

PART - I (English Language)

Directions (Q. Nos. E-1 to E-2) : Fill in the blanks with suitable articles like 'a', 'an', and 'the' :

E-1. If you reach _____ Airport on time, you will catch the flight.

- (A) a
- (B) the
- (C) an
- (D) More than one of the above
- (E) None of the above

E-2. You should go for _____ early morning walk.

- (A) the
- (B) an
- (C) a
- (D) More than one of the above
- (E) None of the above

E-3. If 30th April is Tuesday, what day of the week would be 10th May?

- (A) Monday
- (B) Saturday
- (C) Thursday
- (D) More than one of the above
- (E) None of the above

Directions (Q. Nos. E-4 to E-8) Read the passage given below and answer the questions that follow :

Kerala is just the place for you if you love variety. There is something here to please everyone. You are sure to fall in love with the serene beauty of Kerala's magical backwaters. When you have experienced that, you can sample the excitement of Kerala's bustling cities or retreat into the villages to see at first-hand how time can stand still. Better still, take a trip to the spice gardens in the hills, to inhale the fragrance of fresh cardamoms if that makes your tastebuds tingle and fills you with dreams of food, you need not worry. Kerala's cuisine is known for its spicy hot flavours. The coconut and the spices give the food - especially the seafood a pungency that is enhanced by tamarind. Your meal would be incomplete without appam, rasam, fish curry and some delicious payasam. To wash it down, sip the naturally refreshing water of a tender coconut. And when you had your fill, move into the markets to shop for gold, handicrafts, spices, cashew nuts and coffee. Bargain-hunters will never have a problem since English is spoken and understood everywhere in Kerala.

E-4. Why is Kerala just the place for you if you love variety ?

- (A) There is something here to please everyone
- (B) Kerala is very boring
- (C) Kerala has magical backwaters
- (D) More than one of the above
- (E) None of the above

E-5. Why should you take a trip to the spice gardens in the hills ?

- (A) To count the spices that are grown there
- (B) To inhale the fragrance of fresh cardamoms
- (C) To buy some spices
- (D) More than one of the above
- (E) None of the above

E-6. What is Kerala's cuisine known for ?

- (A) For its bad taste
- (B) For its spicy hot flavours
- (C) For being bland
- (D) More than one of the above
- (E) None of the above

E-7. What gives sea food its pungency?

- (A) Coconut and spices
- (B) Addition of cocacola
- (C) Coconut & spices enhanced by tamarind
- (D) More than one of the above
- (E) None of the above

E-8. Why would foreign bargain-hunter visitors never face a problem in Kerala ?

- (A) Many foreign languages are spoken in Kerala
- (B) English is spoken and understood everywhere in Kerala.
- (C) Hindi is the language of communication in the cities of kerala.
- (D) More than one of the above
- (E) None of the above



(Hindi Language)

H-9. इनमें शुद्ध शब्द है -

- (A) निरपराधी
- (B) महत्व
- (C) प्रमाणिक
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

प्राप्ति ५

H-10. इनमें 'उत्कृष्ट' शब्द का विपरीतार्थक शब्द है -

- (A) निकृष्ट
- (B) नीच
- (C) अधम
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-11. इनमें शुद्ध वाक्य है -

- (A) किसी भी आदमी को भेज दो
- (B) यह कविता अनेक भाव प्रकट करती है
- (C) हम तो अवश्य जायेंगे
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-12. इनमें 'जल' शब्द का पर्यायवाची शब्द है -

- (A) जीवन
- (B) पानी
- (C) अमृत
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-13. 'जहाँ लोगों का मिलन हो' वाक्यखण्ड के लिए एक शब्द है -

- (A) मेला
- (B) मेल
- (C) सम्मेलन
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-14. 'खटाई में पड़ना' मुहावरे का अर्थ है -

- (A) झामेले में पड़ना
- (B) विघ्न आना
- (C) चैन मिलना
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

निम्नलिखित अपठित गद्यांश के आधार पर प्रश्न सं. H-15 से H-20 तक के प्रश्नों के उत्तर दिये जायें ।

रतन और अजय एक ही स्कूल के छात्र थे । रतन गरीब था और अजय धनी । रतन गरीब होकर भी पढ़ने में तेज था । सभी शिक्षक उसके व्यवहार से प्रसन्न रहते थे । इसके विपरीत अजय बहुत नटखट था । पढ़ने के बदले खेलने-कूदने और बदमाशी में अधिक मन लगाता था । रतन और अजय दिली दोस्त थे । इसलिए रतन अजय को अच्छा छात्र बनने के लिए सलाह देता था । अजय शिक्षकों की बात नहीं मानता था । एक बार रतन से नाराज होकर अजय भाग रहा था । रतन ने दौड़कर अजय को रोकना चाहा । इतने ही में एक मोटर के नीचे वह गिर गया ।

H-15. रतन ने दौड़कर अजय को क्यों रोकना चाहा ?

- (A) रतन अजय से प्यार करता था
- (B) एक बार रतन से नाराज होकर अजय भाग रहा था
- (C) रतन और अजय एक ही स्कूल में पढ़ते थे
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं



H-16. रतन अजय को अच्छा छात्र बनने के लिए क्यों सलाह देता था ?

- (A) दिली दोस्त होने के कारण
- (B) भाई होने के कारण
- (C) एक स्कूल में पढ़ने के कारण
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-17. रतन कैसा छात्र था ?

- (A) गरीब
- (B) समझदार
- (C) पढ़ने में तेज
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-18. रतन और अजय आपस में क्या थे ?

- (A) दोस्त
- (B) भाई
- (C) दिली दोस्त
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-19. सभी शिक्षक रतन से क्यों प्रसन्न रहते थे ?

- (A) रतन की निर्धनता के कारण
- (B) रतन के व्यवहार के कारण
- (C) रतन के परिश्रमी होने कारण
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-20. अजय किस काम में अधिक मन लगाता था ?

- (A) झगड़ने में
- (B) दौड़ने में
- (C) पढ़ने में
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

निम्नलिखित अपठित गद्यांश के आधार पर प्रश्न सं. H-21 से H-26 तक के प्रश्नों के उत्तर दिये जायें ।

शिवाजी भारत के महान् वीरों में से एक थे । उनका उद्देश्य महाराणा प्रताप के उद्देश्य से भी उच्च था । वे अपने कार्यों में सफल रहे । वे केवल वीर ही नहीं, बल्कि एक अच्छे राजनीतिज्ञ भी थे । उन्होंने लोगों में एक राष्ट्र की भावना भर दी और मराठा राज्य की स्थापना की । वे कहुर हिन्दु थे तो भी दूसरे के धर्म और संस्कृति का आदर करते थे । उनके अच्छे गुणों के कारण सभी लोग उनका आदर करते थे । हम लोगों को उनके जीवन से शिक्षा लेनी चाहिए ।

H-21. शिवाजी वीर होने के साथ और क्या थे ?

- (A) एक अच्छे राजनीतिज्ञ
- (B) कुशल सप्राट
- (C) श्रेष्ठ विचारक
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-22. शिवाजी ने लोगों में कौन सी भावना भर दी ?

- (A) हिन्दुत्व की
- (B) वीरता की
- (C) एक राष्ट्र की
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं



H-16. रतन अजय को अच्छा छात्र बनने के लिए क्यों सलाह देता था ?

- (A) दिली दोस्त होने के कारण
- (B) भाई होने के कारण
- (C) एक स्कूल में पढ़ने के कारण
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-17. रतन कैसा छात्र था ?

- (A) गरीब
- (B) समझदार
- (C) पढ़ने में तेज
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-18. रतन और अजय आपस में क्या थे ?

- (A) दोस्त
- (B) भाई
- (C) दिली दोस्त
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-19. सभी शिक्षक रतन से क्यों प्रसन्न रहते थे ?

- (A) रतन की निर्धनता के कारण
- (B) रतन के व्यवहार के कारण
- (C) रतन के परिश्रमी होने कारण
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-20. अजय किस काम में अधिक मन लगाता था ?

- (A) झागड़ने में
- (B) दौड़ने में
- (C) पढ़ने में
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

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शिवाजी भारत के महान् वीरों में से एक थे । उनका उद्देश्य महाराणा प्रताप के उद्देश्य से भी उच्च था । वे अपने कार्यों में सफल रहे । वे केवल वीर ही नहीं, बल्कि एक अच्छे राजनीतिज्ञ भी थे । उन्होंने लोगों में एक राष्ट्र की भावना भर दी और मराठा राज्य की स्थापना की । वे कट्टर हिन्दू थे तो भी दूसरे के धर्म और संस्कृति का आदर करते थे । उनके अच्छे गुणों के कारण सभी लोग उनका आदर करते थे । हम लोगों को उनके जीवन से शिक्षा लेनी चाहिए ।

H-21. शिवाजी वीर होने के साथ और क्या थे ?

- (A) एक अच्छे राजनीतिज्ञ
- (B) कुशल सप्राट
- (C) श्रेष्ठ विचारक
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-22. शिवाजी ने लोगों में कौन सी भावना भर दी ?

- (A) हिन्दुत्व की
- (B) वीरता की
- (C) एक राष्ट्र की
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं



H-23. शिवाजी कौन थे ?

- (A) भारत का पराक्रमी चोद्धा
- (B) भारत का महान् सप्तांश
- (C) भारत के महान् वीरों में से एक
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-24. लोग शिवाजी का आदर क्यों करते थे ?

- (A) उनकी वीरता के कारण
- (B) उनके अच्छे गुणों के कारण
- (C) कठूर हिन्दू होने के कारण
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-25. इनमें 'राजनीतिज्ञ' शब्द का अर्थ है -

- (A) वह नीति जिससे राज्य का संचालन होता है
- (B) राजनीति से सम्बन्धित नीति
- (C) वह नीति जिससे शासन का संचालन होता है
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-26. इनमें अपठित गद्यांश का शीर्षक है -

- (A) शिवाजी की राष्ट्रीय चेतना
- (B) शिवाजी का पराक्रम
- (C) शिवाजी का जीवन
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-27. इनमें व्यक्तिवाचक संज्ञा है -

- (A) नदी
- (B) ग्राहपुत्र
- (C) गंगा
- (D) उमर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-28. इनमें उत्तमपुरुष सर्वनाम है -

- (A) मैं
- (B) वह
- (C) तू
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-29. 'दुकान पर कोई नहीं था।' वाक्य में किस कारक का चिह्न प्रयुक्त हुआ है ?

- (A) अपादानकारक
- (B) अधिकरण कारक
- (C) सम्बन्धकारक
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

H-30. इनमें तत्सम शब्द है -

- (A) बच्चा
- (B) चौदह
- (C) पुष्प
- (D) उपर्युक्त में से एक से अधिक
- (E) उपर्युक्त में से कोई नहीं

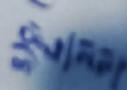


PART - II
(GENERAL STUDIES)

31. Which is the moon-like planet ?
 (A) Mercury
 (B) Earth
 (C) Mars
 (D) More than one of the above
 (E) None of the above
32. On the basis of fossils which is the origin place of man ?
 (A) Rift valley of Africa
 (B) Jerusalem
 (C) Central Asia
 (D) More than one of the above
 (E) None of the above
33. In India dry point settlement is found in
 (A) Flood prone area
 (B) Aravali region
 (C) Bikaner
 (D) More than one of the above
 (E) None of the above
34. In which district of Bihar Paddy crop production is maximum ?
 (A) Bhojpur
 (B) Nalanda
 (C) Rohtas
 (D) More than one of the above
 (E) None of the above
35. On which mountain is Tehran situated ?
 (A) Alburz
 (B) Makran
 (C) Zagros
 (D) More than one of the above
 (E) None of the above
36. The highest peak in the Eastern Ghats of India is :
 (A) Anai Mudi
 (B) Mahendragiri
 (C) Kanchenjunga
 (D) More than one of the above
 (E) None of the above
37. Which of these statements is not a valid reason for the depletion of flora and fauna ?
 (A) Agricultural expansion
 (B) Grazing and fuel wood collection
 (C) Large scale development projects
 (D) More than one of the above
 (E) None of the above
38. In which district of Bihar silk textile production is maximum ?
 (A) Madhubani
 (B) Aurangabad
 (C) Bhagalpur
 (D) More than one of the above
 (E) None of the above
39. Who was the viceroy of India during the Jallianwala Bagh massacre ?
 (A) Lord Curzon
 (B) Lord Irwin
 (C) Lord Chelmsford
 (D) More than one of the above
 (E) None of the above
40. The first President of the Indian National Congress was:
 (A) Dadabhai Naoroji
 (B) Badruddin Tyabji
 (C) W. C. Bonnerjee
 (D) More than one of the above
 (E) None of the above



- 41.** Who among the following is also known as the Grand old man of India ?
 (A) Bal Gangadhar Tilak
 (B) Gopal Krishna Gokhale
 (C) Dadabhai Naoroji
 (D) More than one of the above
 (E) None of the above
- 42.** Which of the following movements was started by M. K. Gandhi ?
 (A) Quit India Movement
 (B) Swadesi movement
 (C) Non cooperation movement
 (D) More than one of the above
 (E) None of the above
- 43.** Who was the leader of the Bardoli Satyagraha ?
 (A) Sardar Vallabhbhai Patel
 (B) Jawaharlal Nehru
 (C) Bal Gangadhar Tilak
 (D) More than one of the above
 (E) None of the above
- 44.** Who among the following is not associated with Home rule movement ?
 (A) Annie Besant
 (B) Sarojini Naidu
 (C) Bal Gangadhar Tilak
 (D) More than one of the above
 (E) None of the above
- 45.** Who founded the Bihar provincial congress committee in 1920 ?
 (A) Dr. Rajendra Prasad
 (B) Jai Prakash Narayan
 (C) Anugrah Narayan Sinha
 (D) More than one of the above
 (E) None of the above
- 46.** The All India Kisan Sabha (AIKS) was founded in 1936 in Bihar under the leadership of :
 (A) Dr. Rajendra Prasad
 (B) Swami Sahajanand Saraswati
 (C) Jai Prakash Narayan
 (D) More than one of the above
 (E) None of the above
- 47.** Which of the following is the value of $(x+1/x)^2$?
 (A) $x^2 + 1/x^2$
 (B) $x^2 + 1/x^2 + 1$
 (C) $x^2 - 1/x^2$
 (D) More than one of the above
 (E) None of the above
- 48.** An article is at 10% more than the CP. If discount of 10% is allowed then which of the following is right ?
 (A) 1% gain
 (B) no gain no loss
 (C) 1% loss
 (D) More than one of the above
 (E) None of the above
- 49.** By what number should 81 be divided to get a perfect cube ?
 (A) 3
 (B) 7
 (C) 6
 (D) More than one of the above
 (E) None of the above
- 50.** The difference between two whole numbers is 66. The ratio of the two numbers is 2:5. The two numbers are :
 (A) 60 and 6
 (B) 110 and 44
 (C) 100 and 33
 (D) More than one of the above
 (E) None of the above



51. In a parallelogram ABCD, angle A and angle B are in the ratio 1:2. Find the angle A.
- (A) 30°
 - (B) 60°
 - (C) 45°
 - (D) More than one of the above
 - (E) None of the above
52. The height of a cylinder whose radius is 7 cm and the total surface area is 968 cm^2 is :
- (A) 15 cm
 - (B) 19 cm
 - (C) 17 cm
 - (D) More than one of the above
 - (E) None of the above
53. If $(-3)^{m+1} \times (-3)^5 = (-3)^7$, then the value of m is:
- (A) 5
 - (B) 1
 - (C) 7
 - (D) More than one of the above
 - (E) None of the above
54. If x and y are inversely proportional, then:
- (A) $y/x = \text{constant}$
 - (B) $x/y = \text{constant}$
 - (C) $xy = \text{constant}$
 - (D) More than one of the above
 - (E) None of the above
55. A piece of wire of resistance R is cut into 5 equal parts. These parts are then connected in parallel. If the equivalent resistance of the combination is R' , then the ratio R/R' is _____
- (A) $1/25$
 - (B) 25
 - (C) $1/5$
 - (D) More than one of the above
 - (E) None of the above
56. An electric heater of resistance 8Ω draws 15A current from a service mains for 2 Hrs. What will be the rate at which heat is developed in the heater ?
- (A) 220 watt
 - (B) 210 watt
 - (C) 120 watt
 - (D) More than one of the above
 - (E) None of the above
57. Which of the following lenses would you prefer to use while reading small letters found in the dictionary ?
- (A) A convex lens of 50 cm
 - (B) A concave lens of 5 cm
 - (C) A concave lens of 50 cm
 - (D) More than one of the above
 - (E) None of the above
58. The human eye forms the image of an object at its _____
- (A) Cornea
 - (B) Retina
 - (C) Iris
 - (D) More than one of the above
 - (E) None of the above
59. Which of the following is not a part of the female reproductive system in human beings ?
- (A) Ovary
 - (B) Vas deferens
 - (C) Uterus
 - (D) More than one of the above
 - (E) None of the above
60. The anther contains _____
- (A) Sepals
 - (B) Pollen grains
 - (C) Ovules
 - (D) More than one of the above
 - (E) None of the above



61. Asexual reproduction takes place through budding in _____
(A) Amoeba
(B) Plasmodium
(C) Yeast
(D) More than one of the above
(E) None of the above
62. Which one of the following types of medicines used for treating indigestion ?
(A) Antibiotic
(B) Analgesic
(C) Antacid
(D) More than one of the above
(E) None of the above
63. The task of processing citizenship applications under the CAA will be undertaken by
(A) Postal Department
(B) Central Security IB
(C) Census Department
(D) More than one of the above
(E) None of the above
64. In which of the following country India launched its UPI ?
(A) Thailand
(B) Mauritius
(C) Myanmar
(D) More than one of the above
(E) None of the above
65. What is the name of space craft to be launched by ISRO in 2024 to carry astronauts ?
(A) Akashyan
(B) Bhramyan
(C) Gaganyaan
(D) More than one of the above
(E) None of the above
66. Which country is not a member of G 7 ?
(A) Russia
(B) USA
(C) Canada
(D) More than one of the above
(E) None of the above
67. The process involved in achieving Green hydrogen is
(A) Electrolysis
(B) Dehydration
(C) Dehydrogenation
(D) More than one of the above
(E) None of the above
68. Which technology can be used to revise deceased individuals ?
(A) Deepfake
(B) Chatbot
(C) AI
(D) More than one of the above
(E) None of the above
69. In cost of living index parameter 2024 which country is better than India ?
(A) Nigeria
(B) Bangladesh
(C) Pakistan
(D) More than one of the above
(E) None of the above
70. Who supported Gandhiji in Champaran Satyagraha in 1917 in support of farmers ?
(A) Birsa Munda
(B) Satya Narayan Sinha
(C) Rajendra Prasad
(D) More than one of the above
(E) None of the above



PART - III (Computer Science)

71. Which device is used to connect multiple devices within the same local area network (LAN)?
- (A) Router
(B) Bridge
(C) Switch
(D) More than one of the above
(E) None of the above
72. Which protocol is used to send email over the Internet?
- (A) FTP
 (B) HTTP
(C) SMTP
(D) More than one of the above
(E) None of the above
73. What is the purpose of a subnet mask in TCP/IP networking?
- (A) To identify the network portion of an IP address
 (B) To convert IP addresses into domain names
(C) To identify the host portion of an IP address
(D) More than one of the above
(E) None of the above
74. What is the maximum data rate of Bluetooth version 5.0?
- (A) 1 Mbps
(B) 5 Mbps
 (C) 2 Mbps
(D) More than one of the above
(E) None of the above
75. Which of the following is a software development life cycle model?
- (A) Waterfall model
(B) Spiral model
(C) Agile model
 (D) More than one of the above
(E) None of the above
76. Which of the following is NOT a software development requirement?
- (A) Functional requirements
(B) Physical requirements
(C) System requirements
(D) More than one of the above
 (E) None of the above



77. What is the main difference between verification and validation in software testing?
- (A) Verification ensures that the software is bug-free, while validation ensures that it meets the requirements.
 - (B) Verification checks if the software is built right, while validation checks if the right software is built.
 - (C) Verification is done before coding, while validation is done after coding.
 - (D) More than one of the above
 - (E) None of the above
78. What is the purpose of a software prototype?
- (A) To serve as the final version of the software
 - (B) To speed up the software development process
 - (C) To replace detailed documentation
 - (D) More than one of the above
 - (E) None of the above
79. What is the primary goal of software engineering?
- (A) To write code efficiently
 - (B) To develop software with the latest technologies
 - (C) To develop software that meets user requirements within budget and schedule constraints
 - (D) More than one of the above
 - (E) None of the above
80. Which of the following is a pillar of OOP?
- (A) Inheritance
 - (B) Abstraction
 - (C) Encapsulation
 - (D) More than one of the above
 - (E) None of the above
81. Which keyword is used in Java to implement inheritance?
- (A) extends
 - (B) implements
 - (C) inherits
 - (D) More than one of the above
 - (E) None of the above
82. What is the access specifier used to make members of a class accessible only within the same package?
- (A) private
 - (B) package-private
 - (C) public
 - (D) More than one of the above
 - (E) None of the above
83. Inheritance in OOP allows a class to:
- (A) Inherit properties and behavior from another class
 - (B) Override methods of another class
 - (C) Create instances of another class
 - (D) More than one of the above
 - (E) None of the above



84. What is the purpose of HTML in a web application?

- (A) To define the structure of web pages
- (B) To add interactivity to web pages
- (C) To style web pages
- (D) More than one of the above
- (E) None of the above

85. Which of the following is an example of a server-side scripting language commonly used in web applications?

- (A) HTML
- (B) C++
- (C) CSS
- (D) More than one of the above
- (E) None of the above

86. What is the computational complexity of the halting problem?

- (A) $O(1)$
- (B) Not computable
- (C) $O(n)$
- (D) More than one of the above
- (E) None of the above

87. Which of the following is NOT a component of a Turing machine?

- (A) Input tape
- (B) Control unit
- (C) Output tape
- (D) More than one of the above
- (E) None of the above

88. Which wireless communication technology is commonly used in IoT devices for short-range communication?

- (A) Bluetooth
- (B) 4G LTE
- (C) Wi-Fi
- (D) More than one of the above
- (E) None of the above

89. Which of the following is an example of an IoT protocol used for device communication?

- (A) HTTP
- (B) MQTT
- (C) FTP
- (D) More than one of the above
- (E) None of the above

90. Which of the following is a subfield of AI?

- (A) Machine Learning
- (B) Natural Language Processing
- (C) Robotics
- (D) More than one of the above
- (E) None of the above

91. Which of the following is a supervised learning algorithm?

- (A) Decision Tree
- (B) Reinforcement Learning
- (C) K-means Clustering
- (D) More than one of the above
- (E) None of the above



92. Which of the following is NOT a common type of E-Commerce model?
- (A) Business-to-Consumer (B2C)
(B) Consumer-to-Consumer (C2C)
(C) Consumer-to-Business (C2B)
(D) More than one of the above
 (E) None of the above
93. Which of the following is an example of a B2C E-Commerce website?
- (A) Alibaba
(B) Google
 (C) Amazon
 (D) More than one of the above
(E) None of the above
94. Which of the following is a multimedia authoring tool?
- (A) Microsoft Word
(B) Adobe Flash
 (C) Adobe Photoshop
 (D) More than one of the above
(E) None of the above
95. Digital circuit can be made by the repeated use of the _____.
- (A) NAND gate
(B) AND gate
(C) NOR gate
 (D) More than one of the above
(E) None of the above
96. Which of the following is correct for Digital Circuits?
- (A) They use analog signals for communication
(B) They are not suitable for high speed operations
(C) They process information using continuous voltage levels
(D) More than one of the above
(E) None of the above
97. Which of the following is an example of a digital Electronic?
- (A) Computers
(B) Digital cameras
(C) Mobile phones
 (D) More than one of the above
(E) None of the above



98. An OR gate has 4 inputs. The number of words in truth table will be _____.

(A) 4

(B) 16

(C) 8

(D) More than one of the above

(E) None of the above



99. When does a negative level triggered flip-flop in Digital Electronics changes its state?

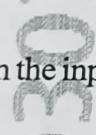
(A) When the clock is Negative

(B) When the inputs are all zero

(C) When the clock is Positive

(D) More than one of the above

(E) None of the above



100. What is the result of the operation 1010 AND 1100 in binary?

(A) 1000

(B) 100

(C) 1110

(D) More than one of the above

(E) None of the above

1010
1100

1110



101. In a half-adder circuit, what are the outputs?

(A) Sum and Carry

(B) Sum and Difference

(C) Difference and Borrow

(D) More than one of the above

(E) None of the above



102. Which of the following is the type of Read Only Memory (ROM)?

(A) PROM

(B) MROM

(C) EPROM

(D) More than one of the above

(E) None of the above



103. What is a PLA?

(A) Programmable Logic Application

(B) Programmable Logic Architecture

(C) Programmable Logic Array

(D) More than one of the above

(E) None of the above



104. How many select lines are required for an 8-to-1 multiplexer?

(A) 2

(B) 4

(C) 3

(D) More than one of the above

(E) None of the above



105. Convert the decimal number 1234 to binary, octal, and hexadecimal. Which of the following options correctly represents these conversions?

(A) Binary: 10011010010, Octal: 2322,
Hexadecimal: 4D2

- (B) Binary: 11100110010, Octal: 1642,
Hexadecimal: 3CD
- (C) Binary: 11001110010, Octal: 1712,
Hexadecimal: 72A
- (D) More than one of the above
- (E) None of the above

$$\begin{array}{r} 32 \\ \times 2 \\ \hline 64 \\ + 2 \\ \hline 128 \\ \times 2 \\ \hline 256 \\ + 2 \\ \hline 512 \\ \times 2 \\ \hline 1024 \end{array}$$

106. What is Booth's algorithm used for?

- (A) Binary to decimal conversion

 (B) Binary multiplication

 (C) Decimal to binary conversion

 (D) More than one of the above

 (E) None of the above

107. Which of the following is error detection code used in digital logic?

- (A) Hamming code
 (B) Checksum
 (C) Cyclic redundancy check (CRC)

 (D) More than one of the above
 (E) None of the above

108. When performing BCD addition, what is the maximum value that can be represented in a single BCD digit?

(A) 2

$$\begin{array}{r} 2 | 1234 \\ 2 | 617 \end{array}$$

(B) 15

(C) 10

(D) More than one of the above

(E) None of the above

109. Convert the binary number 1011.1101 to its decimal equivalent. Which of the following is the correct decimal value?

(A) 11.75

$$\begin{array}{r} 1011.1101 \\ \hline 2 \quad 3 \quad 2 \quad 2 \end{array}$$

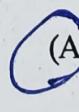
(B) 13.5

(C) 12.125

(D) More than one of the above

(E) None of the above

110. What is De Morgan's theorem used for in digital logic?

- (A) Simplifying Boolean expressions

 (B) Performing binary addition

 (C) Implementing NAND gates

 (D) More than one of the above
 (E) None of the above



111. What is the purpose of the "don't care" condition in digital logic?

- (A) To indicate that the value of a variable does not affect the output
- (B) To ensure that all possible input combinations are covered in truth tables
- (C) To prioritize certain inputs over others
- (D) More than one of the above
- (E) None of the above

112. Which of the following data structures stores elements in a non-linear relationship?

- (A) Stack
- (B) Array
- (C) Queue
- (D) More than one of the above
- (E) None of the above

113. Which data structure is used for efficient searching, insertion, and deletion of elements?

- (A) Stack
- (B) Hash Table
- (C) Queue
- (D) More than one of the above
- (E) None of the above

114. In a binary search tree, which subtree of a node contains elements that are greater than the node's value?

- (A) Left subtree
- (B) Both subtrees
- (C) Right subtree
- (D) More than one of the above
- (E) None of the above

115. The result evaluating the postfix expression

$$10\ 5\ +\ 60\ 6/\ * \ 8$$

- (A) 142
- (B) 284
- (C) 213
- (D) More than one of the above
- (E) None of the above

116. In a balanced binary tree, the height of two sub-trees of every node can not differ by more than

- (A) 2
- (B) 0
- (C) 1
- (D) More than one of the above
- (E) None of the above

117. Write the output of the following program:

```
int a[ ] = {1,2,3,} *p;
```

- (A) Junk value
- (B) Runtime error
- (C) 3
- (D) More than one of the above
- (E) None of the above



118. A queue has configuration a, b, c, d. If you want to get the configuration d, c, b, a, you need a minimum of _____.

- (A) 2 deletions and 3 additions
(B) 4 deletions and 4 additions
(C) 3 deletions and 3 additions
(D) More than one of the above
(E) None of the above

119. The order of the binary search algorithm is _____.

- (A)** N
(B) N^2
(C) $N \log n$
(D) More than one of the above
(E) None of the above

120. The preorder traversal of a binary search tree is 15, 10, 12, 11, 20, 18, 16, 19. Which one of the following is the postorder traversal of the tree?

- (A)** 20, 19, 18, 16, 15, 12, 11, 10
(B) 19, 16, 18, 20, 11, 12, 10, 15
(C) 11, 12, 10, 16, 19, 18, 20, 15
(D) More than one of the above
(E) None of the above

121. How many distinct binary search trees can be created out of 4 distinct keys?

- (A) 8
(B) 14
(C) 24
(D) More than one of the above
(E) None of the above

122. #include <stdio.h>

```
int main()
{
    int i = 5, j = 10, k = 15;
    printf("%d\n", sizeof(k / i + j));
    printf("%d\n", k);
    return 0;
}
```

Assume size of an integer as 4 bytes. What is the output of above program?

- (A) 2 1
(B) 4 15
(C) 4 1
(D) More than one of the above
(E) None of the above

123. Which of the following statements is true about Big-O notation?

- (A) It represents the lower bound of an algorithm's runtime.
(B) It represents the average runtime of an algorithm.
(C) It represents the upper bound of an algorithm's runtime
(D) More than one of the above
(E) None of the above

124. Which of the following is NOT a step in the Divide and Conquer algorithm?

- (A)** Combine
(B) Divide
(C) Conquer
(D) More than one of the above
(E) None of the above



125. Merge Sort is an example of which algorithm design paradigm?

- (A) Greedy
- (B) Dynamic Programming
- (C) Divide and Conquer
- (D) More than one of the above
- (E) None of the above

126. How many edges does a spanning tree of a graph with N vertices have?

- (A) N
- (B) $N(N-1)/2$
- (C) $N-1$
- (D) More than one of the above
- (E) None of the above

127. Which of the following is NOT a graph traversal algorithm?

- (A) Greedy
- (B) Dynamic Programming
- (C) Divide and Conquer
- (D) More than one of the above
- (E) None of the above

128. Which of the following is NOT an NP-Complete problem?

- (A) Traveling Salesman Problem
- (B) Shortest Path Problem
- (C) Boolean Satisfiability Problem
- (D) More than one of the above
- (E) None of the above

129. Which of the following is an advantage of using arrays?

- (A) Constant time insertion and deletion
- (B) Random access to elements using an index
- (C) Ability to store elements of different data types
- (D) More than one of the above
- (E) None of the above

130. Which of the following is NOT a basic operation performed on a data structure?

- (A) Encryption
- (B) Insertion
- (C) Deletion
- (D) More than one of the above
- (E) None of the above



131. Which of the following is a type of operating system?

- (A) Real-time operating system
- (B) Network operating system
- (C) Embedded operating system
- (D) More than one of the above
- (E) None of the above

132. Which of the following is NOT a memory management technique used by operating systems?

- (A) Paging
- (B) Fragmentation
- (C) Segmentation
- (D) More than one of the above
- (E) None of the above

133. Which of the following is a file system commonly used in operating systems?

- (A) NTFS
- (B) HFS+
- (C) FAT32
- (D) More than one of the above
- (E) None of the above

134. Which of the following is NOT a type of interrupt?

- (A) Hardware interrupt
- (B) Software interrupt
- (C) Memory interrupt
- (D) More than one of the above
- (E) None of the above

135. What is a page in paging?

- (A) A fixed-size block of virtual memory
- (B) A type of memory allocation
- (C) A fixed-size block of physical memory
- (D) More than one of the above
- (E) None of the above

136. In a system with a page size of 4 KB and a physical address space of 64 GB, what is the number of bits required for the page offset?

- (A) 10 bits
- (B) 14 bits
- (C) 12 bits
- (D) More than one of the above
- (E) None of the above

137. What is a segment base in segmentation?

- (A) The starting address of a segment in physical memory
- (B) The ending address of a segment in physical memory
- (C) The starting address of a segment in virtual memory
- (D) More than one of the above
- (E) None of the above



138. What causes thrashing to occur?

- (A) Excessive paging activity
- (B) Hardware failures
- (C) Insufficient disk space
- (D) More than one of the above
- (E) None of the above

139. Consider a system with a total physical memory of 8 GB and total virtual memory of 16 GB. If the system is using 6 GB of physical memory and 10 GB of virtual memory, how much memory is being swapped out?

- (A) 2 GB
- (B) 6 GB
- (C) 4 GB
- (D) More than one of the above
- (E) None of the above

140. How is the TLB typically organized?

- (A) As a direct-mapped cache
- (B) As a set-associative cache
- (C) As an associative cache
- (D) More than one of the above
- (E) None of the above

141. Which of the following is a common file operation?

- (A) Create
- (B) Rename
- (C) Delete
- (D) More than one of the above
- (E) None of the above

142. Consider a disk queue with requests for I/O to blocks on cylinders. 98 183 37 122 14 124 65 67 considering FCFS (First Come First Served) scheduling, the total number of head movements is, if the disk head is initially at 53 is?

- (A) 640
- (B) 630
- (C) 620
- (D) More than one of the above
- (E) None of the above

$$\begin{array}{r} 98 \\ 53 \\ 183 \\ 37 \\ 122 \\ 65 \\ 67 \\ \hline 85 \end{array}$$

143. Thread shares with other threads belonging to the same process its

- (A) thread ID
- (B) code section and data section
- (C) program counter
- (D) More than one of the above
- (E) None of the above

$$\begin{array}{r} 61 \\ 110 \\ 108 \\ 95 \end{array}$$

$$\begin{array}{r} 122 \\ 14 \\ 108 \end{array}$$

$$\begin{array}{r} 124 \\ 14 \\ 110 \end{array}$$

$$\begin{array}{r} 124 \\ 65 \\ 59 \end{array}$$

144. Which of the following is NOT a type of DBMS?

- (A) Relational DBMS
- (B) Sequential DBMS
- (C) Object-Oriented DBMS
- (D) More than one of the above
- (E) None of the above

$$\begin{array}{r} 67 \\ 65 \\ 2 \end{array}$$



145. In a relational database, what is a primary key?

- (A) A key used to uniquely identify each record in a table
- (B) A key used to sort records in a table
- (C) A key used to establish relationships between tables
- (D) More than one of the above
- (E) None of the above

146. Which normal form ensures that every non-prime attribute in a table is fully functionally dependent on the primary key?

- (A) First Normal Form (1NF)
- (B) Third Normal Form (3NF)
- (C) Second Normal Form (2NF)
- (D) More than one of the above
- (E) None of the above

147. Which SQL command is used to add new rows to a database table?

- (A) ADD
- (B) INSERT
- (C) CREATE
- (D) More than one of the above
- (E) None of the above

148. Which of the following is a disadvantage of using a distributed database system?

- (A) Improved data accessibility
- (B) Data inconsistency
- (C) Increased data security
- (D) More than one of the above
- (E) None of the above

149. What is the primary function of a router in a computer network?

- (A) To connect devices within the same network
- (B) To filter incoming traffic based on IP addresses
- (C) To connect multiple networks together
- (D) More than one of the above
- (E) None of the above

150. In the OSI model, which layer is responsible for routing and forwarding data packets?

- (A) Data Link Layer
- (B) Physical Layer
- (C) Transport Layer
- (D) More than one of the above
- (E) None of the above

