



Candidate's Roll Number

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Serial No.

Question Booklet

LANGUAGE, GENERAL STUDIES AND COMPUTER SCIENCE

Time Allowed : 2:30 Hours

Maximum Marks : 150

Read the following instructions carefully before you begin to answer the questions.

IMPORTANT INSTRUCTIONS

1. This Question Booklet is divided into three Parts—Part–I, Part–II and Part–III. Part–I contains questions of **Language (Qualifying)**, Part–II contains questions of **General Studies** and Part –III contains questions of **Computer Science**.
2. **Part–I, Language (Qualifying)** consists of Question Nos. 1 to 30. In **Part–I, English Language** consists of Question Nos. E-1 to E-8 (common for all), **Hindi Language** consists of Question Nos. H-9 to H-30, **Urdu Language** consists of Question Nos. U-9 to U-30 and **Bengali Language** consists of Question Nos. B-9 to B-30 (Students are required to choose the questions from any one language out of three languages). **Part–II** consists of Question Nos. 31 to 70 and **Part–III** consists of Question Nos. 71 to 150. (the questions and their responses are printed in English and Hindi versions both of Part-II and Part-III)
3. All questions carry equal marks.
4. An Answer Sheet has been supplied inside the Question Booklet to mark the answers. **You must write your Roll Number and other particulars in the space provided in the Answer Sheet, failing which your Answer Sheet will not be evaluated.**
5. **Immediately after commencement of the examination, you should check up your Question Booklet and attached answer sheet and ensure that the Question Booklet Series is printed on the top right-hand corner of the Booklet and the series encoded in answer sheet are same. Also please check that the Booklet contains 48 printed pages including two pages (Page Nos. 46 and 47) for Rough Work and no page or question is missing or unprinted or torn or repeated or question booklet and answer sheet have different series. If you find any defect in this Booklet, get it replaced immediately by a complete Booklet with OMR sheet of the same series.**
6. You must write your Roll number in the space provided on the top of this page. Do not write anything else on the Question Booklet.
7. Each question comprises of **Five** responses- (A), (B), (C), (D) and (E). You are to select **ONLY ONE** correct response and mark it in your Answer Sheet. Your total marks will depend on the number of correct responses marked by you in the Answer Sheet.
8. In the Answer Sheet, there are **five** circles - (A), (B), (C), (D) and (E) against each question. To answer the questions, you are to mark with Black/Blue ink ballpoint pen **ONLY ONE** circle of your choice for each question. Select only one response for each question and mark it in your Answer Sheet. If you mark more than one answer for one question, the answer will be treated as wrong. **Use Black/Blue ink ballpoint pen only to mark the answer in the Answer Sheet. Any erasure or change is not allowed.**
9. If there is any sort of mistake either of Printing or of factual nature, then out of English and Hindi Versions of the questions, the English Version will be treated as standard.
10. You should not remove or tear off any sheet from the Question Booklet. You are not allowed to take this Question Booklet and the Answer Sheet out of the Examination Hall during the examination. **After the examination has concluded, you must hand over your Answer Sheet to the Invigilator.** Thereafter, you are permitted to take away the Question Booklet with you.
11. Failure to comply with any of the above instructions will render you liable to such action or penalty as the Commission may decide at their discretion.
12. Candidates must assure before leaving the Examination Hall that their Answer Sheets will be kept in Self Adhesive LDPE Bag and completely packed/sealed in their presence.

PART - I

(English Language)

Directions (Q. Nos. E-1 to E-5) 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-1.** Why is Kerala just the place for you if you love variety ?
- (A) There is something here to please everyone
 - (B) Kerala has magical backwaters
 - (C) Kerala is very boring
 - (D) More than one of the above
 - (E) None of the above
- E-2.** Why should you take a trip to the spice gardens in the hills ?
- (A) To count the spices that are grown there
 - (B) To buy some spices
 - (C) To inhale the fragrance of fresh cardamoms
 - (D) More than one of the above
 - (E) None of the above

- E-3.** What is Kerala's cuisine known for ?
- (A) For its bad taste
 - (B) For being bland
 - (C) For its spicy hot flavours
 - (D) More than one of the above
 - (E) None of the above
- E-4.** What gives sea food its pungency?
- (A) Coconut and spices
 - (B) Coconut & spices enhanced by tamarind
 - (C) Addition of cocacola
 - (D) More than one of the above
 - (E) None of the above
- E-5.** Why would foreign bargain-hunter visitors never face a problem in Kerala ?
- (A) Many foreign languages are spoken in Kerala
 - (B) Hindi is the language of communication in the cities of kerala.
 - (C) English is spoken and understood everywhere in Kerala.
 - (D) More than one of the above
 - (E) None of the above

Directions (Q. Nos. E-6 to E-7) : Fill in the blanks with suitable articles like 'a', 'an', and 'the':

- E-6.** If you reach _____ Airport on time, you will catch the flight.
- (A) a
 - (B) an
 - (C) the
 - (D) More than one of the above
 - (E) None of the above
- E-7.** You should go for _____ early morning walk.
- (A) the
 - (B) a
 - (C) an
 - (D) More than one of the above
 - (E) None of the above
- E-8.** If 30th April is Tuesday, what day of the week would be 10th May?
- (A) Monday
 - (B) Thursday
 - (C) Saturday
 - (D) More than one of the above
 - (E) None of the above



(Hindi Language)

निम्नलिखित अपठित गद्यांश के आधार पर प्रश्न सं. H-9 से H-14 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-9. रतन ने दौड़कर अजय को क्यों रोकना चाहा ?

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

H-10. रतन अजय को अच्छा छात्र बनने के लिए क्यों सलाह देता था ?

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

H-11. रतन कैसा छात्र था ?

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

H-12. रतन और अजय आपस में क्या थे ?

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

H-13. सभी शिक्षक रतन से क्यों प्रसन्न रहते थे ?

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

H-14. अजय किस काम में अधिक मन लगाता था ?

- (A) झगड़ने में
- (B) पढ़ने में
- (C) दौड़ने में
- (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 ।

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 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-15. शिवाजी वीर होने के साथ और क्या थे ?

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

H-16. शिवाजी ने लोगों में कौन सी भावना भर दी ?

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

H-17. शिवाजी कौन थे ?

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

H-18. लोग शिवाजी का आदर क्यों करते थे ?

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

H-19. इनमें 'राजनीतिज्ञ' शब्द का अर्थ है -

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

H-20. इनमें अपठित गद्यांश का शीर्षक है -

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

H-21. इनमें व्यक्तिवाचक संज्ञा है -

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

H-22. इनमें उत्तमपुरुष सर्वनाम है -

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



H-23. 'दुकान पर कोई नहीं था।' वाक्य में किस कारक का चिह्न प्रयुक्त हुआ है ?

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

H-24. इनमें तत्सम शब्द है -

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

H-25. इनमें शुद्ध शब्द है -

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

H-26. इनमें 'उत्कृष्ट' शब्द का विपरीतार्थक शब्द है -

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

H-27. इनमें शुद्ध वाक्य है -

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

H-28. इनमें 'जल' शब्द का पर्यायवाची शब्द है -

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

H-29. 'जहाँ लोगों का मिलन हो' वाक्यखण्ड के लिए एक शब्द है -

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

H-30. 'खटाई में पड़ना' मुहावरे का अर्थ है -

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



PART - II
(GENERAL STUDIES)

31. Which of the following is the value of $(x+1/x)^2$?
(A) $x^2 + 1/x^2$
(B) $x^2 - 1/x^2$
(C) $x^2 + 1/x^2 + 1$
(D) More than one of the above
(E) None of the above
32. 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) 1% loss
(C) no gain no loss
(D) More than one of the above
(E) None of the above
33. By what number should 81 be divided to get a perfect cube ?
(A) 3
(B) 6
(C) 7
(D) More than one of the above
(E) None of the above
34. 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) 100 and 33
(C) 110 and 44
(D) More than one of the above
(E) None of the above
35. In a parallelogram ABCD, angle A and angle B are in the ratio 1:2. Find the angle A.
(A) 30°
(B) 45°
(C) 60°
(D) More than one of the above
(E) None of the above
36. The height of a cylinder whose radius is 7 cm and the total surface area is 968 cm^2 is :
(A) 15 cm
(B) 17 cm
(C) 19 cm
(D) More than one of the above
(E) None of the above
37. If $(-3)^{m+1} \times (-3)^5 = (-3)^7$, then the value of m is :
(A) 5
(B) 7
(C) 1
(D) More than one of the above
(E) None of the above
38. If x and y are inversely proportional, then:
(A) $y/x = \text{constant}$
(B) $xy = \text{constant}$
(C) $x/y = \text{constant}$
(D) More than one of the above
(E) None of the above
39. 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) $1/5$
(C) 25
(D) More than one of the above
(E) None of the above
40. 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) 120 watt
(C) 210 watt
(D) More than one of the above
(E) None of the above



41. 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 50 cm
(C) A concave lens of 5 cm
(D) More than one of the above
(E) None of the above
42. The human eye forms the image of an object at its _____
(A) Cornea
(B) Iris
(C) Retina
(D) More than one of the above
(E) None of the above
43. Which of the following is not a part of the female reproductive system in human beings ?
(A) Ovary
(B) Uterus
(C) Vas deferens
(D) More than one of the above
(E) None of the above
44. The anther contains _____
(A) Sepals
(B) Ovules
(C) Pollen grains
(D) More than one of the above
(E) None of the above
45. Asexual reproduction takes place through budding in _____
(A) Amoeba
(B) Yeast
(C) Plasmodium
(D) More than one of the above
(E) None of the above
46. Which one of the following types of medicines used for treating indigestion ?
(A) Antibiotic
(B) Antacid
(C) Analgesic
(D) More than one of the above
(E) None of the above
47. The task of processing citizenship applications under the CAA will be undertaken by
(A) Postal Department
(B) Census Department
(C) Central Security IB
(D) More than one of the above
(E) None of the above
48. In which of the following country India launched its UPI ?
(A) Thailand
(B) Myanmar
(C) Mauritius
(D) More than one of the above
(E) None of the above
49. What is the name of space craft to be launched by ISRO in 2024 to carry astronauts ?
(A) Akashyan
(B) Gaganyan
(C) Bhramyan
(D) More than one of the above
(E) None of the above
50. Which country is not a member of G 7 ?
(A) Russia
(B) Canada
(C) USA
(D) More than one of the above
(E) None of the above



51. The process involved in achieving Green hydrogen is
 (A) Electrolysis
 (B) Dehydrogenesis
 (C) Dehydration
 (D) More than one of the above
 (E) None of the above
52. Which technology can be used to revise deceased individuals ?
 (A) Deepfake
 (B) AI
 (C) Chatbot
 (D) More than one of the above
 (E) None of the above
53. In cost of living index parameter 2024 which country is better than India ?
 (A) Nigeria
 (B) Pakistan
 (C) Bangladesh
 (D) More than one of the above
 (E) None of the above
54. Who supported Gandhiji in Champaran Satyagraha in 1917 in support of farmers ?
 (A) Birsa Munda
 (B) Rajendra Prasad
 (C) Satya Narayan Sinha
 (D) More than one of the above
 (E) None of the above
55. Which is the moon-like planet ?
 (A) Mercury
 (B) Mars
 (C) Earth
 (D) More than one of the above
 (E) None of the above
56. On the basis of fossils which is the origin place of man ?
 (A) Rift valley of Africa
 (B) Central Asia
 (C) Jerusalem
 (D) More than one of the above
 (E) None of the above
57. In India dry point settlement is found in
 (A) Flood prone area
 (B) Bikaner
 (C) Aravali region
 (D) More than one of the above
 (E) None of the above
58. In which district of Bihar Paddy crop production is maximum ?
 (A) Bhojpur
 (B) Rohtas
 (C) Nalanda
 (D) More than one of the above
 (E) None of the above
59. On which mountain is Tehran situated ?
 (A) Alburz
 (B) Zagros
 (C) Makran
 (D) More than one of the above
 (E) None of the above
60. The highest peak in the Eastern Ghats of India is :
 (A) Anai Mudi
 (B) Kanchenjunga
 (C) Mahendragiri
 (D) More than one of the above
 (E) None of the above
61. Which of these statements is not a valid reason for the depletion of flora and fauna ?
 (A) Agricultural expansion
 (B) Large scale development projects
 (C) Grazing and fuel wood collection
 (D) More than one of the above
 (E) None of the above
62. In which district of Bihar silk textile production is maximum ?
 (A) Madhubani
 (B) Bhagalpur
 (C) Aurangabad
 (D) More than one of the above
 (E) None of the above



63. Who was the viceroy of India during the Jallianwala Bagh massacre ?
- (A) Lord Curzon
 - (B) Lord Chelmsford
 - (C) Lord Irwin
 - (D) More than one of the above
 - (E) None of the above
64. The first President of the Indian National Congress was:
- (A) Dadabhai Naoroji
 - (B) W. C. Bonnerjee
 - (C) Badruddin Tyabji
 - (D) More than one of the above
 - (E) None of the above
65. Who among the following is also known as the Grand old man of India ?
- (A) Bal Gangadhar Tilak
 - (B) Dadabhai Naoroji
 - (C) Gopal Krishna Gokhale
 - (D) More than one of the above
 - (E) None of the above
66. Which of the following movements was started by M. K. Gandhi ?
- (A) Quit India Movement
 - (B) Non cooperation movement
 - (C) Swadesi movement
 - (D) More than one of the above
 - (E) None of the above
67. Who was the leader of the Bardoli Satyagraha ?
- (A) Sardar Vallabhbhai Patel
 - (B) Bal Gangadhar Tilak
 - (C) Jawaharlal Nehru
 - (D) More than one of the above
 - (E) None of the above
68. Who among the following is not associated with Home rule movement ?
- (A) Annie Besant
 - (B) Bal Gangadhar Tilak
 - (C) Sarojini Naidu
 - (D) More than one of the above
 - (E) None of the above
69. Who founded the Bihar provincial congress committee in 1920 ?
- (A) Dr. Rajendra Prasad
 - (B) Anugrah Narayan Sinha
 - (C) Jai Prakash Narayan
 - (D) More than one of the above
 - (E) None of the above
70. The All India Kisan Sabha (AIKS) was founded in 1936 in Bihar under the leadership of:
- (A) Dr. Rajendra Prasad
 - (B) Jai Prakash Narayan
 - (C) Swami Sahajanand Saraswati
 - (D) More than one of the above
 - (E) None of the above



PART - III
(Computer Science)

71. Digital circuit can be made by the repeated use of the _____.
(A) NAND gate
(B) NOR gate
(C) AND gate
(D) More than one of the above
(E) None of the above
72. Which of the following is correct for Digital Circuits?
(A) They use analog signals for communication
(B) They process information using continuous voltage levels
(C) They are not suitable for high speed operations
(D) More than one of the above
(E) None of the above
73. Which of the following is an example of a digital Electronic?
(A) Computers
(B) Mobile phones
(C) Digital cameras
(D) More than one of the above
(E) None of the above
74. An OR gate has 4 inputs. The number of words in truth table will be _____.
(A) 4
(B) 8
(C) 16
(D) More than one of the above
(E) None of the above
75. When does a negative level triggered flip-flop in Digital Electronics changes its state?
(A) When the clock is Negative
(B) When the clock is Positive
(C) When the inputs are all zero
(D) More than one of the above
(E) None of the above
76. What is the result of the operation 1010 AND 1100 in binary?
(A) 1000
(B) 1110
(C) 100
(D) More than one of the above
(E) None of the above



77. In a half-adder circuit, what are the outputs?
- (A) Sum and Carry
 - (B) Difference and Borrow
 - (C) Sum and Difference
 - (D) More than one of the above
 - (E) None of the above
78. Which of the following is the type of Read Only Memory (ROM)?
- (A) PROM
 - (B) EPROM
 - (C) MROM
 - (D) More than one of the above
 - (E) None of the above
79. What is a PLA?
- (A) Programmable Logic Application
 - (B) Programmable Logic Array
 - (C) Programmable Logic Architecture
 - (D) More than one of the above
 - (E) None of the above
80. How many select lines are required for an 8-to-1 multiplexer?
- (A) 2
 - (B) 3
 - (C) 4
 - (D) More than one of the above
 - (E) None of the above
81. 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: 11001110010, Octal: 1712, Hexadecimal: 72A
 - (C) Binary: 11100110010, Octal: 1642, Hexadecimal: 3CD
 - (D) More than one of the above
 - (E) None of the above
82. What is Booth's algorithm used for?
- (A) Binary to decimal conversion
 - (B) Decimal to binary conversion
 - (C) Binary multiplication
 - (D) More than one of the above
 - (E) None of the above
83. Which of the following is error detection code used in digital logic?
- (A) Hamming code
 - (B) Cyclic redundancy check (CRC)
 - (C) Checksum
 - (D) More than one of the above
 - (E) None of the above



84. When performing BCD addition, what is the maximum value that can be represented in a single BCD digit?
- (A) 2
 - (B) 10
 - (C) 15
 - (D) More than one of the above
 - (E) None of the above
85. Convert the binary number 1011.1101 to its decimal equivalent. Which of the following is the correct decimal value?
- (A) 11.75
 - (B) 12.125
 - (C) 13.5
 - (D) More than one of the above
 - (E) None of the above
86. What is De Morgan's theorem used for in digital logic?
- (A) Simplifying Boolean expressions
 - (B) Implementing NAND gates
 - (C) Performing binary addition
 - (D) More than one of the above
 - (E) None of the above
87. 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 prioritize certain inputs over others
 - (C) To ensure that all possible input combinations are covered in truth tables
 - (D) More than one of the above
 - (E) None of the above
88. Which of the following data structures stores elements in a non-linear relationship?
- (A) Stack
 - (B) Queue
 - (C) Array
 - (D) More than one of the above
 - (E) None of the above
89. Which data structure is used for efficient searching, insertion, and deletion of elements?
- (A) Stack
 - (B) Queue
 - (C) Hash Table
 - (D) More than one of the above
 - (E) None of the above



90. In a binary search tree, which subtree of a node contains elements that are greater than the node's value?
- (A) Left subtree
 - (B) Right subtree
 - (C) Both subtrees
 - (D) More than one of the above
 - (E) None of the above
91. The result evaluating the postfix expression $10\ 5 + 60\ 6 / * 8$
- (A) 142
 - (B) 213
 - (C) 284
 - (D) More than one of the above
 - (E) None of the above
92. In a balanced binary tree, the height of two sub-trees of every node can not differ by more than
- (A) 2
 - (B) 1
 - (C) 0
 - (D) More than one of the above
 - (E) None of the above
93. Write the output of the following program:
`int a[] = {1,2,3,} *p;`
- (A) Junk value
 - (B) 3
 - (C) Runtime error
 - (D) More than one of the above
 - (E) None of the above
94. 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) 3 deletions and 3 additions
 - (C) 4 deletions and 4 additions
 - (D) More than one of the above
 - (E) None of the above
95. The order of the binary search algorithm is _____.
- (A) N
 - (B) $N \log n$
 - (C) N^2
 - (D) More than one of the above
 - (E) None of the above
96. 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) 11, 12, 10, 16, 19, 18, 20, 15
 - (C) 19, 16, 18, 20, 11, 12, 10, 15
 - (D) More than one of the above
 - (E) None of the above
97. How many distinct binary search trees can be created out of 4 distinct keys?
- (A) 8
 - (B) 24
 - (C) 14
 - (D) More than one of the above
 - (E) None of the above



98. `#include <stdio.h>`
`int main()`
`{`
`int i = 5, j = 10, k = 15;`
`printf("\n%d", sizeof(k /= i+j));`
`printf("\n%d", k);`
`return 0;`
`}`
Assume size of an integer as 4 bytes. What is the output of above program?
- (A) 2 1
 - (B) 4 1
 - (C) 4 15
 - (D) More than one of the above
 - (E) None of the above

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

100. Which of the following is NOT a step in the Divide and Conquer algorithm?
- (A) Combine
 - (B) Conquer
 - (C) Divide
 - (D) More than one of the above
 - (E) None of the above

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

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



110. Which of the following is NOT a type of interrupt?
- (A) Hardware interrupt
 - (B) Memory interrupt
 - (C) Software interrupt
 - (D) More than one of the above
 - (E) None of the above
111. What is a page in paging?
- (A) A fixed-size block of virtual memory
 - (B) A fixed-size block of physical memory
 - (C) A type of memory allocation
 - (D) More than one of the above
 - (E) None of the above
112. 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) 12 bits
 - (C) 14 bits
 - (D) More than one of the above
 - (E) None of the above
113. What is a segment base in segmentation?
- (A) The starting address of a segment in physical memory
 - (B) The starting address of a segment in virtual memory
 - (C) The ending address of a segment in physical memory
 - (D) More than one of the above
 - (E) None of the above
114. What causes thrashing to occur?
- (A) Excessive paging activity
 - (B) Insufficient disk space
 - (C) Hardware failures
 - (D) More than one of the above
 - (E) None of the above
115. 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) 4 GB
 - (C) 6 GB
 - (D) More than one of the above
 - (E) None of the above
116. How is the TLB typically organized?
- (A) As a direct-mapped cache
 - (B) As an associative cache
 - (C) As a set-associative cache
 - (D) More than one of the above
 - (E) None of the above
117. Which of the following is a common file operation?
- (A) Create
 - (B) Delete
 - (C) Rename
 - (D) More than one of the above
 - (E) None of the above



- 118.** 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) 620
 - (C) 630
 - (D) More than one of the above
 - (E) None of the above
- 119.** Thread shares with other threads belonging to the same process its
- (A) thread ID
 - (B) program counter
 - (C) code section and data section
 - (D) More than one of the above
 - (E) None of the above
- 120.** Which of the following is NOT a type of DBMS?
- (A) Relational DBMS
 - (B) Object-Oriented DBMS
 - (C) Sequential DBMS
 - (D) More than one of the above
 - (E) None of the above
- 121.** 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 establish relationships between tables
 - (C) A key used to sort records in a table
 - (D) More than one of the above
 - (E) None of the above
- 122.** 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) Second Normal Form (2NF)
 - (C) Third Normal Form (3NF)
 - (D) More than one of the above
 - (E) None of the above
- 123.** Which SQL command is used to add new rows to a database table?
- (A) ADD
 - (B) CREATE
 - (C) INSERT
 - (D) More than one of the above
 - (E) None of the above



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

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

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

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

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

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

127. Which device is used to connect multiple devices within the same local area network (LAN)?

- (A) Router
- (B) Switch
- (C) Bridge
- (D) More than one of the above
- (E) None of the above

128. Which protocol is used to send email over the Internet?

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

129. What is the purpose of a subnet mask in TCP/IP networking?

- (A) To identify the network portion of an IP address
- (B) To identify the host portion of an IP address
- (C) To convert IP addresses into domain names
- (D) More than one of the above
- (E) None of the above



- 130.** What is the maximum data rate of Bluetooth version 5.0?
- (A) 1 Mbps
 - (B) 2 Mbps
 - (C) 5 Mbps
 - (D) More than one of the above
 - (E) None of the above
- 131.** Which of the following is a software development life cycle model?
- (A) Waterfall model
 - (B) Agile model
 - (C) Spiral model
 - (D) More than one of the above
 - (E) None of the above
- 132.** Which of the following is NOT a software development requirement?
- (A) Functional requirements
 - (B) System requirements
 - (C) Physical requirements
 - (D) More than one of the above
 - (E) None of the above
- 133.** 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 is done before coding, while validation is done after coding.
 - (C) Verification checks if the software is built right, while validation checks if the right software is built.
 - (D) More than one of the above
 - (E) None of the above
- 134.** What is the purpose of a software prototype?
- (A) To serve as the final version of the software
 - (B) To replace detailed documentation
 - (C) To speed up the software development process
 - (D) More than one of the above
 - (E) None of the above
- 135.** What is the primary goal of software engineering?
- (A) To write code efficiently
 - (B) To develop software that meets user requirements within budget and schedule constraints
 - (C) To develop software with the latest technologies
 - (D) More than one of the above
 - (E) None of the above



- 136.** Which of the following is a pillar of OOP?
- (A) Inheritance
 - (B) Encapsulation
 - (C) Abstraction
 - (D) More than one of the above
 - (E) None of the above
- 137.** Which keyword is used in Java to implement inheritance?
- (A) extends
 - (B) inherits
 - (C) implements
 - (D) More than one of the above
 - (E) None of the above
- 138.** What is the access specifier used to make members of a class accessible only within the same package?
- (A) private
 - (B) public
 - (C) package-private
 - (D) More than one of the above
 - (E) None of the above
- 139.** Inheritance in OOP allows a class to:
- (A) Inherit properties and behavior from another class
 - (B) Create instances of another class
 - (C) Override methods of another class
 - (D) More than one of the above
 - (E) None of the above
- 140.** What is the purpose of HTML in a web application?
- (A) To define the structure of web pages
 - (B) To style web pages
 - (C) To add interactivity to web pages
 - (D) More than one of the above
 - (E) None of the above
- 141.** Which of the following is an example of a server-side scripting language commonly used in web applications?
- (A) HTML
 - (B) CSS
 - (C) C++
 - (D) More than one of the above
 - (E) None of the above
- 142.** What is the computational complexity of the halting problem?
- (A) $O(1)$
 - (B) $O(n)$
 - (C) Not computable
 - (D) More than one of the above
 - (E) None of the above
- 143.** Which of the following is NOT a component of a Turing machine?
- (A) Input tape
 - (B) Output tape
 - (C) Control unit
 - (D) More than one of the above
 - (E) None of the above



144. Which wireless communication technology is commonly used in IoT devices for short-range communication?
- (A) Bluetooth
 - (B) Wi-Fi
 - (C) 4G LTE
 - (D) More than one of the above
 - (E) None of the above
145. Which of the following is an example of an IoT protocol used for device communication?
- (A) HTTP
 - (B) FTP
 - (C) MQTT
 - (D) More than one of the above
 - (E) None of the above
146. Which of the following is a subfield of AI?
- (A) Machine Learning
 - (B) Robotics
 - (C) Natural Language Processing
 - (D) More than one of the above
 - (E) None of the above
147. Which of the following is a supervised learning algorithm?
- (A) Decision Tree
 - (B) K-means Clustering
 - (C) Reinforcement Learning
 - (D) More than one of the above
 - (E) None of the above
148. Which of the following is NOT a common type of E-Commerce model?
- (A) Business-to-Consumer (B2C)
 - (B) Consumer-to-Business (C2B)
 - (C) Consumer-to-Consumer (C2C)
 - (D) More than one of the above
 - (E) None of the above
149. Which of the following is an example of a B2C E-Commerce website?
- (A) Alibaba
 - (B) Amazon
 - (C) Google
 - (D) More than one of the above
 - (E) None of the above
150. Which of the following is a multimedia authoring tool?
- (A) Microsoft Word
 - (B) Adobe Photoshop
 - (C) Adobe Flash
 - (D) More than one of the above
 - (E) None of the above

