

77. रमन प्रभाव सर सी० वी० रमन के कारण है। 'रमन प्रभाव' के बारे में निम्नलिखित में से कौन-सा कथन सही है?

- (A) रमन प्रभाव प्रकाश के प्रत्यास्थ प्रकीर्णन का एक उदाहरण है।
- (B) प्रकीर्णित प्रकाश की आवृत्ति प्रकीर्णन के बाद बढ़ती भी है और घटती भी है।
- (C) आपतित प्रकाश की आवृत्ति प्रकीर्णन के बाद केवल कम हो सकती है।
- (D) उपर्युक्त में से कोई नहीं



78. जब सुरेश को नहाना होता है, तो उसके पास पानी की दो आधी भरी बाल्टियाँ होती हैं। एक बाल्टी में पानी का तापमान  $25^{\circ}\text{C}$  (कमरे का तापमान) है और दूसरी बाल्टी में पानी का तापमान  $60^{\circ}\text{C}$  है। नहाने से पहले उसके दिमाग में दो योजनाएँ हैं :

योजना 1 : वह दोनों पानी को एक बाल्टी में मिलाता है और स्नान करने से पहले 20 मिनट प्रतीक्षा करता है।

योजना 2 : सबसे पहले, वह 20 मिनट प्रतीक्षा करता है और नहाने से ठीक पहले पानी मिलाता है।

वह इस बात को लेकर असमंजस में है कि उसे गर्म पानी दिलाने के लिए कौन-सी योजना काम करेगी। सही योजना ढूँढ़ने में उसकी मदद कीजिए।

- (A) योजना 1 सही है
- (B) योजना 2 सही है
- (C) योजना 1 और योजना 2 दोनों के समान परिणाम होंगे
- (D) उपर्युक्त में से कोई नहीं

79. अर्धचालक वे सामग्रियाँ हैं जिनमें निम्न गुण होते हैं

- (A) विद्युत् चालकता धातुओं की चालकता से अधिक होती है
- (B) विद्युत् चालकता धातुओं की चालकता से कम होती है
- (C) विद्युत् चालकता शून्य होती है
- (D) उपर्युक्त में से कोई नहीं

80. सौर सेल एक उपकरण है जो प्रकाश ऊर्जा को विद्युत् ऊर्जा में परिवर्तित करता है। हमें ऊर्जा का उच्चतम उत्पादन दोपहर के समय प्राप्त होता है, जब सूर्य हमारे सिर के ठीक ऊपर होता है क्योंकि

- (A) जब सूर्य की किरणें लंबवत् गिरती हैं, तो प्रकाश विकिरण का घनत्व अधिकतम होता है
- (B) दोपहर में सबसे अधिक ऊष्मा उत्पन्न होती है
- (C) दोपहर के समय सूर्य पृथ्वी के सबसे निकट होता है
- (D) उपर्युक्त में से कोई नहीं

81. निम्नलिखित में से कौन-सी धातु संक्षारण नहीं करती है?

- (A) सोना
- (B) लोहा
- (C) प्लैटिनम
- (D) उपर्युक्त में से एक से अधिक

41. Which Constitutional Amendment Act has added new provisions related to cooperative societies in fundamental rights and DPSPs of the Constitution of India?

- (A) 97th Constitutional Amendment Act of 2011
- (B) 96th Constitutional Amendment Act of 2011
- (C) 95th Constitutional Amendment Act of 2009
- (D) None of the above



42. Which of the following committees consist of the representatives of both the Lok Sabha and Rajya Sabha?

- 1. Estimate Committee
- 2. Committee on Sub-ordination Legislation
- 3. Public Accounts Committee
- 4. Committee on Public Understanding

Select the correct answer.

- (A) 1, 2, 3 and 4
- (B) 3 and 4 only
- (C) 2, 3 and 4 only
- (D) None of the above

43. Any political party could be recognized as National Party, if

- 1. it is recognized as State party in four States
- 2. it secures 4% valid votes in Lok Sabha or State Legislative Assembly
- 3. it wins 2% of seats in Lok Sabha at general election from three States

Select the correct answer.

- (A) 1 only
- (B) 2 and 3
- (C) 1 and 3
- (D) None of the above

44. Sarkaria Commission was appointed with the objective

- (A) to review Panchayati Raj system
- (B) to review Centre-State relations
- (C) to review the Constitution
- (D) None of the above

45. In India, judicial review is based on

- (A) due process of law
- (B) procedure established by law
- (C) rule of law
- (D) None of the above





46. The Indian Nationalist leader who delivered lecture on Joseph Mazzini and the 'Young Italy' movement was

- (A) Subhas Chandra Bose
- (B) Surendranath Banerjee
- (C) Jawaharlal Nehru
- (D) None of the above

47. Welby Commission (1895) was constituted on which of the following matters?

- (A) Education in India
- (B) Indian Expenditure
- (C) Land Revenue
- (D) None of the above

48. Who wrote that "In granting separate electorates we are sowing the dragon's teeth and the harvest will be bitter"?

- (A) Minto
- (B) Morley
- (C) Gladstone
- (D) None of the above

49. The Leaders' Manifesto condemning the exclusion of Indians from the Simon Commission was signed by

- (A) Sir Ali Imam
- (B) Shri Sachchidananda Sinha
- (C) Nawab Ismail Khan
- (D) More than one of the above

50. Who was the editor of *Searchlight* newspaper in Bihar?

- (A) Nibaran Chandra Dasgupta
- (B) Murli Manohar Prasad
- (C) Manindra Narayan Roy
- (D) None of the above

51. By which Act the power of government transferred the Company to the Crown?

- (A) 1813
- (B) 1835
- (C) 1858
- (D) 1861

52. With which incident Subhas Chandra Bose compared to Napoleon's March to Paris on his return from Elba?

- (A) Mahatma Gandhi's Champaran Visit
- (B) Mahatma Gandhi's Salt March
- (C) Mahatma Gandhi's Quit India Movement
- (D) Mahatma Gandhi's participation in Second Round Table Conference



82. A substance added to food containing fats and oils is called

- (A) oxidant
- (B) rancid
- (C) antioxidant
- (D) None of the above

83. Electrolysis of water is a

- (A) displacement reaction
- (B) decomposition reaction
- (C) combination reaction
- (D) More than one of the above

84. Tomato is a natural source of which acid?

- (A) Acetic acid
- (B) Tartaric acid
- (C) Oxalic acid
- (D) None of the above

85. 100% pure ethanol is called

- (A) absolute alcohol
- (B) denatured alcohol
- (C) ethanoic acid
- (D) None of the above

86. Consider the following statements :

1. Crystallization is the process of deriving crystals of pure substance from their solution.
2. A bonding between constituent atoms or molecules takes place during crystallization.
3. It is an example of chemical change.

Which of the statements given above is/are correct?

- (A) 1, 2 and 3
- (B) 1 and 2 only
- (C) 1 only
- (D) None of the above

87. In one of the following options, materials are arranged in increasing order of force of attraction between their particles. Find the correct option.

- (A) Hydrogen gas, water, iron metal
- (B) Air, salt, juice
- (C) Salt, juice, air
- (D) None of the above





95. Name a clinical trial in which blood is transfused from recovered COVID-19 patient to a corona virus patient who is in critical condition.

- (A) Plasma therapy
- (B) Remdesivir
- (C) Solidarity
- (D) None of the above

96. The site of photosynthesis in the cells of a leaf is

- (A) cytoplasm
- (B) mitochondria
- (C) protoplasm
- (D) None of the above

97. Protista group includes

- (A) unicellular eukaryotic organisms
- (B) heterotrophic eukaryotic organisms
- (C) all green plants
- (D) None of the above

98. Consider the following statements :

1. The crops which are sown in the rainy season are called Rabi crops.
2. Paddy, maize, soya bean, groundnut and cotton are Rabi crops.
3. The crops grown in the winter season are called Kharif crops.

Which of the statements given above is/are correct?

- (A) 1, 2 and 3
- (B) 1 and 2 only
- (C) 1 and 3 only
- (D) None of the above

99. Pomology is the study of

- (A) leaves
- (B) fruits
- (C) flowers
- (D) None of the above

100. Movement of leaves of the sensitive plant *Mimosa pudica* is referred as

- (A) chemonasty
- (B) hydrotropism
- (C) thermonasty
- (D) None of the above



71. Which of the following is the correct match?

- (A) Electric motor → Electrical energy to mechanical energy
- (B) Safety fuses → Heating effect of electric current
- (C) Electric generator → Electro-magnetic induction
- (D) More than one of the above

72. The defect of vision in which a person cannot see the distant objects clearly but can see nearby objects clearly is called

- (A) myopia
- (B) hypermetropia
- (C) presbyopia
- (D) None of the above

73. SONAR technique uses

- (A) X-rays
- (B) infrared waves
- (C) microwaves
- (D) None of the above

74. During the lightning, which phenomenon takes place?

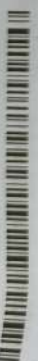
- (A) Electric charging
- (B) Electric discharge
- (C) Accumulation of electric charge
- (D) None of the above

75. A much hyped 'god-particle' was discovered in the CERN European Laboratory in 2012. The scientific name of the 'god-particle' is

- (A) Higgs electron
- (B) Higgs boson
- (C) a quark
- (D) None of the above

76. A beam of blue light was used to obtain diffraction pattern using a diffraction grating. If yellow light is used by replacing the blue light

- (A) diffraction pattern becomes narrower and crowded together.
- (B) diffraction pattern does not change
- (C) diffraction pattern becomes broader and farther apart
- (D) None of the above



88. Which of the following would weigh the highest?

- (A) 0.2 mole of sucrose ( $C_{12}H_{22}O_{11}$ )
- (B) 2 moles of  $CO_2$
- (C) 2 moles of  $CaCO_3$
- (D) None of the above

89. The term 'green chemistry' refers to

- (A) a process of synthesizing chemical compounds by minimizing the use of hazardous chemicals
- (B) innovative scientific solutions to real world environmental problems
- (C) the process that reduces the negative impact of chemical processes on human health and environment
- (D) More than one of the above

90. Which of the following substances will show Tyndall effect?

- (A) Dilute solution of NaCl
- (B) Milk
- (C) Starch solution
- (D) More than one of the above

91. During the contraction of heart, what prevents backflow of blood?

- (A) Thick walls of the atria
- (B) Thick muscular walls of the ventricles
- (C) Valves in the heart
- (D) None of the above

92. Stapedius is a

- (A) bone
- (B) muscle
- (C) nerve
- (D) None of the above

93. Frogs and toads are examples of which one of the following amphibians?

- (A) Apoda
- (B) Urodela
- (C) Anura
- (D) None of the above

94. The contractile proteins in muscle are

- (A) actin and myosin
- (B) actin and tropomyosin
- (C) myosin and troponin
- (D) None of the above





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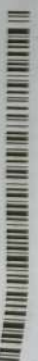
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77. Raman effect is due to Sir C. V. Raman. Which of the following statements is correct about 'Raman effect'?

- (A) Raman effect is an example of elastic scattering of light.
- (B) The frequency of the incident light increases as well as decreases after scattering.
- (C) The frequency of the incident light can only decrease after scattering.
- (D) None of the above

78. Suresh has two half-filled buckets of water when he wants to take bath. The temperature of the water in one bucket is  $25^{\circ}\text{C}$  (room temperature) and the temperature of water in other bucket is  $60^{\circ}\text{C}$ . He has two plans in his mind before taking bath :

Plan 1 : He mixes both the waters in a bucket and wait 20 minutes before taking bath.

Plan 2 : First, he waits for 20 minutes and mixes the water just before the bath.

He is confused about which plan will work to get him hotter water. Help him find the correct plan.

- (A) Plan 1 is correct
- (B) Plan 2 is correct
- (C) Plan 1 and plan 2 will give identical results
- (D) None of the above

79. Semiconductors are materials that possess

- (A) electrical conductivity more than the conductivity of metals
- (B) electrical conductivity less than the conductivity of metals
- (C) zero electrical conductivity
- (D) None of the above

80. Solar cell is a device that converts light energy into electrical energy. We obtain the highest output of energy during noon when the sun is just above our head, because

- (A) the density of light radiation is maximum when sun rays are falling vertically
- (B) the heat produced is highest in the noon
- (C) the sun is nearest to the earth at noon
- (D) None of the above

81. Which of the following metals does **not** corrode?

- (A) Gold
- (B) Iron
- (C) Platinum
- (D) More than one of the above



46. वह भारतीय राष्ट्रवादी नेता कौन था जो जोसेफ मैजिनी तथा 'यंग इटली' अभियान पर भाषण देता था?

- (A) सुभाष चंद्र बोस
- (B) सुरेन्द्रनाथ बनर्जी
- (C) जवाहरलाल नेहरू
- (D) उपर्युक्त में से कोई नहीं

47. 1895 का वेल्वी आयोग निम्नलिखित में से किस विषय पर गठित किया गया था?

- (A) भारत में शिक्षा
- (B) भारत में व्यय
- (C) भू-राजस्व
- (D) उपर्युक्त में से कोई नहीं

48. किसने लिखा था कि "पृथक् निर्वाचक मंडल स्थापित करके हम नाग के दाँत बो रहे हैं तथा इसका परिणाम भीषण होगा"?

- (A) मिंटो
- (B) मोर्ले
- (C) ग्लैडस्टोन
- (D) उपर्युक्त में से कोई नहीं

49. साइमन कमीशन में भारतीयों को शामिल न करने की निंदा करने वाले 'लीडर्स मैनीफेस्टो' पर किसने हस्ताक्षर किये?

- (A) सर अली इमाम
- (B) श्री सच्चिदानंद सिन्हा
- (C) नवाब इस्माइल खान
- (D) उपर्युक्त में से एक से अधिक

50. बिहार में सर्चलाइट समाचार-पत्र के संपादक कौन थे?

- (A) निवारण चंद्र दासगुप्ता
- (B) मुरली मनोहर प्रसाद
- (C) मनींद्र नारायण राय
- (D) उपर्युक्त में से कोई नहीं

51. किस अधिनियम के द्वारा राजकीय शक्ति कम्पनी से ताज को हस्तांतरित हुई?

- (A) 1813
- (B) 1835
- (C) 1858
- (D) 1861

52. किस घटना की तुलना सुभाष चंद्र बोस ने नेपोलियन के इल्बा से पैरिस लौटने से की थी?

- (A) महात्मा गाँधी की चम्पारण यात्रा
- (B) महात्मा गाँधी की नमक यात्रा
- (C) महात्मा गाँधी का भारत छोड़ो आन्दोलन
- (D) महात्मा गाँधी का द्वितीय गोलमेज सम्मेलन में प्रतिभाग





53. On which date the Muslim League declared as 'Direct Action Day'?

(A) 6th August, 1946

(B) 16th August, 1945

(C) 26th August, 1946

(D) None of the above

54. In which city was the Hindustan Socialist Republic Army (HSRA) founded?

(A) Kanpur

(B) Meerut

(C) Bombay

(D) Delhi

55. In which year Muzaffarpur Bomb Case took place?

(A) 1905

(B) 1906

(C) 1907

(D) 1908

56. Ramesh scores in five math tests are 89, 75, 78, 84 and 83. What does he need to score in the next test for his final average in all the tests to be at least 82?

(A) 90

(B) 83

(C) 84

(D) None of the above

57. Early morning, Ram, was standing on the ground in front of an effigy. The shadow of the effigy was appearing towards the right side of Ram. In which direction is Ram facing?

(A) East

(B) West

(C) South

(D) None of the above

58. There are five different houses A to E in a row. A is to the right of B and E is to the left of C and right of A. B is to the right of D. Which of the houses is in the middle?

(A) A

(B) E

(C) C

(D) None of the above



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(C) C

(D) None of the above





31. Harishena was the court poet of which Gupta ruler?
- (A) Chandragupta I
  - (B) Samudragupta
  - (C) Chandragupta II
  - (D) None of the above
32. At Delhi, during the Revolt of 1857, the nominal and symbolic leadership belonged to the emperor Bahadur Shah, but the real command lay with a court of soldiers headed by
- (A) Nana Saheb
  - (B) Bakht Khan
  - (C) Hazrat Mahal
  - (D) None of the above
33. In 1890, the first woman graduate of Calcutta University, addressed the Congress session was
- (A) Kadambini Ganguly
  - (B) Sarojini Naidu
  - (C) Annie Besant
  - (D) None of the above
34. Which one of the following authors and their works is correctly stated?
- (A) Subhas Chandra Bose—  
*The Indian Struggle*
  - (B) Bhagat Singh—  
*The Discovery of India*
  - (C) Jawaharlal Nehru—*The Story of My Experiments with Truth*
  - (D) None of the above
35. Who is known as 'Bihar Vibhuti' (The Jewel of Bihar)?
- (A) Anugrah Narayan Sinha
  - (B) Prafulla Chaki
  - (C) Upendra Narayan Jha
  - (D) None of the above
36. The Eran inscription belonged to the reign of
- (A) Budhagupta
  - (B) Skandagupta
  - (C) Kumaragupta
  - (D) None of the above
37. 'Diwan-i-Insha' dealt with
- (A) foreign affairs
  - (B) State correspondence
  - (C) military affairs
  - (D) None of the above
38. Maharaja Ranjit Singh belonged to
- (A) Sukerchakia Misl
  - (B) Ramgarhia Misl
  - (C) Ahluwalia Misl
  - (D) None of the above
39. At which place Mauryan empire built palace?
- (A) Pataliputra
  - (B) Kumhrar
  - (C) Rajgir
  - (D) None of the above
40. Who among the following was appointed as Deputy Diwan of Bihar after 1764?
- (A) Reza Khan
  - (B) Shitab Rai
  - (C) Murshid Quli Khan
  - (D) None of the above



1. अपने सभी चालू मैनहोलों को साफ करने के लिए रोबोटिक तकनीक का उपयोग करने वाला भारत का प्रथम राज्य कौन-सा है?

- (A) बिहार
- (B) पंजाब
- (C) केरल ✓
- (D) तमिलनाडु

2. निम्नलिखित में से कौन-सा 2023 तक एक विशेष-श्रेणी राज्य नहीं है?

- (A) झारखण्ड ✓
- (B) तेलंगाना
- (C) असम
- (D) सिक्किम

3. केंद्रीय औद्योगिक सुरक्षा बल के महानिदेशक के पद पर नियुक्त होने वाली पहली महिला अधिकारी कौन हैं?

- (A) विनिता ठाकुर
- (B) शुभ्रा सिंह ✓
- (C) नीना सिंह ✓
- (D) रोली सिंह

4. 'राष्ट्रीय शिक्षा दिवस' मनाया जाता है

- (A) 13 नवम्बर को
- (B) 14 नवम्बर को ✓
- (C) 9 नवम्बर को
- (D) 11 नवम्बर को

5. आइ० एन० एस० इम्फाल को भारतीय नौसेना में कब शामिल किया गया है?

- (A) 26 दिसम्बर, 2023 ✓
- (B) 20 अप्रैल, 2020
- (C) 26 अक्टूबर, 2023 ✓
- (D) 26 दिसम्बर, 2022

6. जून 2023 से शुरू की गई, कृषकों को गैर-रासायनिक उर्वरकों के उपयोग को प्रोत्साहित करने वाली केन्द्र सरकार की योजना का नाम है

- (A) पी० एम०-संकल्प
- (B) पी० एम०-नमन
- (C) पी० एम०-प्रणाम ✓
- (D) पी० एम०-संवाद

7. एशिया का सबसे बड़ा लिंकिड मिरर टेलीस्कोप स्थापित किया गया है

- (A) शिमला (हिमाचल प्रदेश) में
- (B) मसूरी (उत्तराखण्ड) में
- (C) नैनीताल (उत्तराखण्ड) में ✓
- (D) हासन (कर्नाटक) में

8. 2023 में हरित रेलवे स्टेशन का दर्जा प्राप्त करने वाला भारत का पहला शहर है

- (A) विशाखापट्टनम (आन्ध्र प्रदेश) ✓
- (B) झाँसी (उत्तर प्रदेश)
- (C) विजयवाड़ा (आन्ध्र प्रदेश)
- (D) हावड़ा (पश्चिम बंगाल)

9. भारत के किस शहर में यूनिवर्सल पोस्टल यूनियन का क्षेत्रीय कार्यालय खोला गया है?

- ✓ (A) मुम्बई (महाराष्ट्र)
- (B) पुणे (महाराष्ट्र)
- (C) नई दिल्ली (रा० रा० क्षेत्र) ✓
- (D) वाराणसी (उत्तर प्रदेश)

10. 1 नवम्बर, 2023 को डब्ल्यू० एच० ओ० के दक्षिण-पूर्व एशिया क्षेत्र के क्षेत्रीय निदेशक के रूप में किसे नियुक्त किया गया है?

- (A) अनुषा शाह ✓
- (B) साइमा वाजेद
- (C) शीतल महाजन
- (D) दीप्ति बबुटा

