh
(b) Jharkhand
(c) Bihar
(d) Gujarat
Answer: (a)

39. Booker Award for the year 2020 has been given for which book ?
(a) Shuggie-Bàin
(b) Voices of Dissent
(c) The Republic Ethic
(d) My Years with Rajiv : Triumph and Tragedy
Answer: (a)

40. Recently on which river the Shahtoot dam will be built with the consent of India and Afghanistan ?
(a) Arghandab river
(b) Peck river
(c) Maidan river
(d) Kunar river
Answer: (c)

41. When was Goods and Service Tax (GST) implemented in India ?
(a) 1 January 2017
(b) 1 July 2017
(c) 1 April 2017
(d) 1 July 2016
Answer: (b)

42. Puducherry comes under the jurisdiction of which High Court ?
(a) Kerala
(b) Calcutta
(c) Madras
(d) Karnataka
Answer: (c)

43. Which of the following was not the main feature of the Government of India Act, 1919 ?
(a) Dyarchy in the provinces
(b) Dyarchy at the centre
(c) Relaxation of Central control over the provinces
(d) The Indian Legislature was made more representative
Answer: (b)

44. Who created the Brihadeshwar Temple of Tanjore ?
    (a) Rajraj Pratham
    (b) Aditya Pratham
    (c) Rajendra Pratham
    (d) Rajadhiraj Pratham
    Answer: (a)

45. "Atal Innovation Mission" is related with
    (a) Rural Development
    (b) Space Technology
    (c) Entrepreneurship Development
    (d) Information Technology
    Answer: (c)

46. Which Indian State has the largest area under forest ?
    (a) Arunachal Pradesh
    (b) Maharashtra
    (c) Chhattisgarh
    (d) Madhya Pradesh
    Answer: (d)

47. Which of the following river does not form the del
    (a) Krishna
    (b) Narmada
    (c) Kaveri
    (d) Mahanadi
    Answer: (b)

48. When Cabinet Mission came in India ?
    (a) February 1945
    (b) March 1945
    (c) January 1946
    (d) March 1946
    Answer: (d)

49. The Vice-President in India is the Ex-officio Chairman of the
    (a) Lok Sabha
    (b) NITI Aayog
    (c) Finance Commission
    (d) Rajya Sabha
    Answer: (d)

50. How many subjects are there in 11th Schedule of the Indian Constitution ?
    (a) 27
    (b) 20
    (c) 25
    (d) 29

    Answer: (d)

Science and Math

51. Four chambered heart is found in
    (a) Bird and mammal
    (b) Mammal from fishes
    (c) Reptile and bird
    (d) Amphibian and reptile

    Answer: (a)

52. Which of the following order of the class mammalia is completely aquatic ?
    (a) Carnivora
    (b) Ungulata
    (c) Cetacea
    (d) Rodentia

    Answer: (c)

53. Nails, claws, hoofs and horns are developed frc
    (a) Epidermis
    (b) Cartilage
    (c) Dermis
    (d) Bone

    Answer: (a)

54. Which of the following Vitamins is mainly responsible for blood coagulation in human being ?
    (a) Vitamin E
    (b) Vitamin A
    (c) Vitamin K
    (d) Vitamin C

    Answer: (c)

55. The animals with digging or burrowing habits shows the following type of adaptations
    (a) Scansorial adaptation
    (b) Volant adaptation
    (c) Cursorial adaptation
    (d) Fossorial adaptation

    Answer: (d)

56. Working principle of ELISA is
    (a) Phagocytic process
    (b) Antigen-antibody interaction
    (c) Amplification process
    (d) Magnification process
    Answer: (b)

57. Code of Bt toxin gene is
    (a) cry
    (b) alu
    (c) lac
    (d) trp
    Answer: (a)

58. In which of the following process oxygen is not required ?
    (a) Photosynthesis
    (b) Aerobic respiration
    (c) Glycolysis
    (d) Electron transport system
    Answer: —

59. Mycorrhiza is example of
    (a) Fungistasis
    (b) Mutualism
    (c) Amensalism
    (d) Antibiosis
    Answer: (b)

60. Which one of the following is responsible for denitrification ?
    (a) Rhizobium and Azotobacter
    (b) Rhizobium and Nostoc
    (c) Pseudomonas and Thiobacillus
    (d) Anabaena and Nostoc
    Answer: (c)

61. "Belladona" medicine is obtained from which part of Atropa Belladona ?
    (a) from stem
    (b) from all the parts of plants
    (c) from root
    (d) from leaves and root
    Answer: —

62. Jute is obtained by
    (a) Solanum
    (b) Corchorus Capsularis
    (c) Pinus
    (d) Datura
    Answer: (b)

63. Cotton is obtained from
    (a) Gossypium
    (b) Oryza sativa
    (c) Rauwolfia
    (d) Glycine max
    Answer: (a)

64. In compositae family the flower is
    (a) Hypogynous
    (b) None of these
    (c) Epigynous
    (d) Perigynous
    Answer: (c)

65. Cocaine is obtained from
    (a) Cannabis plant
    (b) Poppy plant
    (c) Atropa plant
    (d) Erythroxylum plant
    Answer: (d)

66. Amongst the following compounds, the compound having zero dipole moment is
    (a) H_2O
    (b) ClO_2
    (c) BF_3
    (d) NF_3
    Answer: (c)

67. Considering their atomic numbers and their position in the periodic table, the correct order of increasing metallic character is
    (a) Si < Be < Mg < P < Na
    (b) P < Si < Be < Mg < Na
    (c) Na < Mg < Be < Si < P
    (d) Na < Si < Be < Mg < P
    Answer: (b)

68. The chief constituent of photochemical smog is
    (a) NO_2 gas
    (b) None of these
    (c) PAN
    (d) Both (1) and (3)

    Answer: (d)

69. Methaemoglobinaemia disease is caused by
    (a) High concentration of nitrates in drinking water
    (b) High concentration of fluorides in drinking water
    (c) High concentration of nitrites in drinking water
    (d) High concentration of CH_4 (methane) in drinking water

    Answer: (a)

70. Which of the following reactions will need maximum amount of energy ?
    (a) $Na \rightarrow Na^+ + 1e^-$
    (b) $C^{2+} \rightarrow C^{3+} + 1e^-$
    (c) $Ca^+ \rightarrow Ca^{2+} + 1e^-$
    (d) $K^+ \rightarrow K^{2+} + 1e^-$

    Answer: (b)

71. Which one of the following mirrors is being used in headlights of vehicles ?
    (a) convex mirror
    (b) none of these
    (c) concave mirror
    (d) plane mirror

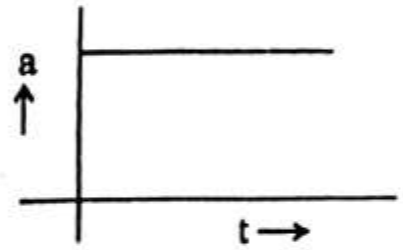
    Answer: (c)

72. The resistivity of a material is found to decrease with an increase in temperature. The material is
    (a) Constantan
    (b) Silver
    (c) Silicon
    (d) Nichrome

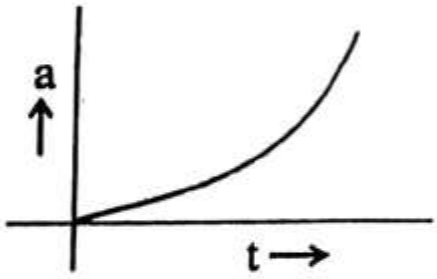
    Answer: (c)

73. Which one of the following graph represents acceleration (a) vs Time (t) of an object moving under free fall ?

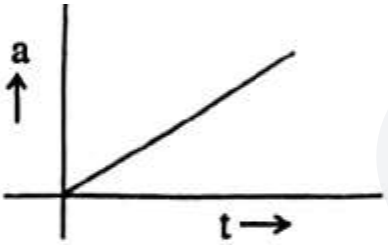
(a)



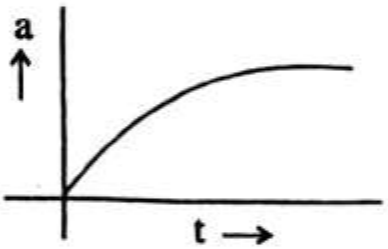
(b)



(c)



(d)



Answer: (a)

74. 1KB (Kilobyte) is equal to

(a) 1024 bytes

(b) 1010 bytes

(c) 1000 bytes

(d) 1020 bytes

Answer: (a)

75. Which of the following has the highest frequency ?

(a) Visible light

(b) Infra-red rays

(c) Ultra-violet light

(d) X-rays

Answer: (d)

76. A car covers the first half of a certain distance with a speed v1 and the second half with a speed v2. The average speed (v) of v1 and v2 during the whole journey will be

(a) Arithmetic mean

(b) Harmonic mean

(c) Half of harmonic mean

(d) Geometric mean

Answer: (b)

77. At which temperature Celsius and Fahrenheit measurement is equal ?

(a) 0°

(b) 100°

(c) 40°

(d) −40°

Answer: (d)

78. Which of the following is used in refrigeration ?

(a) Sulfur dioxide

(b) Phosphine

(c) Chlorine

(d) Freon

Answer: (d)

79. Ampere-hour is an unit of

(a) Quantity of electricity

(b) Energy

(c) Power

(d) Strength of electric current

Answer: (a)

80. The field around direct current carrying conductor is/are (where E and B are respectively represent electric field and magnetic field)

(a) Only E

(b) Neither E nor B

(c) Only B

(d) Both E and B

Answer: (c)

81. According to animal classification, which of the following group of animals is correct ?
(a) Nereis, Earthworm, Starfish
(b) Hirudinaria, Unio, Antedon
(c) Euplectella, Spongilla, Sycon
(d) Octopus, Starfish, Jellyfish
Answer: (c)

82. Amoeba is a
(a) unicellular animal
(b) bacterium
(c) unicellular plant
(d) unicellular protist
Answer: (d)

83. Presence of 'Canal System' is the characteristic feature of phylum
(a) Porifera
(b) Echinodermata
(c) Coelenterata
(d) Platehelminthes
Answer: (a)

84. Long bones with air cavities and lungs with air sa[illegible]re the features of class
(a) Amphibia
(b) Mammalia
(c) Reptilia
(d) Aves
Answer: (d)

85. Beneficial insect is
(a) Gandhi bug
(b) Culex
(c) Aphid
(d) Apis
Answer: (d)

86. The rearing of silk worm is known as
(a) Horticulture
(b) Sericulture
(c) Aquaculture
(d) Apiculture
Answer: (b)

87. Respiratory centre of the body is present in the
(a) Medulla of the brain
(b) Spinal cord
(c) Cerebellum of the brain
(d) Cerebral hemisphere of the brain
Answer: (a)

88. Loop of Henle is concerned with
(a) Reproduction
(b) Digestion
(c) Excretion
(d) Respiration
Answer: (c)

89. Which of the following is called 'Blood bank' of human body ?
(a) Heart
(b) Kidney
(c) Spleen
(d) Bone marrow
Answer: (c)

90. Polyp and Medusa are the alternative body forms esent in the animals of kingdom
(a) Porifera
(b) Arthropoda
(c) Coelenterata
(d) Annelida
Answer: (c)

91. The electronegativity of N, O, P and S increases in the order
(a) N < O < P < S
(b) P < N < O < S
(c) S < P < N < O
(d) P < S < N < O
Answer: (d)

92. Point out the incorrect statement.
(a) The gases responsible for acid rain are mainly SO2 and NO2.
(b) Tetra Ethyl Lead (TEL) is added to gasoline so that the gases coming out of vehicles may not cause air-pollution.
(c) Ozone layer in atmosphere protects us from harmful UV radiations.
(d) The incessant use of insecticides has caused soil pollution.
Answer: (b)

93. The hybridization of Xe in XeF6 is

(a) dsp^2

(b) sp^3d^3

(c) sp^3d

(d) sp^2

Answer: (b)

94. What is the correct order of increasing electronegativity for the following elements ?
Li, Mg, Be, C

(a) Li < Mg < Be < C

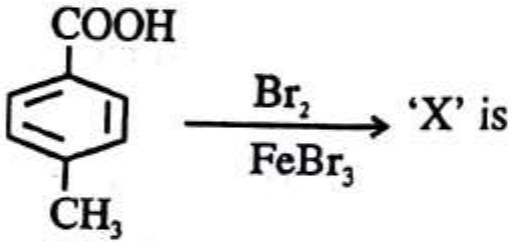
(b) Be < Li < Mg < C

(c) Mg < Be < Li < C

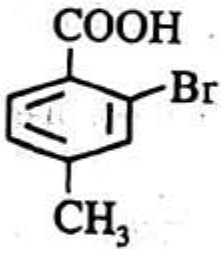
(d) C < Mg < Li < Be

Answer: (a)

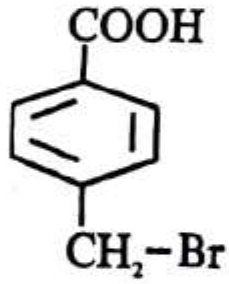
95. The product 'X' in the following reaction



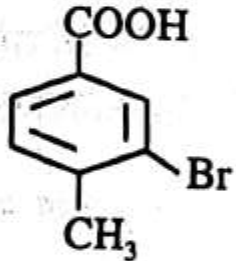
(a)



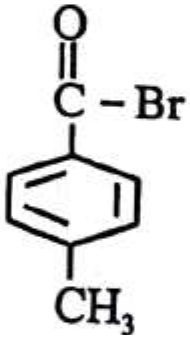
(b)



(c)



(d)



Answer: (c)

96. Which property of the virus suggest that it is abiotic ?
(a) Because it has genetic material
(b) Because it can cause disease
(c) Because it can reproduce
(d) Because crystalization of virus is possible
Answer: (d)

97. Nostoc presence in farm land can contribute in
(a) Phosphorus cycle
(b) Water cycle
(c) Carbondioxide cycle
(d) Nitrogen cycle
Answer: (d)

98. Which one of the following is neither a Prokaryote nor an Eukaryote ?
(a) Nostoc
(b) T.M.V.
(c) Saccharomyces
(d) E. Coli
Answer: (b)

99. In which condition both the arms of chromosome same ?
(a) Metacentric
(b) Submetacentric
(c) Acrocentric
(d) Telocentric
Answer: (a)

100. Which is Suicide Bag ?
(a) Centrosome
(b) Lysosome
(c) Mesosome
(d) Ribosome
Answer: (b)

101. Which of the following is not the ore of Iron ?
(a) magnetite
(b) petalite
(c) limonite
(d) hematite
Answer: (b)

102. Which one of the following alloy is not properly matched with regard to its composition ?
Alloy – Composition

(a) Brass – Copper and Zinc

(b) Solder – Lead and Zinc

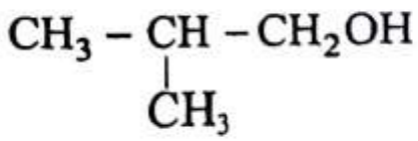
(c) Gun metal – Copper, Tin and Zinc

(d) Nichrome – Nickel, Iron and Chromium

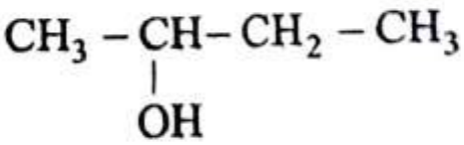
Answer: (b)

103. Which of the following compound gives the most stable carbonium ion during dehydration reaction ?

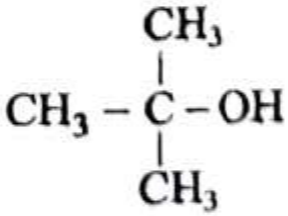
(a)



(b)



(c)



(d) CH3CH2CH2CH2OH

Answer: (c)

104. The acid found in tamarind is

(a) Citric Acid

(b) Acetic Acid

(c) Ascorbic Acid

(d) Tartaric Acid

Answer: (d)

105. The order of reactivities of the following alkylhalides for S_N2 reaction is

(a) RF > RCl > RBr > RI

(b) RI > RBr > RCl > RF

(c) RF > RBr > RCl > RI

(d) RCl > RBr > RF > RI

Answer: (b)

106. There is a hole in a copper disc, if the disc is heated, the size of the hole
(a) Increases
(b) First increases, then decreases
(c) Decreases
(d) Remains the same
Answer: (a)

107. One nanometre is equivalent to
(a) 10−9 mm
(b) 10−7 cm
(c) 10−9 cm
(d) 10−7 mm
Answer: (b)

108. Which device converts thermal energy into electrical energy ?
(a) Hydrometer
(b) Photocell
(c) Thermocouple
(d) Voltmeter
Answer: (c)

109. Which of the following is non-conservative force
(a) Electrostatic force
(b) Inter-atomic force
(c) Gravitational force
(d) Viscous force
Answer: (d)

110. Roaring of lion has
(a) low intensity and high pitch
(b) both low intensity and low pitch
(c) high intensity and low pitch
(d) both high intensity and high pitch
Answer: (c)

111. The ratio of areas of the incircle and circumcircle of a square will be
(a) 1 : 2
(b) 1 : 4
(c) 1 : $\sqrt{2}$
(d) 1 : $\sqrt{3}$
Answer: (a)

112. Consider the following table :
Marks : 1-10, 11-20, 21-30, 31-40, 41-50, 51-60
No. of Students : 2, 4, 6, 3, 3, 2
The percentage of students obtaining more than 10 and less than or equal to 40 marks is

(a) 15
(b) 74
(c) 65
(d) 69

Answer: (c)

113. $\sin^{-1}(5/13) + \cos^{-1}(3/5)$ is equal to which of the following ?

(a) $\sin^{-1}(63/16)$
(b) $\tan^{-1}(63/16)$
(c) $\cos^{-1}(63/16)$
(d) $\cot^{-1}(63/16)$

Answer: (b)

114. To construct a quadrilateral at least how many independent informations are required ?

(a) 3
(b) not definite
(c) 4
(d) 5

Answer: (d)

115. The largest number amongst the numb[illegible]√0.[illegible].9, $(0.9)^2$, $(0.9)^3$ is

(a) 0.9
(b) √0.9
(c) $(0.9)^3$
(d) $(0.9)^2$

Answer: (b)

116. For how many real values of n the equation a^($2n^2$ + 2) = 1 has a solution ?

(a) 1
(b) zero
(c) 2
(d) 4

Answer: (b)

117. If the difference of radius of two concentric circles is 2 and the distance between their centres when they touches each other externally is 8, then the radius of the bigger circle is

(a) 6
(b) 4
(c) 7
(d) 5

Answer: (d)

118. If x^(3n) + y^(3n) is divisible by x + y, then

(a) $n \geq 0$, integer

(b) n is only positive even integer

(c) n is only odd integer

(d) n is only positive odd integer

Answer: (a)

119. Number of real solutions of the equation $x - 1/(x^2 - 9) = 3 - 1/(x^2 - 9)$ will be

(a) 0

(b) 3

(c) 1

(d) 2

Answer: (a)

120. If x − y and y − 2x are two factors of the expression $x^3 - 3x^2y + \lambda xy^2 + \mu y^3$, then

(a) $\lambda = 11/4, \mu = 3/4$

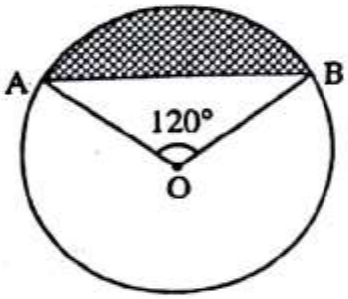
(b) $\lambda = -11/4, \mu = -3/4$

(c) $\lambda = -11/4, \mu = 3/4$

(d) $\lambda = 11/4, \mu = -3/4$

Answer: (d)

121. What is the area of shadowed part in the figure, if dius of circle is 42 cm and ∠AOB = 120° and O is the center of circle ? [π = 22/7]



(a) $21(88 - 21\sqrt{3})$ cm²

(b) None of these

(c) $½(73 - \sqrt{3})$ cm²

(d) 42 cm²

Answer: (a)

122. What will be the values of p and q, when $px^3 + x^2 - 2x - q$ is exactly divisible by (x − 1) and (x + 1) ?

(a) p = 2, q = 1

(b) p = −1, q = 1

(c) p = 1, q = 2

(d) p = 3, q = 4

Answer: (a)

123. The employer decreases the number of his employees in the ratio 10 : 9 and increases their wages in the ratio 11 : 12, then what is the ratio of his two expenditure ?

(a) 55 : 54
(b) 50 : 45
(c) 61 : 57
(d) 77 : 84

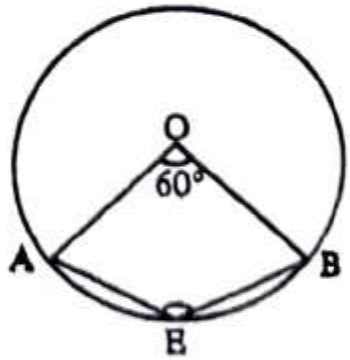
Answer: (a)

124. If (a + b) : (b + c) : (c + a) = 6 : 7 : 8 and a + b + c = 14, then what will be the value of a : b : c ?

(a) 3 : 7 : 4
(b) 6 : 7 : 8
(c) 7 : 5 : 9
(d) 12 : 14 : 16

Answer: (c)

125. In the given figure O is the centre of the circle and ∠AOB = 60°, then value of ∠AEB will be



(a) 105°
(b) 105.5°
(c) 75°
(d) 150°

Answer: (d)

126. The sum of real roots of the equation $x^2 + |x| - 6 = 0$ is

(a) 4
(b) 5
(c) 0
(d) −1

Answer: (c)

127. Maximum value of the expression 2 sinx + 4 cosx + 3 is

(a) $2\sqrt{5}$
(b) $\sqrt{5} + 3$
(c) $2\sqrt{5} + 3$
(d) $2\sqrt{5} - 3$

Answer: (c)

128. The chord of a circle is equal to its radius. The angle subtended by this chord at any point of the minor arc of the circle is

(a) 60°

(b) 120°

(c) 150°

(d) 75°

Answer: (c)

129. A cone and a hemisphere have equal bases and equal volumes. The ratio of the height of cone and radius of the sphere is

(a) 2 : 1

(b) √3 : 1

(c) 1 : 2

(d) 4 : 1

Answer: (a)

130. L.C.M. of 1/3, 5/6, 2/9, 4/27 is

(a) 1/27

(b) 10/27

(c) 20/3

(d) 27/4

Answer: (c)

131. If the negative roots of the quadratic equation x px + 54 = 0 are in the ratio 2 : 3, then the value of p is

(a) 15

(b) −21

(c) −15

(d) −6

Answer: (c)

132. If the arithmetic mean and geometric mean of any two numbers a and b are equal, then

(a) √(a + b) = √(ab)

(b) a = b

(c) a + b = √(ab)

(d) a + b = ab

Answer: (b)

133. If the coordinate of three points O, A and B are respectively (0, 0), (0, 3) and (5, 0), then the circumcentre and radius of the triangle OAB are

(a) (5/4, 3/4), √34

(b) (5/2, 3/2), √34/2

(c) (5, 3), √34/4

(d) (5√2, 3√2), √34/2

Answer: (b)

134. In a simultaneous throw of two coins, the probability of not getting a 'head' is

(a) 3/4

(b) 1/2

(c) 1/4

(d) 1/3

Answer: (c)

135. If $0 < n < 1$, then which one of the following is not true ?

(a) $n^{10} < 1$

(b) $n^{100} > 1$

(c) $n^{10} > n^{100}$

(d) $1/n^{10} < 1/n^{100}$

Answer: (b)

136. If $2^x = 3^y = 6^{+z}$, then the value of $-1/x + 1/y + 1/z$ =

(a) 0

(b) 1

(c) 1/3

(d) 1/6

Answer: —

137. If product of two numbers be 32. If the average of these numbers is 6, then sum of the cube of these numbers will be

(a) 864

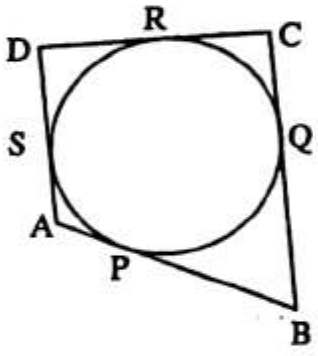
(b) 576

(c) 624

(d) 430

Answer: (b)

138. In the given figure a circle is circumscribed in quadrilateral ABCD, then AB + CD will be equal to



(a) AD + BC

(b) 2(AD + BC)

(c) 2AD + BC

(d) AD + 2BC

Answer: (a)

139. The maximum value of sinθ − cosθ is

(a) 2

(b) (√3 + 1)/2

(c) √2

(d) 1

Answer: (c)

140. 21 workers can construct any wall in 25 days. If 14 more workers are deployed, then in how many days they will complete the whole work ?

(a) 21 days

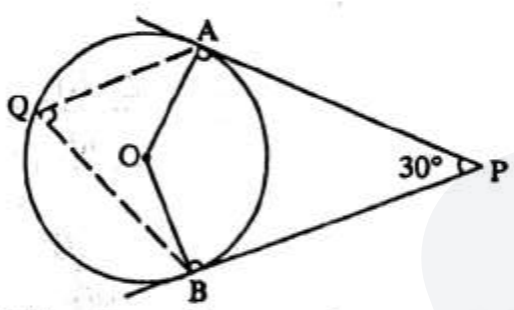
(b) 12 days

(c) 18 days

(d) 15 days

Answer: (d)

141.



If in the adjacent figure PA, PB are tangents of the circle and ∠APB = 30°, then the value of ∠AQB will be

(a) 30°

(b) 75°

(c) 60°

(d) 150°

Answer: (b)

142. In a single throwing of a dice, the probability of getting more than 4 is 1/3, then probability of getting 4 or less than 4 will be

(a) 1/3

(b) 5/6

(c) 2/3

(d) 1/6

Answer: (c)

143. The area of largest triangle that can be inscribed in a semi-circle of radius 3 cm is

(a) 9 cm²

(b) 3 cm²

(c) 18 cm²

(d) 27 cm²

Answer: (a)

144. If $1 < x < 2$, then what is the value of $\sqrt{(x + 2\sqrt{(x - 1)})} + \sqrt{(x - 2\sqrt{(x - 1)})}$?

(a) 2

(b) $\sqrt{(x - 1)}$

(c) $2\sqrt{(x - 1)}$

(d) $2 + 2\sqrt{x - 1}$

Answer: (a)

145. The number $23.4\bar{3}$ in the form p/q (p, q are integers, $q \neq 0$) is

(a) 2343/100

(b) 2320/100

(c) 2343/999

(d) 2320/99

Answer: (d)

146. A person prints the price of his article to 30% more than its cost price and gives 30% discount to its printed price. His profit/loss percentage is

(a) Loss 6%

(b) No any profit/loss

(c) Profit 9%

(d) Loss 9%

Answer: (d)

147. The algebraic expression $(x - a)(x - b)(x - c) \ldots (x - y)(x - z)$ will have the degree

(a) 26

(b) 0 (zero)

(c) undefined

(d) 1

Answer: (c)

148. If α, β be the roots of the equation $x^2 - px + r = 0$ and α/2, 2β be the roots of the equation $x^2 - qx + r = 0$, then the value of r will be

(a) $(2/9)(p - q)(2q - p^2)$

(b) $(2/9)(2p - q)(2q - p)$

(c) $(2/9)(q - p)(2p - q)$

(d) $(2/9)(q - 2p)(2q - p)$

Answer: (b)

149. For what values of A, $\sqrt{3}\cos\theta + \sin\theta = A$ is true ?

(a) −3

(b) −5/2

(c) 3

(d) 0

Answer: (d)

150. Marks obtained – Number of students
Less than 10 – 3
Less than 20 – 7
Less than 30 – 13
Less than 40 – 16
Less than 50 – 21
Less than 60 – 27
On the basis of above table if the frequency of class interval 20 – 30 is p and of 40 – 50 is q, then the difference of p and q is

(a) 1

(b) 11

(c) 6

(d) 5

Answer: (a)

Answer key

Answer key from the Examination Regulatory Authority, Uttar Pradesh, Prayagraj's official answer key for this sitting. "—" means the key gave none.

General Knowledge

1	**(a)**	2	**(b)**	3	**(d)**	4	**(d)**	5	**(b)**	6	**(a)**
7	**(a)**	8	**(d)**	9	**(b)**	10	**(b)**	11	**(d)**	12	**(a)**
13	**(c)**	14	**(d)**	15	**(c)**	16	—	17	**(d)**	18	**(a)**
19	**(a)**	20	**(c)**	21	**(d)**	22	**(d)**	23	**(a)**	24	**(d)**
25	**(c)**	26	**(b)**	27	**(a)**	28	**(c)**	29	**(c)**	30	**(d)**
31	**(a)**	32	**(a)**	33	**(d)**	34	**(c)**	35	**(c)**	36	**(a)**
37	**(d)**	38	**(a)**	39	**(a)**	40	**(c)**	41	**(b)**	42	**(c)**
43	**(b)**	44	**(a)**	45	**(c)**	46	**(d)**	47	**(b)**	48	**(d)**
49	**(d)**	50	**(d)**								

Science and Math

51	**(a)**	52	**(c)**	53	**(a)**	54	**(c)**	55	**(d)**	56	**(b)**
57	**(a)**	58	—	59	**(b)**	60	**(c)**	61	—	62	**(b)**
63	**(a)**	64	**(c)**	65	**(d)**	66	**(c)**	67	**(b)**	68	**(d)**
69	**(a)**	70	**(b)**	71	**(c)**	72	**(c)**	73	**(a)**	74	**(a)**
75	**(d)**	76	**(b)**	77	**(d)**	78	**(d)**	79	**(a)**	80	**(c)**
81	**(c)**	82	**(d)**	83	**(a)**	84	**(d)**	85	**(d)**	86	**(b)**
87	**(a)**	88	**(c)**	89	**(c)**	90	**(c)**	91	**(d)**	92	**(b)**
93	**(b)**	94	**(a)**	95	**(c)**	96	**(d)**	97	**(d)**	98	**(b)**
99	**(a)**	100	**(b)**	101	**(b)**	102	**(b)**	10	**(c)**	104	**(d)**
105	**(b)**	106	**(a)**	107	**(b)**	108	**(c)**	109	**(d)**	110	**(c)**
1	**(a)**	112	**(c)**	113	**(b)**	114	**(d)**	115	**(b)**	116	**(b)**
117	**(d)**	118	**(a)**		**(a)**	120	**(d)**	121	**(a)**	122	**(a)**
123	**(a)**	124	**(c)**	125	**(d)**	126		27	**(c)**	128	**(c)**
129	**(a)**	130	**(c)**	131	**(c)**	132	**(b)**	133	**(b)**	134	**(c)**
135	**(b)**	136	—	137	**(b)**	138	**(a)**	139	**(c)**	140	**(d)**
141	**(b)**	142	**(c)**	143	**(a)**	144	**(a)**	145	**(d)**	146	**(d)**
147	**(c)**	148	**(b)**	149	**(d)**	150	**(a)**				