

QUESTION PAPER FOR B.E./B.Tech/DIPLOMA/MCA/BCA

Total Question: 100

Marks: 100

Duration: 75mins

Instructions:

- 1) Do not write anything on the Question Paper.
- 2) Use of Electronic/Manual Calculator or any Electronic Item such as Mobile Phone, Pager Etc, Is prohibited.
- 3) Use separate paper for all rough work.
- 4) Part I & Part V have negative marking. (-0.25 for every wrong answer)
- 5) Part III is compulsory. The candidate has to attempt all the questions of Part III.
- 6) Every question carries 1 mark.

Part I - GENERAL ENGLISH

Directions: Select the word or phrase which is synonymous in meaning to the word in bold.

1. CORRESPONDENCE

- A. Agreements B. Contracts C. Documents D. Letters

Directions: In each of the sentence given below a word is printed in bold. Below it four choices are given. Pick up the one which is most nearly the same in meaning as the word printed in bold and can replace it without altering the meaning of the sentence.

2. The International Community may begin to doubt the **credentials** of the largest democracy in the world.
A. Principles B. Dependability C. Capacity to return loans D. Trustworthiness

Directions: In the following question choose the word which is the exact **OPPOSITE** of the given words.

3. LIABILITY

- A. Property B. Assets C. Debt D. Treasure

Directions: Each sentence below consists of a word or a phrase which is bold. It is followed by four words or phrases. Select the word or phrase which is closes to the OPPOSITE in meaning of the bold word or phrase

4. **Feasibility** of the project is under study.

- A. Received B. Awarded C. Invited D. Praised

Directions: Fill in the blanks with the best one which can complete the statement correctly and meaningfully.

5. P1: My hosting plan gives me unlimited data _____. P2: Mine offers 6 GB _____ per month.

- A. Exchange B. Transfer C. Download D. Upload

Directions: Each question consist of two words which have a certain relationship to each other followed by four pairs of related words, Select the pair which has the same relationship.

6. WAN:COLOUR

- A. Corpulent:Weight B. Insipid:Flavour C. Pallid:Complexion D. Enigmatic:Puzzle

Directions: Read the each sentence to find out whether there is any grammatical error in it. The error, if any will be in one part of the sentence. The letter of that part is the answer. If there is no error, the answer is 'E'. (Ignore the errors of punctuation, if any).

7. (solve as per the direction given above)

- A. The majority of the B. computer professionals recommends
C. that effective measures D. should be taken against software piracy. E. No error.

Directions: In each sentence below, four words which are lettered (A), (B), (C) and (D) have been printed in bold type, one which may be either inappropriate in the context of the sentence or wrongly spelt. The letter of that word is answer. If all the four words are appropriate and also correctly spelt, mark 'E', i.e., 'All Correct' as the answer.

8. (Solve as per the direction given above)

- A. The non-availability B. of unprocessed natural C. resources in a country
should not be the D. basic for rejecting that possibility of export industry. E. All correct

Directions: In each question below, there is a sentence of which some parts have been jumbled up. Rearrange these parts which are labeled P, Q, R and S to produce the correct sentence. Choose the proper sequence.

9. Education is

P : of the proper sense of responsibilities

Q : the first need

R : in a citizen

S : for the development

The Proper sequence should be:

A.SQPR

B.QSRP

C.QSPR

D.PQRS

Directions: In question given below, a part of the sentence is *italicized and underlined*. Below are given alternatives to the italicized part which may improve the sentence. Choose the correct alternative. In case no improvement is needed, option 'D' is the answer.

10. Whatever to our other problems. We have no shortcoming to cheap labor in India.

A. default

B. deficit

C. scarcity

D. No improvement

Directions: In questions given below out of four alternatives, choose the one which can be substituted for the given word/sentence.

11. List of the business or subjects to be considered at a meeting.

A. Schedule

B. Timetable

C. Agenda

D. Plan

Directions: In each question, an incomplete statement (Stem) followed by fillers is given. Pick out the best one which can complete incomplete stem correctly and meaningfully.

12. In order to raise company's profit, the employees.....

A. demanded two additional increments B. decided to go on paid holidays

C. requested the management to implement new welfare schemes

D. offered to work overtime without any compensation

E. decided to raise the cost of raw material

Directions: In the question below the sentences have been given in Active/Passive voice. From the given alternatives, choose the one which best expresses the given sentence in Passive/Active voice.

13. James Watt discovered the energy of steam.

- A. The energy of steam discovered James Watt.
- B. The energy of steam was discovered by James Watt.
- C. James Watt was discovered by the energy of steam.
- D. James Watt had discovered energy by the steam.

Directions: In the question below the sentences have been given in Direct/Indirect speech. From the given alternatives, choose the one which best expresses the given sentence in Indirect/Direct speech.

14. I told him that he was not working hard.

- A. I said to him, "You are not working hard."
- B. I told to him, "You are not working hard."
- C. I said, "You are not working hard."
- D. I said to him, "He is not working hard."

Directions (15-20): Read the paragraph below and answer the following questions.

The online shopping giant Amazon has entered the grocery delivery business in the UK. Its new service is called Amazon Pantry. A traditional pantry is a small room or cupboard in a house where people put food, plates and cutlery. Amazon's new product will provide customers with a next-day delivery service of groceries. It will mean there will be a lot of competition for the UK's traditional supermarkets. Amazon Pantry customers will be able to select from more than 4,000 goods ranging from food and drinks to health and beauty products. Customers will not be able to buy fresh fruit and vegetables yet. A new service for this called Amazon Fresh is in the planning stage and will be available later.

UK shoppers may not be all rushing to use Amazon's new grocery delivery service. There is a charge. All customers must already be members of Amazon's express delivery service Amazon Prime, which costs \$120 a year. They will also have to pay a delivery charge of \$4.50 for the first 20kg of shopping. Amazon Pantry spokeswoman Helene Parthenay said she thought people would like the convenience of the service. She said it would, "take the heavy lifting out of replenishing the basics and store cupboard essentials that people need every day." She added: "We are

always looking to innovate on behalf of our customers and find ways to save them time and money."

Questions:

15. What is the name of Amazon's new grocery delivery service?

- A. Delivery B. Cutlery C. Pantry D. Grocery**

16. What do people put in a pantry besides food and plates?

- A. Cutlery B. Cutlets C. Cuttings D. Cuttle**

17. For whom will Amazon provide a lot of competition?

- A. UK supermarkets B. eBay C. Small grocery shops D. Nestle**

18. How many goods will Amazon customers are able to choose from?

- A. 3500 B. 4000 C. 4500 D. 5000**

19. What quantity of groceries can you get for a \$4.50 delivery charge?

- A. 20 Kg B. 45 Kg C. 30 Kg D. 35 kg**

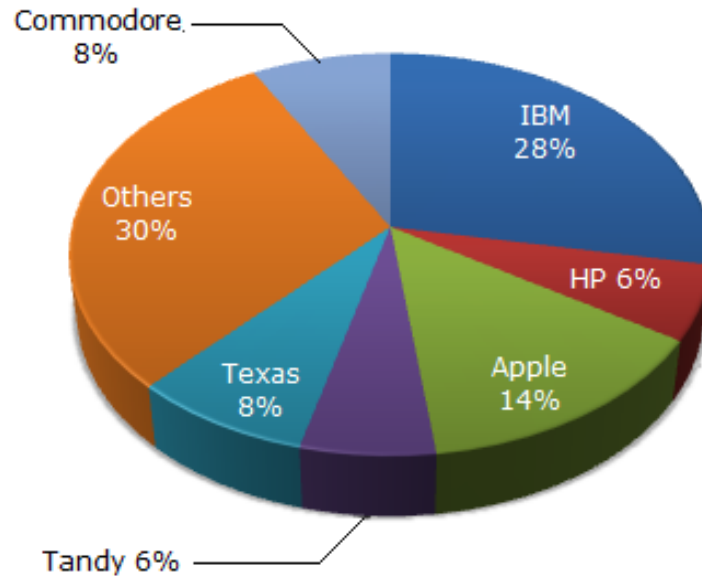
20. What will Amazon customers are able to buy later?

- A. Stocks and shares B. Dessert C. Coffee**
D. Fresh fruit and vegetables

PART II - PSYCHOMETRIC TEST.

Directions (21-23): Study the following Pie chart and answer the following questions:

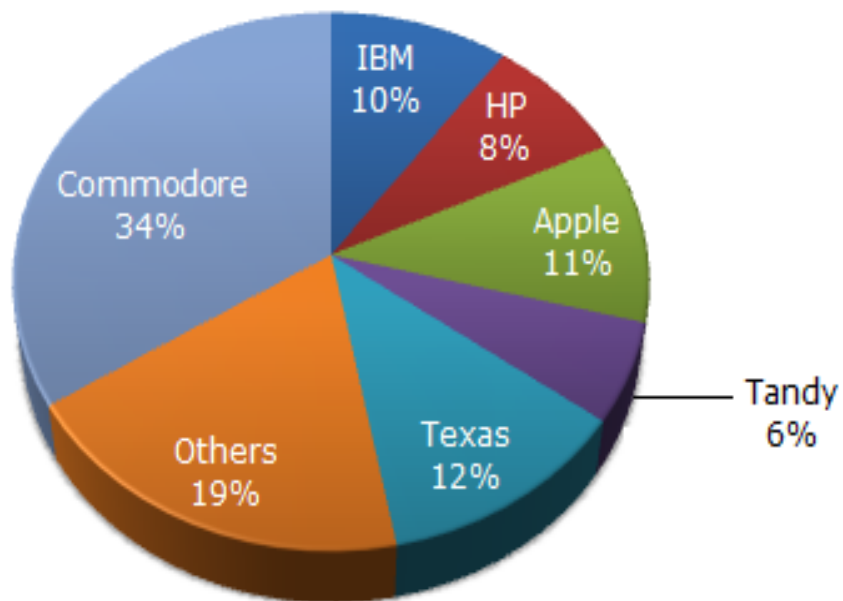
The pie chart shows the distribution of New York market share by **value** of different computer companies in 2005.



The pie chart shows the distribution of New York market share by **volume** of different computer companies in 2005.

Number of units sold in 2005 in New York = 1,500

Value of units sold in 2005 in New York = US \$1,650,000.



21. For the year 2005, which company has realized the lowest average unit sales price for a PC

- A. Commodore B. IBM C. Tandy D. Cannot be determined**

22. Over the period 2005-2006, if sales (value-wise) of IBM PC's increased by 50% and of Apple by 15% assuming that PC sales of all other computer companies remained the same, by what percentage (approximately) would the PC sales in New York (value-wise) increase over the same period ?

- A. 16.1 % B. 18 % C. 14 % D. None of these**

23. In 2005, the average unit sale price of an IBM PC was approximately (in US\$)?

- A. 3180 B. 2800 C. 393 D. 3080**

Directions: The following question is followed by three statements. You have to study the question and all the three statements given to decide whether any information provided in the statement(s) is redundant and can be dispensed with while answering the given question.

24. What is the length of a running train P crossing another running train Q?

I. These two trains take 18 seconds to cross each other.

II. These trains are running in opposite directions.

III. The length of the train Q is 180 meters.

- A. I only B. II only
C. III only D. All I, II and III are required
E. Even with I, II and III, the answer cannot be obtained.**

25. The angle of elevation of the sun, when the length of the shadow of a tree 3 times the height of the tree, is:

- A. 30° B. 45° C. 60° D. 90°**

Directions: Each of the question given below consists of a statement and / or a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statement(s) is / are sufficient to answer the given question. Read the both statements and chose the suitable option:

26. What percentage of simple interest per annum did Anand pay to Deepak?

I. Anand borrowed Rs. 8000 from Deepak for four years.

II. Anand returned Rs. 8800 to Deepak at the end of two years and settled the loan.

- A.** I alone sufficient while II alone not sufficient to answer
- B.** II alone sufficient while I alone not sufficient to answer
- C.** Either I or II alone sufficient to answer
- D.** Both I and II are not sufficient to answer
- E.** Both I and II are necessary to answer

27. Alfred buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, his gain percent is:

A. $4 \frac{4}{7} \%$

B. $5 \frac{5}{11} \%$

C. 10%

D. 12%

28. How many days are there in x weeks x days?

A. $7x^2$

B. $8x$

C. $14x$

D. 7

29. Which one of the following can't be the square of natural number?

A. 30976

B. 75625

C. 28561

D. 143642

E. None of these

30. Reduce $\frac{128352}{238368}$ To its lowest terms.

- A. $\frac{3}{4}$ B. $\frac{5}{13}$ C. $\frac{7}{13}$ D. $\frac{9}{13}$

31. $\left(\frac{x^b}{x^c}\right)^{(b+c-a)} \cdot \left(\frac{x^c}{x^a}\right)^{(c+a-b)} \cdot \left(\frac{x^a}{x^b}\right)^{(a+b-c)} = ?$

- A. x^{abc} B. 1 C. $x^{ab+bc+ca}$ D. x^{a+b+c}

32. If $\log_x \left(\frac{9}{16}\right) = -\frac{1}{2}$, then x is equal to:

- A. $-\frac{3}{4}$ B. $\frac{3}{4}$ C. $\frac{81}{256}$ D. $\frac{256}{81}$

33. A group of students decided to collect as many paise from each member of group as is the number of members. If the total collection amounts to Rs. 59.29, the number of the member is the group is:

- A. 57 B. 67 C. 77 D. 87

34. A father said to his son, "I was as old as you are at the present at the time of your birth". If the father's age is 38 years now, the son's age five years back was:

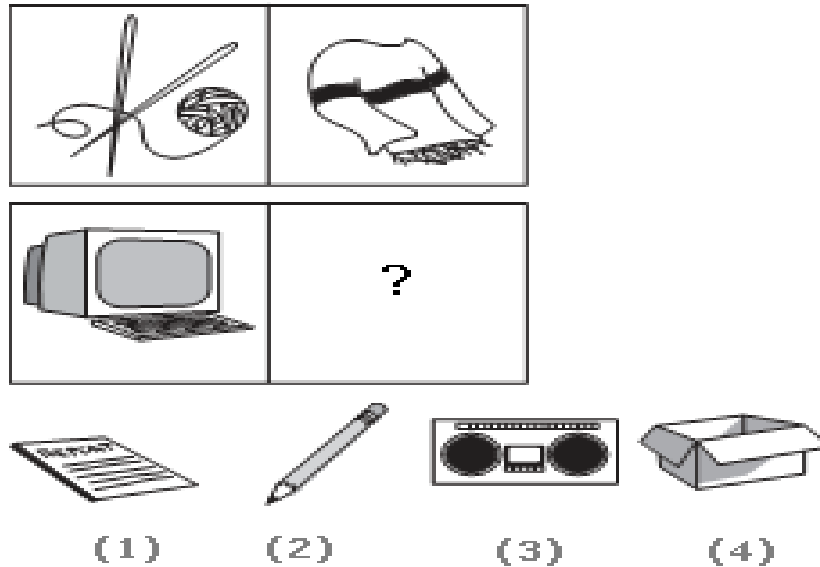
- A. 14 years B. 19 years C. 33 years D. 38 years

35. A and B entered into partnership with capitals in the ratio 4 : 5. After 3 months, A withdrew $\frac{1}{4}$ of his capital and B withdrew $\frac{1}{5}$ of his capital. The gain at the end of 10 months was Rs. 760. A's share in this profit is:

- A. Rs 330 B. Rs 360 C. Rs 380 D. Rs 430

Directions: Choose the picture that would go in the empty box so that the two bottom pictures are related in the same way as the top two are related.

36.



- A. 1 B. 2 C. 3 D. 4**

Directions: Read each definition and all four choices carefully, and find the answer that provides the best example of the given definition.

37. A Guarantee is a promise or assurance that attests to the quality of a product that is either (1) given in writing by the manufacturer or (2) given verbally by the person selling the product. Which situation below is the best example of a Guarantee?

- A.** Melissa purchases a DVD player with the highest consumer ratings in its category.
- B.** The salesperson advises Curt to be sure that he buys an air conditioner with a guarantee.
- C.** The local auto body shop specializes in refurbishing and selling used cars.
- D.** Lori buys a used digital camera from her coworker who says that she will refund Lori's money if the camera's performance is not of the highest quality.

Directions: Each question presents a situation and asks you to make a judgment regarding that particular circumstance. Choose an answer based on given information.

38. Mark is working with a realtor to find a location for the toy store he plans to open in his town. He is looking for a place that is either in, or not too far from, the center of town and one that would attract the right kind of foot traffic. Which of the following locations should Mark's realtor call to his attention?

- A. a storefront in a new high-rise building near the train station in the center of town whose occupants are mainly young, childless professionals who use the train to commute to their offices each day.
- B. a little shop three blocks away from the town's main street, located across the street from an elementary school and next door to an ice cream store
- C. a stand-alone storefront on a quiet residential street ten blocks away from the town's center
- D. a storefront in a small strip mall located on the outskirts of town that is also occupied by a pharmacy and a dry cleaner

Directions: In each of the following questions, three statements are given followed by four conclusions numbered I, II, III and IV. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.

39. Statements: No tree is fruit. All fruits are stones. All stones are rains.

Conclusions:

- I. No stone is tree.
- II. No rain is tree.
- III. Some rains are fruits.
- IV. Some rains are trees.

- | | |
|--|---|
| A. Only either II or III, and I follow | C. Only either II or IV, and III follow |
| B. None follows | D. All follow |
| | E. None of these |

Directions: First, you will be given a list of three "nonsense" words and their English word meanings. The question(s) that follow will ask you to reverse the process and translate an English word into the artificial language.

40. Here are some words translated from an artificial language.

gorblflur means fan belt

pixngorbl means ceiling fan

arthtusl means tile roof

Which word could mean "ceiling tile"?

A. gorbltusl

C. arthflur

B. flurgorbl

D. pixnarth

Directons: In each question below is given a statement followed by three courses of action numbered I, II and III. You have to assume everything in the statement to be true, and then decide which of the three given suggested courses of action logically follows for pursuing.

41. Statement: The Company X has rejected first lot of valves supplied by Company A and has cancelled its entire huge order quoting use of inferior quality material and poor craftsmanship.

Courses of Action:

- I. The Company A needs to investigate functioning of its purchase, production and quality control departments.
- II. The Company A should inspect all the valves rejected by Company X.
- III. The Company A should inform Company X that steps have been taken for improvement and renegotiate schedule of supply.

A. Only I and II follow

C. II, and either I or III follow

B. Only II follows

D. All I, II and III follow

E. None of these

Directions to solve(42-43): Six friends are sitting in a circle and are facing the centre of the circle. Deepa is between Prakash and Pankaj. Priti is between Mukesh and Lalit. Prakash and Mukesh are opposite to each other.

42. Who is sitting opposite to Priti ?

- A. Prakash B. Deepa C. Pankaj D. Lait

43. Who are the neighbours of Mukesh ?

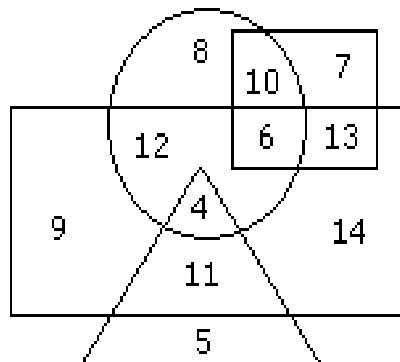
- A. Prakash and Deepa C. Priti and Pankaj
B. Deepa and Priti D. Lalit and Priti

44. Arrange the words given below in a meaningful sequence.

1. Hecto 2. Centi 3. Deca 4. Kilo 5. Deci

- A. 1, 3, 4, 5, 2 C. 2, 5, 3, 1, 4
B. 1, 5, 3, 4, 2 D. 5, 2, 1, 4, 3

Directions (45-46): In the following diagram rectangle represents men, Triangle represents educated, Circle represents urban and square represents government employees.



45. Which one of the following represents the educated men but not urban?

- A. 9 B. 5 C. 4 D. 11

46. Which one of the following represents a woman who is urban as well as government employee?

- A. 7 B. 13 C. 10 D. 6

47. 'Jade' is related to 'Green' in the same way as 'Garnet' is related to:

- A. Red B. Blue C. Orange D. Yellow

Directions (48-49):

Read the below passage carefully and answer the questions:

The government of an island nation is in the process of deciding how to spend its limited income. It has \$7 million left in its budget and eight programs to choose among. There is no provision in the constitution to have a surplus, and each program has requested the minimum amount they need; in other words, no program may be partially funded. The programs and their funding requests are:

- * Hurricane preparedness: \$2.5 million**
- * Harbor improvements: \$1 million**
- * School music program: \$0.5 million**
- * Senate office building remodeling: \$1.5 million**
- * Agricultural subsidy program: \$2 million**
- * National radio: \$0.5 million**
- * Small business loan program: \$3 million**
- * International airport: \$4 million**

48. Senators from urban areas are very concerned about assuring that there will be funding for a new international airport. Senators from rural areas refuse to fund anything until money for agricultural subsidies is appropriated. If the legislature funds these two programs, on which of the following could they spend the rest of the money?

- A. the school music program and national radio**
- B. hurricane preparedness**
- C. harbor improvements and the school music program**
- D. small business loan program**
- E. national radio and senate office building remodeling**

49. If the legislature decides to fund the agricultural subsidy program, national radio, and the small business loan program, what two other programs could they fund?

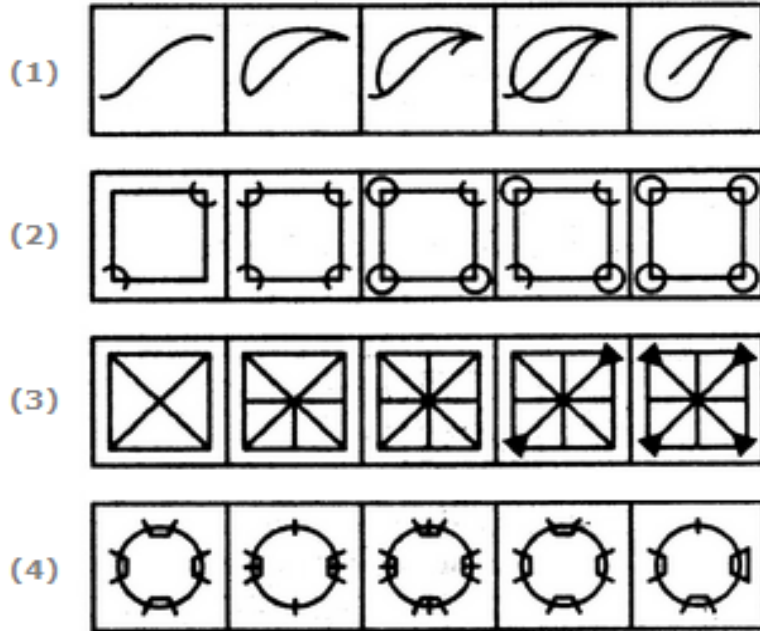
- A. harbor improvements and international airport**
- B. harbor improvements and school music program**
- C. hurricane preparedness and school music program**
- D. hurricane preparedness and international airport**
- E. harbor improvements and hurricane preparedness**

50. Choose the word which is different from the rest.

- | | |
|----------------------|--------------------|
| A. Acharya Kripalani | C. Rajagopalachari |
| B. C.V. Raman | D. Radhakrishnan |

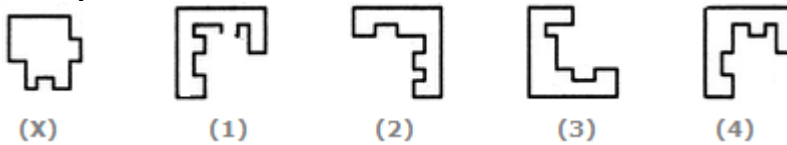
51. Choose the set of figures which follows the given rule.

Rule: The series becomes complex as it proceeds.



- A. 1 B. 2 C. 3 D. 4

52. Select a figure from the given four alternatives which fits exactly into Figure-X to form a complete square.



- A. 1 B. 2 C. 3 D. 4

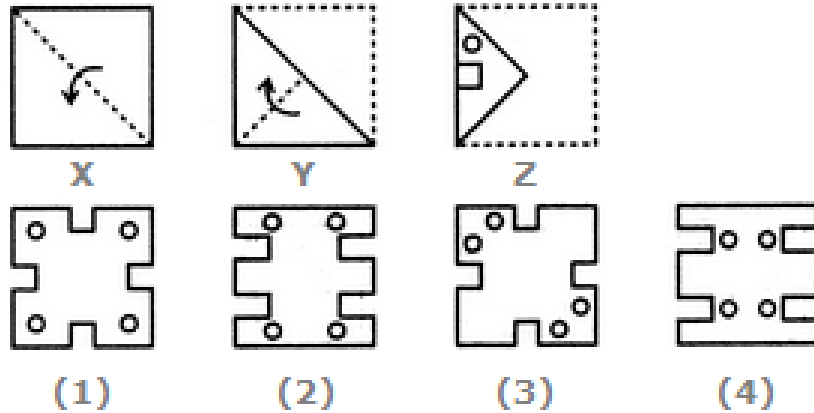
53. Choose the alternative which is closely resembles the mirror image of the given combination.

MALAYALAM

- | | |
|---------------|---------------|
| (1) MALAYALAM | (2) MAJAYAJAM |
| (3) MALAYALAM | (4) MAGAYAGAM |

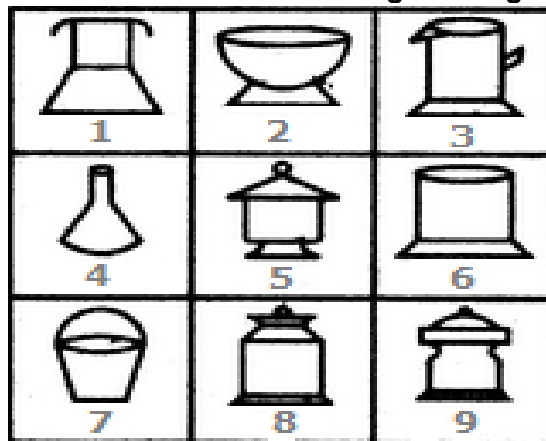
- A. 1 B. 2 C. 3 D. 4

54. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



- A. 1 B. 2 C. 3 D. 4

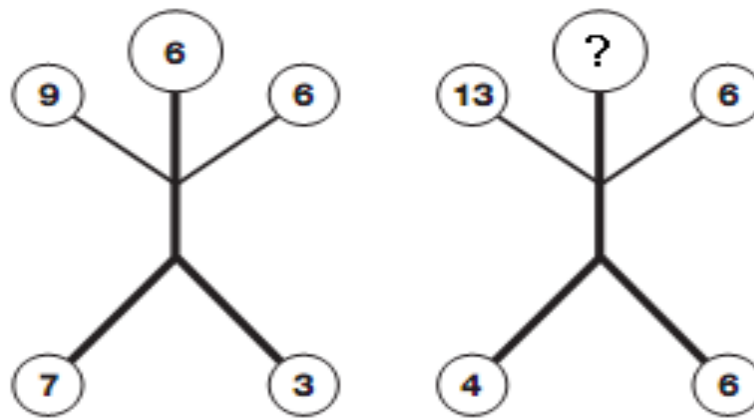
55. Group the given figures into three classes using each figure only once.



- A. 1,4,7 ; 2,5,9 ; 3,8,6
 B. 2,6,9 ; 1,4,7 ; 5,8,3
 C. 1,4,7 ; 2,3,6 ; 5,8,9
 D. 3,5,1 ; 4,7,8 ; 6,2,9

56.

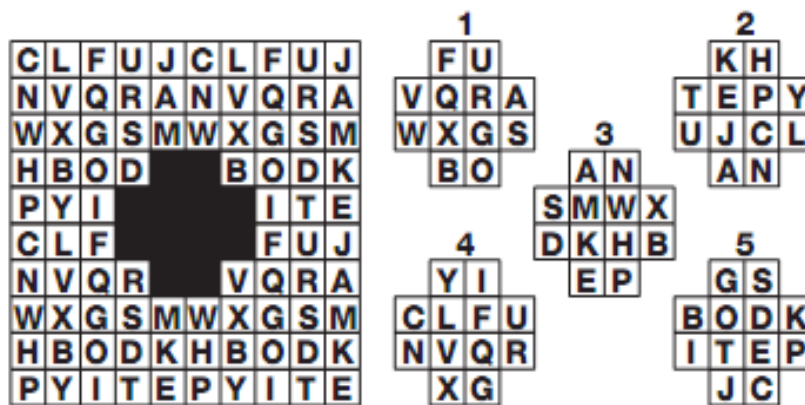
Which number replaces the question mark?



- A. 11 B. 12 C. 5 D. 4

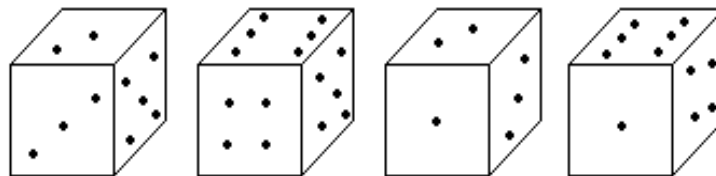
57.

Which segment complete the puzzle?



- A. 1 B. 2 C. 3 D. 4

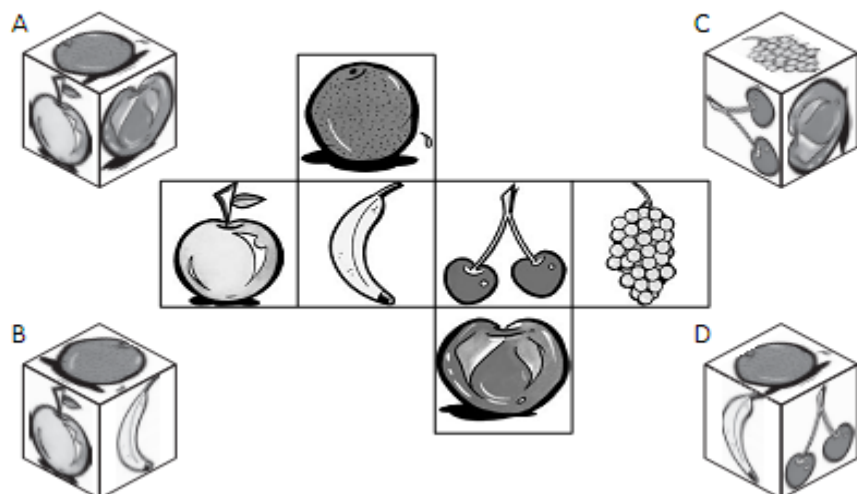
58. How many points will be on the face opposite to in face which contains 2 points?



- A. 1 B. 5 C. 4 D. 6

59.

Which picture cube does this shape make?



A. B. C. D.

60.

What time should the last watch show?



A. 3:36 B. 4:58 C. 2:47 D. 7:14

PART III - PERSONALITY TEST

Directions (61-70): Answer the following questions as per the following instructions:

- (i) Mark Option (A) if your answer is True.**
- (ii) Mark Option (B) if your answer is False.**
- (iii) Mark Option (C) if your answer is Cannot Say.**
- (iv) Mark Option (D) if your answer is Don't Want to Mention.**

- 61. Any trouble you have is your own fault.**
- 62. It is hard to really care about work when the job is boring.**
- 63. You are somewhat of a thrill-seeker.**
- 64. You criticize people when they deserve it.**
- 65. You give direct criticism when you need to.**
- 66. You hate to give up if you can't solve a hard problem.**
- 67. You like to take frequent breaks when working on something difficult or hard.**
- 68. It bothers you when you have to obey a lot of rules.**
- 69. You could not deal with difficult people all day.**
- 70. You have no big regrets about your past**

PART IV - GENERAL KNOWLEDGE & E-COMMERCE.

71. To cash in on growing online shopping/E-commerce trend, India Post office will start its e-commerce center from through which post office circle?

- A. Pune Circle B. Delhi Circle C. Kolkata Circle D. Mumbai Circle**

72. Which company teams up with Price water house Coopers to target Digital India projects in 2015?

- A. Yahoo! B. Bing C. Google D. Rediff**

73. Which of the following companies has been for the third consecutive year named the top employer in Europe by the Top Employers Institute?

- A. IBM B. Apple C. Microsoft D. TCS**

74. Which company has been named the most ethical company by the Ethisphere Institute

- A. Wipro B. TCS C. Infosys D. IBM**

75. Paisapay is facilitated in

- A. eBay.in B. amazon.com C. flipkart.com D. none of these**

76. In which website Global Easy Buy is facilitated?

- A. Ebay.com B. Amazon.com C. Yepme.com D. None of these**

77. What is the name of the new anti-Spam bill?

- A. No-Spam B. CAN-Spam C. Spam-Away D. Stop Spam**

78. Trust card is introduced by

- A. BSNL and itzcash B. BSNL and oxicash C. BSNL only D. None**

79. Which one is the third party payment provider who offers digital wallets for E-merchants?

- A. Oxicash B. PayMate C. PayPass D. All the above**

80. Which of the following is India's largest E-commerce company?

- A. FlipKart B. Jabong C. mJunction D. Bharti Airtel**

PART V - TECHNICAL

SECTION A - C PROGRAMMING

81. What is the output of this C code?

```
1.  #include <stdio.h>
2.  int main()
3.  {
4.      int y = 10000;
5.      int y = 34;
6.      printf("Hello World! %d\n", y);
7.      return 0;
8.  }
```

- | | |
|----------------------------|--|
| A. Compile time error | B. Hello World! 34 |
| C. Hello World! 1000 value | D. Hello World! Followed by a junk value |

82. Which among the following is NOT a logical or relational operator?

- | | | | |
|-------|-------|----|------|
| A. != | B. == | C. | D. = |
|-------|-------|----|------|

83. What is the output of the below code considering size of short int is 2, char is 1 and int is 4 bytes?

```
#include <stdio.h>
int main()
{
    short int i = 20;
    char c = 97;
    printf("%d, %d, %d\n", sizeof(i), sizeof(c), sizeof(c + i));
    return 0;
}
```

- | | | | |
|------------|------------|------------|------------|
| A. 2, 1, 2 | B. 2, 1, 1 | C. 2, 1, 4 | D. 2, 2, 8 |
|------------|------------|------------|------------|

84. Which of the following is NOT possible with any 2 operators in C?

- A. Different precedence, same associativity.
- B. Different precedence, different associativity.
- C. Same precedence, different associativity.
- D. All of the mentioned.

85. What is the output of this C code?

```
#include <stdio.h>
int main()
{
    int i = 0;
    for (foo(); i == 1; i = 2)
        printf("In for loop\n");
    printf("After loop\n");
}
int foo()
{
    return 1;
}
```

- A. After loop B. In for loop after loop
C. Compile time error D. Infinite loop

86. What is the output of this C code?

```
1. #include <stdio.h>
2. int main()
3. {
4.     int ary[2][3];
5.     foo(ary);
6. }
7. void foo(int *ary[])
8. {
9.     int i = 10, j = 2, k;
10.    ary[0] = &i;
11.    ary[1] = &j;
12.    *ary[0] = 2;
13.    for (k = 0; k < 2; k++)
14.        printf("%d\n", *ary[k]);
15. }
```

- A. 2 2 B. Compile time error
C. Undefined behavior D. 10 2

87. The function _____ obtains block of memory dynamically.

- A. calloc B. malloc C. Both a & b D. free

88. Which of the following is the right declaration for fgets inside the library?

- A. int *fgets(char *line, int maxline, FILE *fp);
- B. char *fgets(char *line, int maxline, FILE *fp);
- C. char *fgets(char *line, FILE *fp);
- D. int *fgets(char *line, FILE *fp);

89. Which of the following reduces the size of a structure?

- A. union B. bit-fields C. malloc D. None of the mentioned

90. %f access specifier is used for

- A. Strings B. Integral types C. Floating type D. All of the mentioned

SECTION B – BRANCHWISE TECHNICAL

A. COMPUTER SCIENCE ENGINEERING / INFORMATION TECHNOLOGY / INFORMATION SCIENCE ENGINEERING / BCA / MCA

91. Which of the following type of class allows only one object of it to be created?

- A. Virtual Class B. Abstract Class C. Singleton class D. Friend class

92. Which one of the following is correct about the statements given below?

1. All function calls are resolved at compile-time in Procedure Oriented Programming.
2. All function calls are resolved at compile-time in OOPS.

- A. Only II is correct B. Both I and II are correct. C. Only I is correct.
D. Both I and II are incorrect

93. Which two statements are true about wrapper or String classes?

1. If x and y refer to instances of different wrapper classes, then the fragment x.equals(y) will cause a compiler failure.
2. If x and y refer to instances of different wrapper classes, then x == y can sometimes be true.
3. If x and y are String references and if x.equals(y) is true, then x == y is true.
4. If x, y, and z refer to instances of wrapper classes and x.equals(y) is true, and y.equals(z) is true, then z.equals(x) will always be true.
5. If x and y are String references and x == y is true, then y.equals(x) will be true.

- A. 1 and 2 B. 2 and 3 C. 3 and 4 D. 4 and 5

94. What will be the output of the program?

```
public class Q126 implements Runnable
{
    private int x;
    private int y;
    public static void main(String [] args)
    {
        Q126 that = new Q126();
        (new Thread(that)).start( ); /* Line 8 */
        (new Thread(that)).start( ); /* Line 9 */
    }
    public synchronized void run( ) /* Line 11 */
    {
        for (;;) /* Line 13 */
        {
            x++;
            y++;
            System.out.println("x = " + x + "y = " + y);
        }
    }
}
```

- A. An error at line 11 causes compilation to fail
- B. Errors at lines 8 and 9 cause compilation to fail.
- C. The program prints pairs of values for x and y that might not always be the same on the same line (for example, "x=2, y=1")
- D. The program prints pairs of values for x and y that are always the same on the same line (for example, "x=1, y=1". In addition, each value appears once (for example, "x=1, y=1" followed by "x=2, y=2")

95. Which two statements are true about comparing two instances of the same class, given that the equals() and hashCode() methods have been properly overridden?

1. If the equals() method returns true, the hashCode() comparison == must return true.
2. If the equals() method returns false, the hashCode() comparison != must return true.
3. If the hashCode() comparison == returns true, the equals() method must return true.
4. If the hashCode() comparison == returns true, the equals() method might return true.

A. 1 and 4

B. 2 and 3

C. 3 and 4

D. 1 and 3

96. Which of the following statements are TRUE about the .NET CLR?

1. It provides a language-neutral development & execution environment.
2. It ensures that an application would not be able to access memory that it is not authorized to access.
3. It provides services to run "managed" applications.
4. The resources are garbage collected.
5. It provides services to run "unmanaged" applications.

- A. Only 1 and 2 B. Only 1, 2 and 4 C. 1, 2, 3, 4 D. Only 4 and 5
E. Only 3 and 4

98. Which of the following statements correctly define .NET Framework?

A. It is an environment for developing, building, deploying and executing Desktop Applications, Web Applications and Web Services.

B. It is an environment for developing, building, deploying and executing only Web Applications.

C. It is an environment for developing, building, deploying and executing Distributed Applications.

D. It is an environment for developing, building, deploying and executing Web Services.

E. It is an environment for development and execution of Windows applications.

97. Which of the following statements is correct about Managed Code?

A. Managed code is the code that is compiled by the JIT compilers.

B. Managed code is the code where resources are Garbage Collected.

C. Managed code is the code that runs on top of Windows.

D. Managed code is the code that is written to target the services of the CLR.

E. Managed code is the code that can run on top of Linux.

99. Which of the following is not true of the traditional approach to information processing?

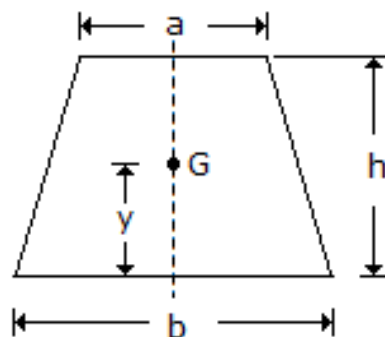
- A. there is common sharing of data among the various applications
- B. it is file oriented
- C. programs are dependent on the file
- D. it is inflexible
- E. all of the above are true

100. Choose the RDBMS which supports full fledged client server application development

- A. dBase V
- B. Oracle 7.1
- C. FoxPro 2.1
- D. Ingress
- E. None of these.

B. MECHANICAL / PRODUCTION / AUTOMOBILE / INDUSTRIAL ENGINEERING

91. The centre of gravity of a trapezium with parallel sides a and b lies at a distance of y from the base b , as shown in the below figure. The value of y is



- A. $h \left(\frac{2a+b}{a+b} \right)$
- B. $\frac{h}{2} \left(\frac{2a+b}{a+b} \right)$
- C. $\frac{h}{3} \left(\frac{2a+b}{a+b} \right)$
- D. $\frac{h}{3} \left(\frac{a+b}{2a+b} \right)$

92. The air standard efficiency of an Otto cycle is given by (where r = Compression ratio, and γ = Ratio of specific heats)

- A. $1 - r^{\gamma-1}$ B. $1 + r^{\gamma-1}$ C. $1 - \frac{1}{r^{\gamma-1}}$ D. $1 + \frac{1}{r^{\gamma-1}}$

93. The error in discharge (dQ/Q) to the error in measurement of head (dH/H) over a triangular notch is given by

- A. $\frac{dQ}{Q} = \frac{3}{2} \times \frac{dH}{H}$ B. $\frac{dQ}{Q} = 2 \times \frac{dH}{H}$ C. $3 \times \frac{dH}{H}$ D. $\frac{dQ}{Q} = \frac{5}{2} \times \frac{dH}{H}$

94. When the inlet pressure of steam is equal to the exit pressure, then

- A. there is a pressure drop in the nozzle
B. fluid flows through the nozzle
C. pressure drops and fluid flows through the nozzle
D. there is no pressure drop and fluid does not flow through the nozzle

95. The propulsive power of the rocket is (where v_1 = Jet velocity, and v_2 = Air-craft velocity)

- A. $\frac{v_1^2 - v_2^2}{2g}$ B. $\frac{(v_1 - v_2)^2}{2g}$ C. $\frac{v_1^2 - v_2^2}{g}$ D. $\frac{(v_1 - v_2)^2}{g}$

96. A drill bit of 20 mm diameter rotating at 500 r.p.m. with a feed rate of 0.2 mm/revolution is used to drill a through-hole in a mild steel plate 20 mm thickness. The depth of cut in this drilling operation is

- A. 0.2 mm B. 10 mm C. 20 mm D. 100 mm

97. The brake power (B.P.) of the engine is given by (where W = Brake load or dead load in newtons, l = Length of arm in metres, N = Speed of engine in r.p.m., S = Spring balance reading in newtons, D = Dia. of brake drum in metres, and d = Dia. of rope in metres)

A. $B.P = \frac{Wl \times 2\pi N}{60}$ watts

B. $B.P = \frac{(W - S) \pi DN}{60}$ watts

C. $B.P = \frac{(W - S) \pi (D + d) N}{60}$ watts

D. all of these

98. The C.O.P. of a refrigerator working on a reversed Carnot cycle is (where T_1 = Lowest absolute temperature, and T_2 = Highest absolute temperature)

A. $\frac{T_1}{T_2 - T_1}$

B. $\frac{T_2 - T_1}{T_1}$

C. $\frac{T_1 - T_2}{T_1}$

D. $\frac{T_2}{T_2 - T_1}$

99. Seam welding is a

A. continuous spot welding process

B. multi-spot welding process

C. arc welding process

D. process used for joining round bars

100. The engine oil viscosity is defined by _____ ratings.

A. automatic transmission fluid (ATF) B. society of automotive engineers (SAE)

C. gross vehicle weight (GVW)

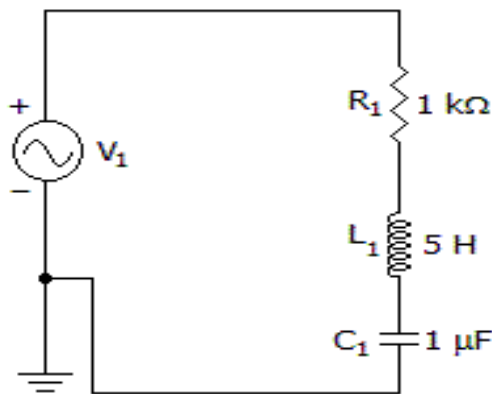
D. American petroleum institute (API)

C. ELECTRONICS / ELECTRONICS & COMMUNICATIONS / ELECTRONICS & INSTRUMENTATION

91. The charge of one coulomb is equal to:

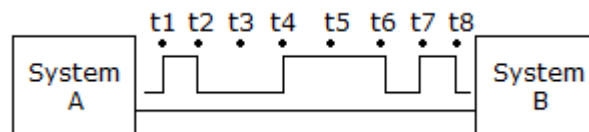
- A. 6.24×10^{-18} electrons B. one ampere
C. 6.24×10^{18} electrons D. one second

92. What is the bandwidth of the circuit?



- A. 142 Hz B. 32.3 Hz C. 31.8 Hz D. 7.2 kHz

93. The systems shown in the given figure transfer data _____.



- A. serially B. sequentially C. in parallel
D. both serially and sequentially

94. A logic probe is again applied to the pins of a 7421 IC with the following results. Is there a problem with the circuit and if so, what is the problem?

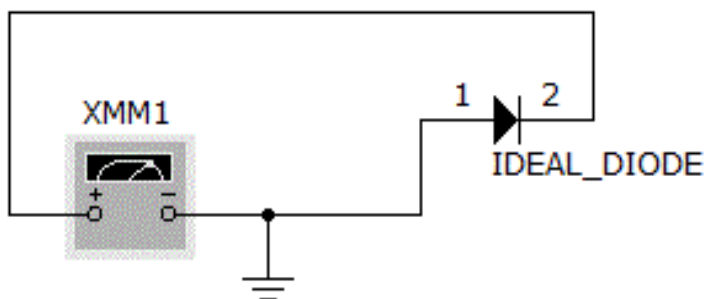
pin	indicator	pin	indicator
1	ON	14	ON
2	PULSING	13	ON
3	DIM	12	ON
4	ON	11	DIM
5	ON	10	OFF
6	PULSING	9	PULSING
7	OFF	8	OFF

- A. Pin 6 should be ON.
 B. Pin 8 should be ON.
 C. Pin 8 should be pulsing.
 D. no problem

95. A 20-bit address bus can locate _____.

- A. 1,048,576 locations
 B. 2,097,152 locations
 C. 4,194,304 locations
 D. 8,388,608 locations

96. What is wrong with this diode?



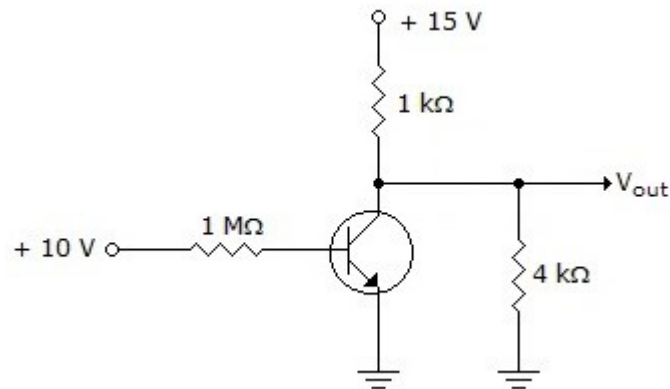
- A. open
 B. short
 C. nothing
 D. not enough data

97. From the truth table below, determine the standard SOP expression.

Inputs			Output
A	B	C	X
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	0

- A. $X = \bar{A}\bar{B}\bar{C} + ABC + A\bar{B}C$ B. $X = ABC + ABC + ABC$
 C. $X = A\bar{B}C + \bar{A}BC + AB\bar{C}$ D. $X = \bar{A}\bar{B}C + \bar{A}BC + AB\bar{C}$

98. Why is the given circuit called an inverter?



- A. The output is the opposite (inverse) of the input.
 B. The output is in phase with the input.
 C. The output is the same as the input.
 D. There is no output.

99. The signal voltage gain of an amplifier, A_V , is defined as _____.

- A. $A_V = \frac{\Delta V_{out}}{\Delta V_{in}}$ B. $A_V = I_C \times R_C$ C. $A_V = \frac{R_L}{r_e'}$ D. $A_V = \frac{R_C}{R_L}$

100. The signal voltage gain of an amplifier, A_V , is defined as _____.

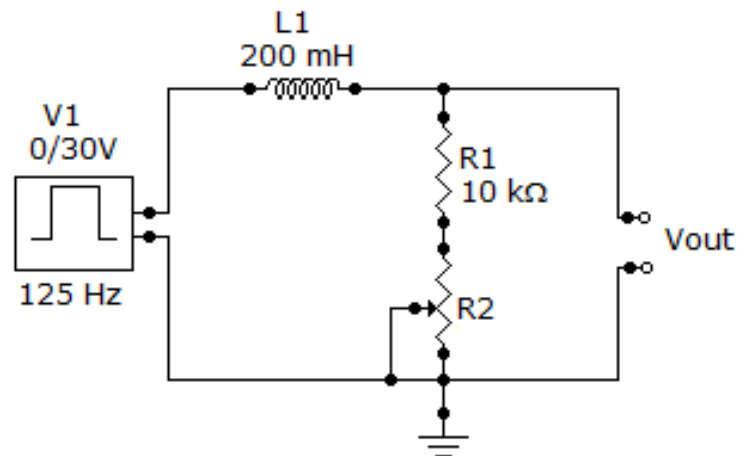
- A. $A_V = \frac{\Delta V_{out}}{\Delta V_{in}}$ B. $A_V = I_C \times R_C$ C. $A_V = \frac{R_L}{r_e'}$ D. $A_V = \frac{R_C}{R_L}$

D. ELECTRICAL / EEE

91. When these numbers are added, $(87 \times 10^5) + (2.5 \times 10^6)$, the result is

- A. 1.12×10^4 B. 11.2×10^5 C. 112×10^5 D. $1,120 \times 10^6$

92. Referring this circuit, determine the maximum output voltage when a single pulse is applied as shown. The total resistance is $60 \, \Omega$.



- A. 2.73 V B. 30 V C. 27.33 V D. 2.67 V

93. In a series resonant band-pass filter, a lower value of Q results in

- A. a higher resonant frequency B. a smaller bandwidth
C. a higher impedance D. a larger bandwidth

94. A $47\ \Omega$ resistor is in series with an inductive reactance of $120\ \Omega$ across an ac source. The impedance, expressed in polar form, is

- A. $47\angle 68.6^\circ\ \Omega$ B. $120\angle 68.6^\circ\ \Omega$ C. $129\angle 31.4^\circ\ \Omega$ D. $129\angle 68.6^\circ\ \Omega$

95. In a certain loaded transformer, the secondary voltage is one-fourth the primary voltage. The secondary current is

- A. four times the primary current B. one-fourth the primary current
C. equal to the primary current D. one-fourth the primary current and equal to the primary current

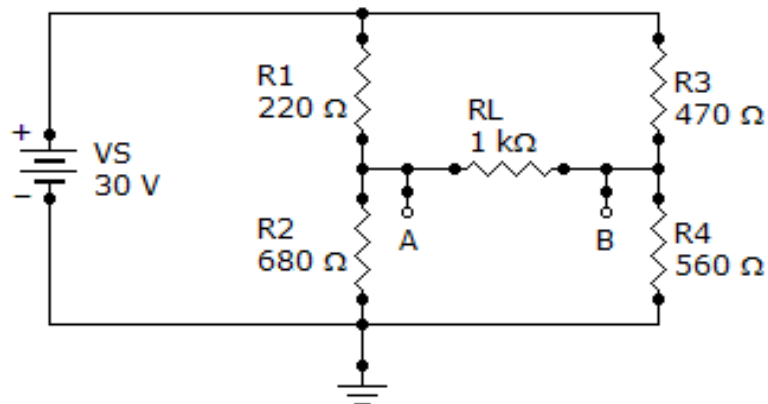
96. What is the magneto motive force (mmf) of a wire with 8 turns carrying three amperes of current?

- A. 2,400 At B. 240 At C. 24 At D. 2.4 At

97. A $10\ \mu\text{F}$, $20\ \mu\text{F}$, $22\ \mu\text{F}$, and $100\ \mu\text{F}$ capacitor are in parallel. The total capacitance is

- A. $2.43\ \mu\text{F}$ B. $4.86\ \mu\text{F}$ C. $100\ \mu\text{F}$ D. $152\ \mu\text{F}$

98. What is the Thevenin equivalent (V_{TH} and R_{TH}) for the circuit given?



- A. 6.4 V, 422 Ω B. 6.4 V, 560 Ω C. 6.4 V, 680 Ω D. 30 V, 422 Ω

99. A three-phase Δ -connected generator is driving a balanced load such that each phase current is 12 A in magnitudes. When $I_{\theta a} = 12 \angle 30^\circ$ A, what are the polar expressions for the other phase currents?

A. $I_{\theta b} = 12 \angle 150^\circ$ A, $I_{\theta c} = 12 \angle -90^\circ$ A

B. $I_{\theta b} = 12 \angle 120^\circ$ A, $I_{\theta c} = 12 \angle 30^\circ$ A

C. $I_{\theta b} = 12 \angle 30^\circ$ A, $I_{\theta c} = 12 \angle 120^\circ$ A

D. $I_{\theta b} = 12 \angle 90^\circ$ A, $I_{\theta c} = 12 \angle 90^\circ$ A

100. A signal with a 400 μ s period has a frequency of

A. 250 Hz

B. 2,500 Hz

C. 25,000 Hz

D. 400 Hz

E. CIVIL BRANCH

91. If the bulk density of the soil is ρ and water content ω , then dry density of the soil, is

A. $1 + \frac{\omega}{\rho}$

B. $\frac{1 + \rho}{\omega}$

C. $\frac{\rho}{1 + \omega}$

D. $\frac{\omega}{1 + \rho}$

92. The active earth pressure of a soil is proportional to (where ϕ is the angle of friction of the soil)

A. $\tan (45^\circ - \phi)$

B. $\tan^2 (45^\circ + \phi/2)$

C. $\tan^2 (45^\circ - \phi/2)$

D. $\tan (45^\circ + \phi)$

93. If Δ is the angle of deflection of a simple curve of radius R , the length of its long chord, is

A. $R \cos \frac{\Delta}{2}$

B. $2R \cos \frac{\Delta}{2}$

C. $R \sin \frac{\Delta}{2}$

D. $2R \sin \frac{\Delta}{2}$

94. Time of emptying liquid from a hemispherical vessel through an orifice at its bottom, is

A. $\frac{\pi R^{3/2}}{15 C_d a \sqrt{2g}}$

B. $\frac{2\pi R^{3/2}}{15 C_d a \sqrt{2g}}$

C. $\frac{7\pi R^{3/2}}{15 C_d a \sqrt{2g}}$

D. $\frac{14\pi R^{3/2}}{15 C_d a \sqrt{2g}}$

95. The settling velocity of a spherical particle of diameter less than 0.1 mm as per Stock's law, is

A. $V_s = 418 (G_s - G_w) d^2 \left[\frac{3T + 70}{100} \right]$

B. $V_s = 418 (G_s - G_w) d \left[\frac{3T + 70}{100} \right]$

C. $V_s = 218 (G_s - G_w) d^2 \left[\frac{3T + 70}{100} \right]$

D. $V_s = 218 (G_s - G_w) d \left[\frac{3T + 70}{100} \right]$

96. If L is total length of a canal in kilometres, P is total perimeter of its lining in metres and C is the cost of lining per square metre, the additional expenditure involved on lining, is

A. $1000 PLC$

B. $\frac{PLC}{1000}$

C. $\frac{PL}{1000C}$

D. $\frac{PC}{100L}$

97. The difference in the lengths of two diagonals of a rail diamond is

A. $\frac{2G}{\sin a} [\tan a/2 - \cot a/2]$

B. $\frac{2G}{\sin a} [\cos a/2 - \sin a/2]$

C. $\frac{2G}{\sin a} [\sin a/2 - \cos a/2]$

D. $\frac{2G}{\sin a} [\cos a/2 + \sin a/2]$

98. Pick up the correct network for the activities of pouring concrete, erection of form work, removal of form work and curing of concrete from the following:

- A.
1. Erection of form work
 2. Pouring of concrete
 3. Curing of concrete
 4. Removal of form work

- C.
1. Removal of form work
 2. Erection of form work
 3. Pouring of concrete
 4. Curing of concrete

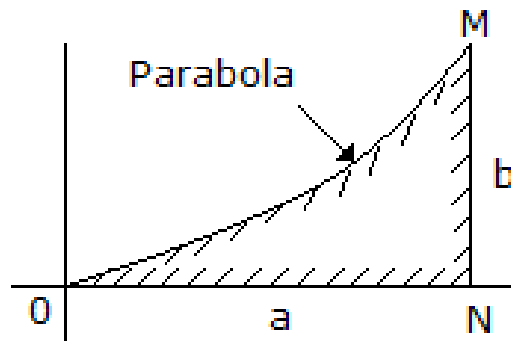
- B.
1. Pouring of Concrete
 2. Erection of form work
 3. Curing of concrete
 4. Removal of form work

- D.
1. Pouring of concrete
 2. Curing of concrete
 3. Erection of form work
 4. Removal of form work

99. Pick up the correct proportions of chemical ingredients of cement

- A. Lime : Silica : Alumina : Iron oxide : 63 : 22 : 6 : 3
- B. Silica : Lime : Alumina : Iron oxide : 63 : 22 : 6 : 3
- C. Alumina : Silica : Lime : Iron oxide : 63 : 22 : 6 : 3
- D. Iron oxide : Alumina : Silica : Lime : 63 : 22 : 6 : 3

100. The c.g. of the shaded area of the below figure whose curve OM is a parabola from y-axis, is



- A. $\frac{a}{4}$
- B. $\frac{3a}{4}$
- C. $\frac{3b}{10}$
- D. $\frac{3a}{10}$
- E. $\frac{3a}{5}$

