

ENGLISH COMPREHENSION: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

In the following question select the word which is OPPOSITE in the meaning of the given word.

Q1. INDISCREET

- a. reliable
- b. honest
- c. prudent
- d. stupid

Q2. SOLICITUDE

- a. insouciance
- b. ingenuity
- c. propriety
- d. austerity

Q3. In the sentence there is a bold word or phrase. One of the words or phrases given in the options conveys almost the same meaning as the bold word or phrase in the sentence. Select that option which is nearest in meaning.

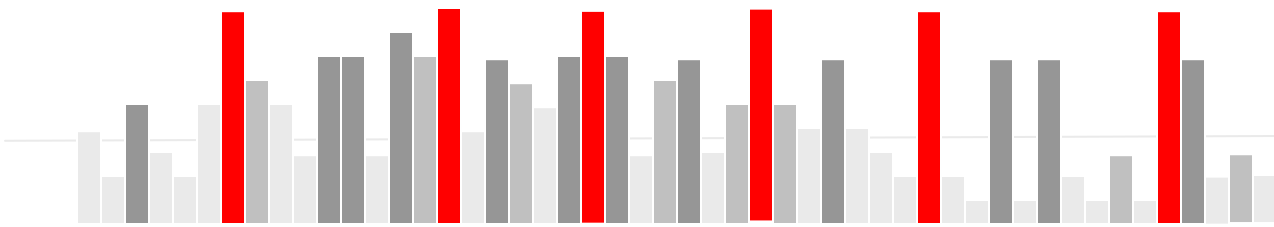
It is **preposterous** on your part to look for a job without first completing your education.

- a. Wise
- b. Imperative
- c. Advisable
- d. Most admirable
- e. Very absurd

In the following questiones, fill in the blank space.

Q4. The success that he has gained, though striking enough, does not, however, commensurate . . . the efforts made by him.

- a. About
- b. From
- c. With
- d. Beside
- e. Over



Q5. Vinod took his meals after he

- a. Had completed his work
- b. Had been completing his work
- c. Was completing his work
- d. Had been completed his work
- e. Had got completed his work

In the following questions, select the word or phrase that is similar in meaning to the given word.

Q6. Nonchalance

- a. Neutrality
- b. Indifference
- c. All-knowing
- d. Ignorance
- e. Untimeliness

Q7. Conceal

- a. Hide
- b. Seal
- c. Ceiling
- d. Horrifying

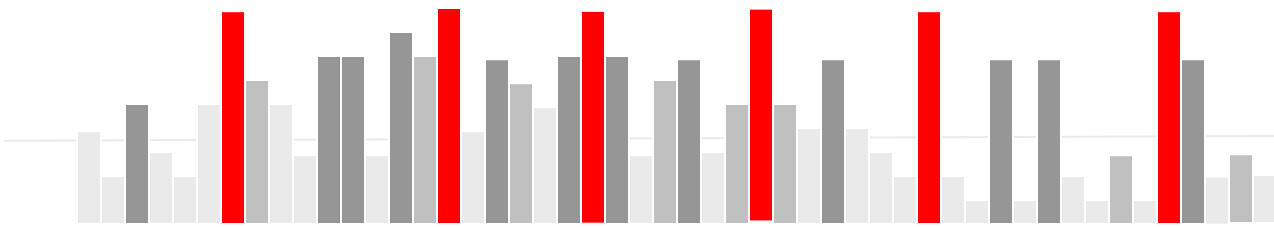
Q8. Read the sentence to find out whether there is any grammatical error in it. The error, if any, will be in one part of the sentence. The letter of that part is the answer. If there is no error, the answer is 'D'. (Ignore - the errors of punctuation,if any)

(A) The whole thing moves/ (B) around the concept of building a small dynamic/(C) organisation into a larger one./(D) No error.

- a. (A)
- b. (B)
- c. (C)
- d. (D)

Q9. In the question a part of the sentence is italicised. Alternatives to the italicised part is given which may improve the sentence. Choose the correct alternative. In case no improvement is needed. Option 'D' is the answer.

She *gave* most of her time to music.



- a. spent
- b. lent
- c. devoted
- d. No improvement

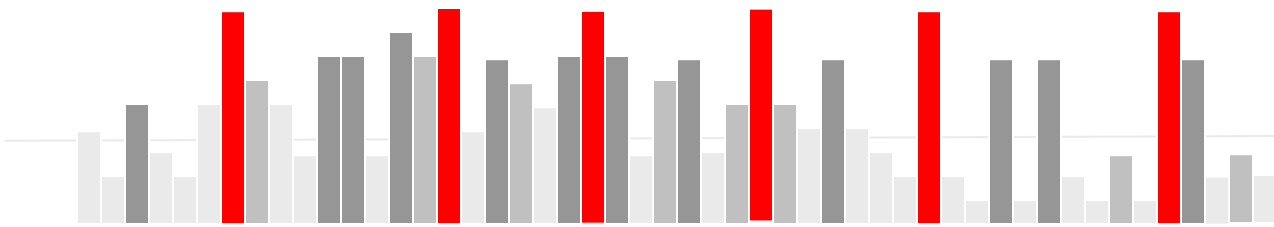
Q10. The given sentences when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Choose the most logical order of sentences from among the four given choices to construct a coherent paragraph.

1. He was so busy with them that he did not get time to eat. 2. Thousands of people came to him and asked different types of questions. 3. No one cared to see that he had his food or rest that night. 4. Swami Vivekanand once stayed in a small village.

- a. 2341
- b. 3214
- c. 4213
- d. 4231

Answer the question based on the given passage

Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most important aspects of management include planning, budgeting, organising, staffing, controlling, and problem-solving. Leadership is a set of processes that creates organisations in the first place or adapts them to significantly changing circumstances. Leadership defines what the future should look like, aligns people with that vision, and inspires them to make it happen despite the obstacles. This distinction is absolutely crucial for our purposes here: Successful transformation is 70 to 90 per cent leadership and only 10 to 30 percent management. Yet for historical reasons, many organisations today don't have much leadership. And almost everyone thinks about the problem here as one of managing change. For most of this country, as we created thousands and thousands of large organisations for the first time in human history, we didn't have enough good managers to keep all those bureaucracies functioning. So many companies and universities developed management programs and hundreds and thousands of people were encouraged to learn management on the job. And they did. But, people were taught little about leadership. To some degree, management was emphasised because it's easier to teach than leadership. But even more so, management was the main item on the twentieth-century agenda because that's what was needed. For every entrepreneur or business builder who was a leader, we needed hundreds of managers to run their ever-growing enterprises. Unfortunately for us today, this emphasis on management has often been institutionalised in corporate cultures that discourage employees from learning how to lead. Ironically, past success is usually the key ingredient in producing this outcome. The syndrome, as I have observed it on many occasions, goes like this: success creates some degree of marked dominance which in



turn produces much growth. After a while keeping the ever-larger organisation under control becomes the primary challenge. So attention turns inward and managerial competencies are nurtured. With a strong emphasis on management but not leadership, bureaucracy and an inward focus takeover. But with continued success, the result mostly of market dominance, the problem often goes unaddressed and an unhealthy arrogance begins to evolve. All of these characteristics then make any transformation effort much more difficult. Arrogant managers can over-evaluate their current performance and competitive position, listen poorly and learn slowly. Inwardly focused employees can have difficulty seeing the very forces that present threats and opportunities. Bureaucratic cultures can smother those who want to respond to shifting conditions. And the lack of leadership leaves no force inside these organisations to break out of the morass.

Q11. Why did companies and universities develop programmes to prepare managers in such a large number?

- a. (A) Companies and universities wanted to generate funds through these programmes
- b. (B) The large number of organisations were created as they needed managers in good number
- c. (C) Organisations did not want to spend their scarce resources in training managers
- d. (D) Organisations wanted to create communication network through trained managers

Q12. How has the author defined management?

- a. It is the process of adapting organisations to changing circumstances.
- b. It is the system of aligning people with the direction it has taken.
- c. It refers to creating a vision to help direct the change effectively.
- d. Creating better performance through customer orientation.

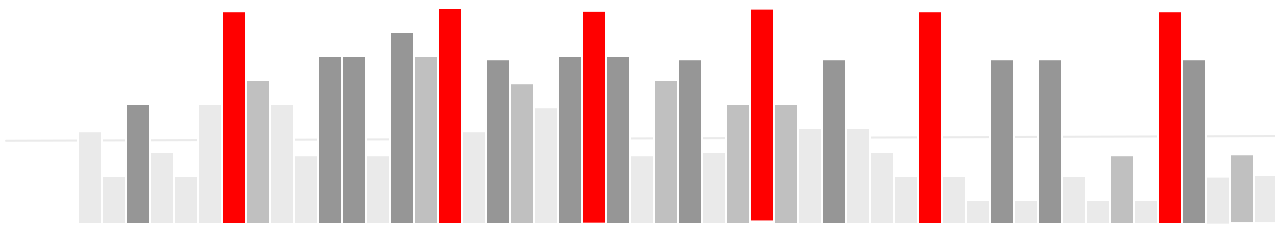
Q13. What is the historical reason for many organisations not having leadership?

- a. A view that leaders are born, they are not made
- b. Leaders lack managerial skills and organisations need managers
- c. Leaders are weak in carrying out traditional functions of management
- d. Leaders allow too much complacency in organisations

Q14. Which of the following characteristics help organisations in their transformation efforts?

- a. Emphasis on leadership but not management
- b. A strong and dogmatic culture
- c. Bureaucratic and inward looking approach
- d. Failing to acknowledge the value of customers and shareholders

Q15. Which of the following is similar in meaning of the word 'smother' as used in



the passage?

- a. Suppress
- b. Encourage
- c. Instigate
- d. Criticise

QUANTITATIVE ABILITY: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. In a kilometre race, if A gives B a 40 m start, A wins by 19 s. But if A gives B a 30 s start, B wins by 40 m. Find the time taken by B to run 5,000 m?

- a. 150 s
- b. 450 s
- c. 750 s
- d. 825 s

Q2. Pipe A takes 16 min to fill a tank. Pipes B and C, whose cross-sectional circumferences are in the ratio 2:3, fill another tank twice as big as the first. If A has a cross-sectional circumference that is one-third of C, how long will it take for B and C to fill the second tank? (Assume the rate at which water flows through a unit cross-sectional area is same for all the three pipes.)

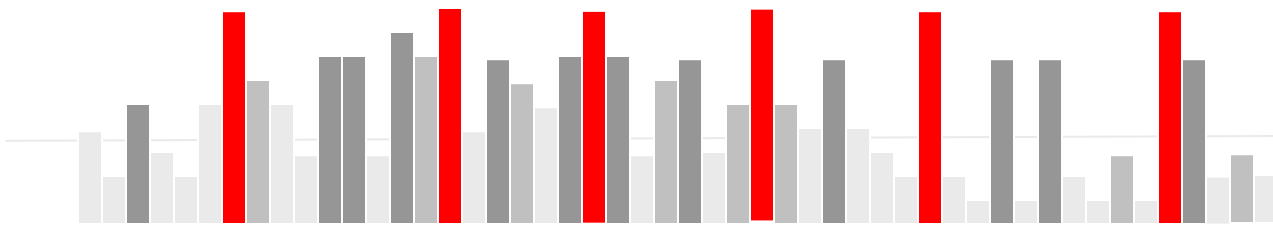
- a. 66/13
- b. 40/13
- c. 16/13
- d. 32/13

Q3. Three consecutive whole numbers are such that the square of the middle number is greater than the product of the other two by 1. Find the middle number.

- a. 6
- b. 18
- c. 12
- d. All of these

Q4. The arithmetic mean of 2 numbers is 34 and their geometric mean is 16. One of the numbers will be

- a. 4



- b. 16
- c. 18
- d. 12

Q5. If $x\%$ of a is the same as $y\%$ of b , then $z\%$ of b is :

- a. $(xy/z)\%$ of a
- b. $(yz/x)\%$ of a
- c. $(xz/y)\%$ of a
- d. None of these

Q6. The letters of the word WOMAN are written in all possible orders and these words are written out as in a dictionary ,then the rank of the word 'WOMAN' is

- a. 117
- b. 120
- c. 118
- d. 119

Q7. What least number must be subtracted from 9400 to get a number exactly divisible by 65?

- a. 40
- b. 20
- c. 80
- d. none of these

Q8. If $2505 / 0.5 = 5010$ then $25.05 / 0.5 = ?$

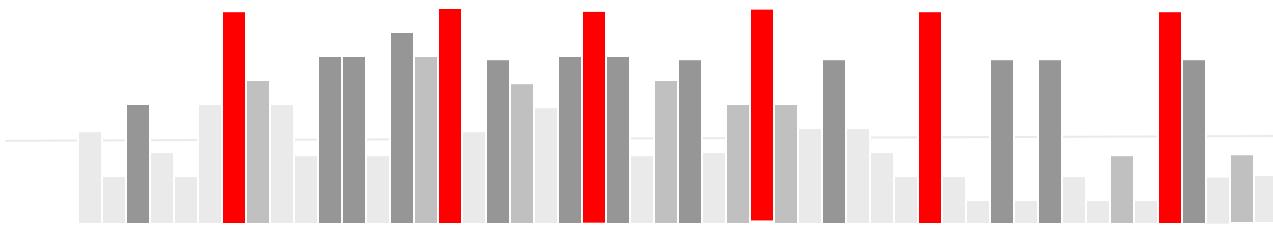
- a. 5.010
- b. 50.10
- c. 501.0
- d. None of these

Q9. Which pair of rational numbers lie between $1/5$ and $2/5$ -

- a. $262/1000, 275/1000$
- b. $362/1000, 562/1000$
- c. $451/1000, 552/1000$
- d. $121/1000, 131/1000$

Q10. What is the value of the following expression: $2 \log_{10} 5 + \log_{10} 4$?

- a. 2



- b. 2.5
- c. 3
- d. None of these

Q11. If x increases linearly, how will a^x behave ($a > 1$) ?

- a. Increase linearly
- b. Decrease linearly
- c. Increase exponentially
- d. Decrease exponentially

Q12. What is the probability of getting the sum 5 in two throws of the dice?

- a. $1/12$
- b. $1/5$
- c. $1/9$
- d. None of these

LOGICAL ABILITY: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. The question shows a pair of words in which the first is related to the second in some way. It is followed by a single word which bears a similar relation to one of the given alternatives. Find the correct alternative to complete the analogy.

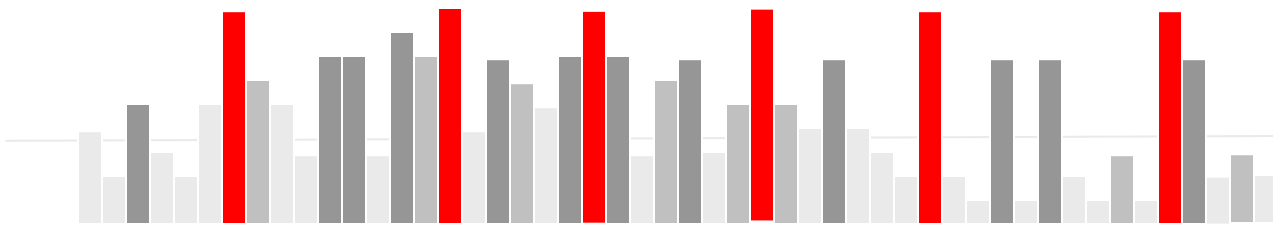
Melt:Liquid::Freeze: ?

- a. Ice
- b. Condense
- c. Solid
- d. Crystal

Q2. Fill in the blank Guilt is to Past as Hope is to

- a. Present
- b. Future
- c. Today
- d. Despair
- e. Hopeless

Q3. From the given choices select the odd man out:



- a. Bird
- b. Kite
- c. Crow
- d. Pigeon
- e. Sparrow

Q4. Find the missing pattern

BOQD : ERTG :: ANPC : ?

- a. DQSF
- b. FSHU
- c. SHFU
- d. DSQF

Q5. Find the missing number

5 : 24 :: 8 : ?

- a. 65
- b. 63
- c. 62
- d. 64

Q6. From the given choices select the odd man out

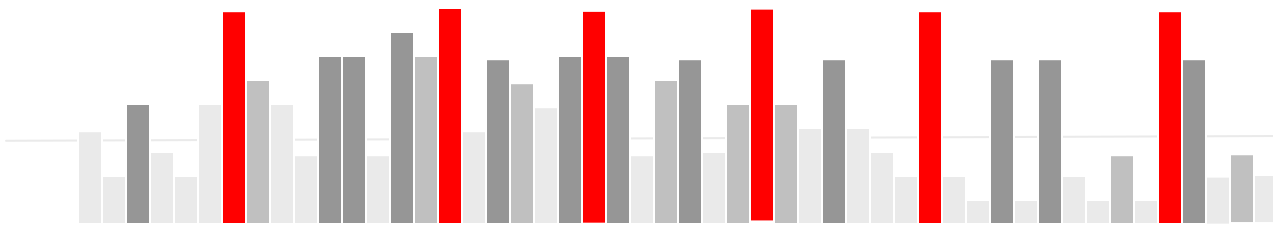
- a. DFHEG
- b. TWXUV
- c. OQSPR
- d. JLNKM

Q7. If HARD is coded as 1357 and SOFT is coded as 2468, what will 21448 stand for?

- a. SHAFT
- b. SHORT
- c. SHOOT
- d. SHART

Q8. Find the next number in the series

1, 6, 13, 22, 33,



- a. 44
- b. 45
- c. 46
- d. 47

Q9. The question contains some statements followed by some conclusions. Decide which of the given conclusions logically follow from the given statements, disregarding commonly known facts.

Statements:

- I) All tomatoes are red.
- II) All grapes are tomatoes.

Conclusions:

- I) All grapes are red.
- II) Some Tomatoes are grapes.

- a. Only conclusion I follows.
- b. Only conclusion II follows.
- c. Neither I nor II follows
- d. Both I and II follow.
- e. Either I or II follows

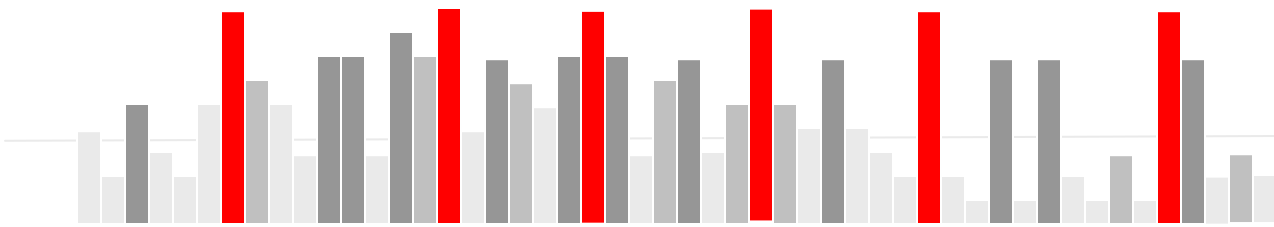
Q9. Old woman's son is my daughter's uncle, then what relation has the old woman to me ?

- a. Sister
- b. Mother
- c. Grandmother
- d. Mother - in - law

Q10. Ramu was facing East.He walked 4 km forward and then after turning to his right walked 6 km. Again he turned to his right and walked 7 km. After this he turned back.Which direction was he facing at the time?

- a. East
- b. North
- c. South
- d. West
- e. North-East

Q11. Raman is not wearing purple and Aman is not wearing black.Raman and Sahil



wear different colours. Avinash alone wears green. What is Sahil's colour, if all four of them are wearing different colours.

- a. Green
- b. Black
- c. Purple
- d. Can't Say

Q12. The question is followed by two arguments numbered I and II. You have to decide which of the arguments is a strong argument and which is a weak argument.

Statement :

Should a total ban be put on trapping wild animals?

Arguments :

- I. Yes, Trappers are making a lot of money.
- II. No, bans on hunting and trapping are not effective.

- a. Only argument I is strong.
- b. Only argument II is strong.
- c. Either I or II is strong.
- d. Neither I nor II is strong.
- e. Both I and II are strong

Q13. The question contains a statement followed by two Assumptions I and II. Find out which assumption(s) is implicit.

Statements:

Vitamin E tablets improve circulation, keep your complexion in glowing condition.

Assumptions :

- I. People like glowing complexion.
- II. Complexion becomes dull in the absence of circulation.

- a. Only assumption I is implicit
- b. Only assumption II is implicit
- c. Both assumption I and II are implicit.
- d. Neither assumption I nor II is implicit

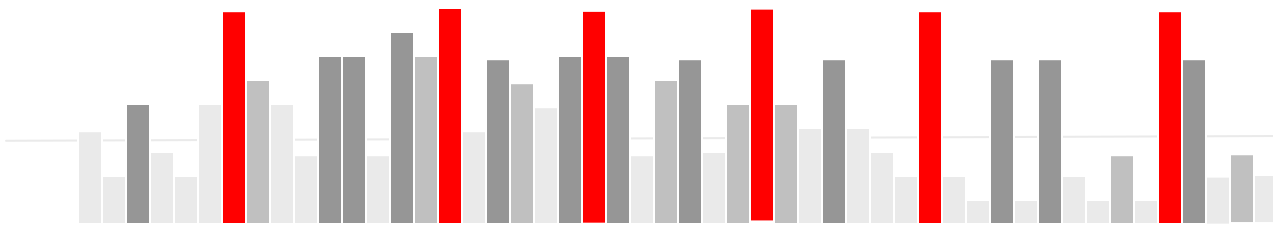
Q14. Study the statement(s) and the conclusions and select the correct option.

Statement :

No country is absolutely self - dependent these days.

Conclusions :

- I. It is impossible to grow and produce all that a country needs.
- II. Countrymen in general have become lazy.



- a. Only Conclusion I follows
- b. Only Conclusion II follows
- c. Both the conclusion I and II follow
- d. Either conclusion I or II follows
- e. Neither conclusion I nor II follows

Q15. In the question a statement is followed by some courses of action . A course of action is a step or administrative decisions to be taken for improvement, follow-up, or further action in regard to the problem, policy, etc. You have to assume everything in the statement to be true and then decide which of the given suggested course(s) of action logically follows for pursuing.

Statement:

'The World Bank has approved a \$ 300 million loan to finance a project to construct coal ports by Madras Port Trusts.

Courses of Action :

I. India should take financial help from other international financial institutions to develop such ports in other places.

II. India should not seek any help from the international financial institutions.

- a. Only I follows
- b. Only II follows
- c. Either I or II follows
- d. Neither I nor II follows
- e. Both I and II follow.

COMPUTER PROGRAMMING PRINCIPLES AND APPLICATIONS: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

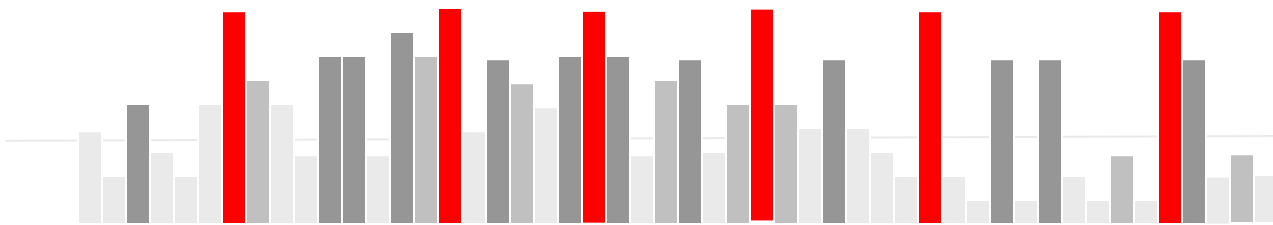
Q1. A 8-bit signed integer has the following range:

- a. 0 to 255
- b. -128 to 127
- c. -255 to 254
- d. 0 to 509

Q2. What will be the output of the following code statements?

```
integer x = 34.54, y = 20, z = -5  
print ( y > 50 AND z > 10 or x > 30 )
```

- a. 0



- b. 1
- c. -1
- d. 10

Q3. Pankaj makes a program to print the product of cubes of the first 10 whole numbers. She writes the following program:

```
integer x = 0 // statement 1
integer sum = 0 // statement 2
while ( x < 10 ) // statement 3
{
    sum = x*x*x // statement 4
    x = x + 1 // statement 5
}
print sum // statement 6
```

Is her program correct? If not, which statement will you modify to correct it?

- a. No error, the program is correct.
- b. Statement 1
- c. Statement 4
- d. statement 6

Q4. I have a problem to solve which takes as input a number n. The problem has a property that given the solution for (n-1), I can easily solve the problem for n. Which programming technique will I use to solve such a problem?

- a. Iteration
- b. Decision-making
- c. Object Oriented Programming
- d. Recursion

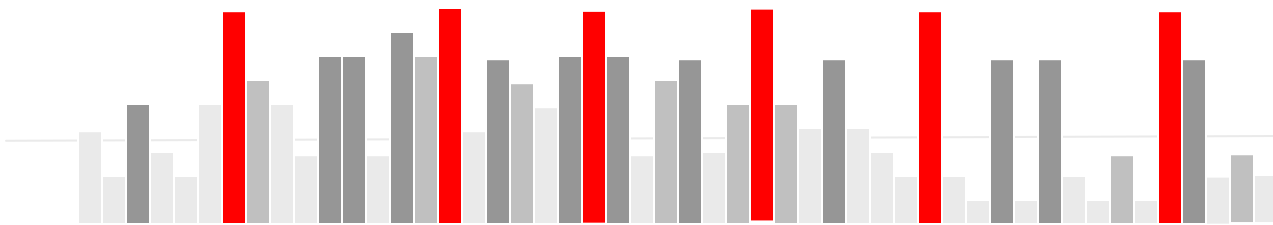
Q5. Given:

integer x = 40, y = 35, z = 20, w = 10

Comment about the output of the following two statements:

```
print x * y / z - w
print x * y / (z - w)
```

- a. Differ by 80
- b. Same
- c. Differ by 50
- d. Differ by 160



Q6. Data and function in which area of a class are directly accessible outside the class?

- a. Public
- b. Private
- c. Protected
- d. None of these

Q7. Here is an infix notation: $((A+B)*C-(D-E))^{(F+G)}$ Choose the correct postfix notation of the above from the given options.

- a. $AB+CD*E--FG+^{\wedge}$
- b. $AB+C*DE--FG+^{\wedge}$
- c. $AB+C*DE-FG-+^{\wedge}$
- d. $A+BC*DE-FG-+^{\wedge}$

Q8. If the depth of a tree is 3 levels, then what is the size of the Tree?

- a. 2
- b. 4
- c. 6
- d. 8

Q9. One of the following options is a form of access used to add and remove nodes from a queue.

- a. LIFO
- b. FIFO
- c. Both LIFO and FIFO
- d. None of these

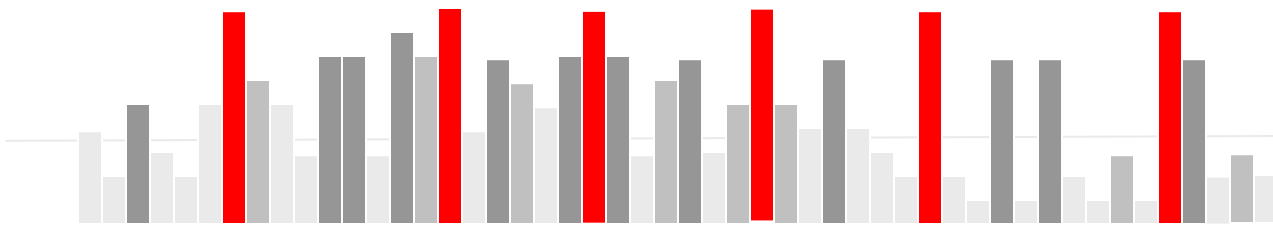
Q10. What is the time complexity of adding three matrices of size $N \times N$ cell-by-cell?

- a. $O(N)$
- b. $O(N^2)$
- c. $O(N^3)$
- d. None of these

CIVIL MODULE: Sample Questions

Q1. Which of the following should be added to improve the yield strength and tensile strength of low carbon steel?

- a. manganese



- b. chromium
- c. tungsten
- d. nickel
- e. vanadium

Q2. What is the maximum velocity of a body vibrating with a simple harmonic motion of amplitude 150 mm and frequency 2 vibrations/ sec?

- a. 188.5 m/sec
- b. 1.885 m/sec
- c. 18.85 m/sec
- d. 0.18845 m/sec

Q3. How is the divergent cone kept in a venturimeter?

- a. shorter than the convergent cone
- b. longer than the convergent cone
- c. equal to convergent cone
- d. none of the above

Q4. What is the amount of water required per bag of cement?

- a. 7 kg
- b. 14 kg
- c. 21 kg
- d. 28 kg
- e. 35 kg

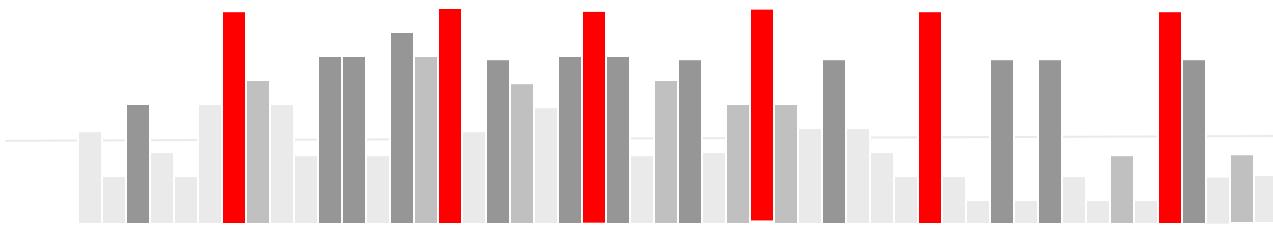
Q5. Which of these are the most commonly used sections in the lateral system to carry shear force in built up columns?

- a. rolled steel flats
- b. rolled channels
- c. rolled angles
- d. none of the above

MECHANICAL MODULE: Sample Questions

Q1. What is the latent enthalpy of vaporization at critical point?

- a. zero
- b. minimum
- c. maximum
- d. none of the above



Q2. What is the purpose of using a capillary tube in a small refrigerator?

- a. evaporator
- b. thermostat
- c. condenser
- d. expansion valve

Q3. Which is the simplest form of manometer used to measure moderate pressure of liquid?

- a. piezometer
- b. differential manometer
- c. U-tube manometer
- d. none of the above

Q4. What does percentage elongation indicate during tensile test?

- a. malleability
- b. fatigue strength
- c. ductility
- d. creep

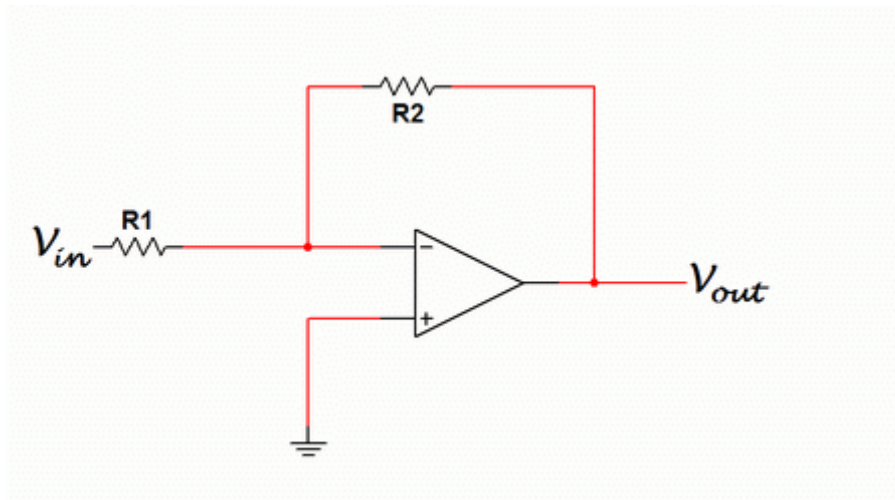
Q5. Which type of key is used for mounting shifting gears in gear boxes?

- a. saddle key
- b. flat key
- c. square key
- d. splines
- e. none of the above

Electronics & Semiconductors: Sample Questions

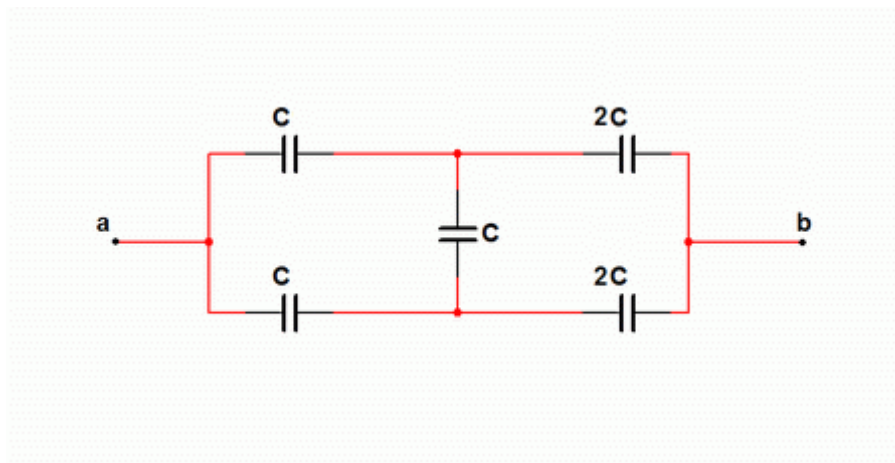
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Q 1. The input resistance of the inverter shown below is



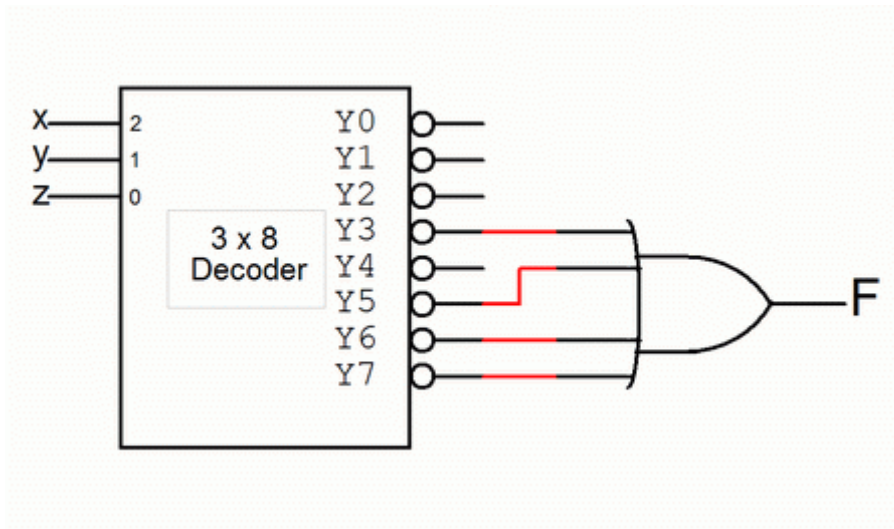
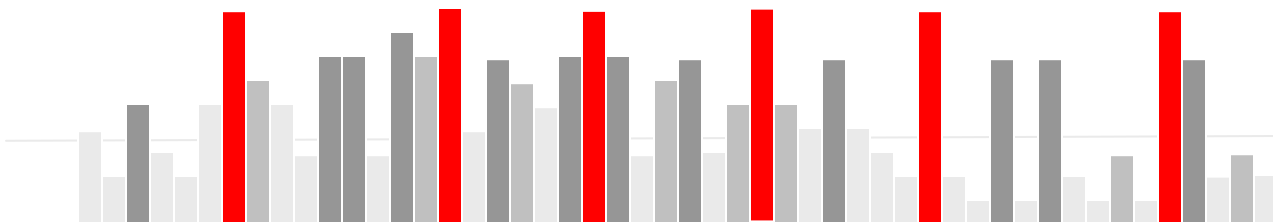
- a. $R1$
- b. $R1 + R2$
- c. $R1 \parallel R2$
- d. $R2$

Q 2. Find the equivalent capacitance of the system shown in the figure between points a and b.



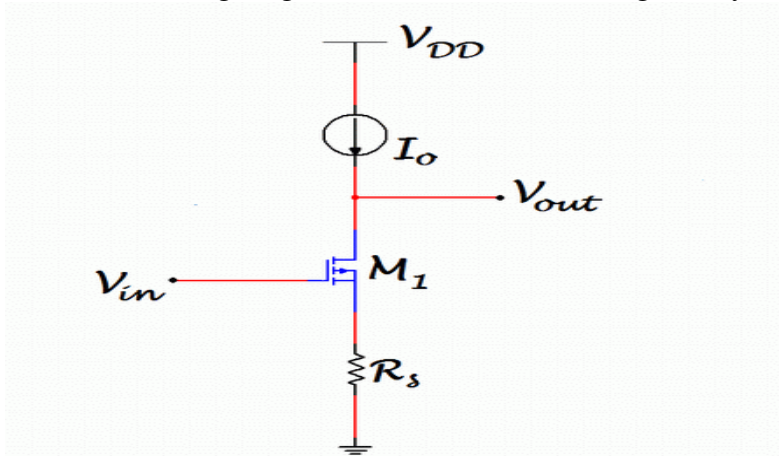
- a. $2C$
- b. $2C/3$
- c. $4C/3$
- d. C

Q3. The Boolean function F is given by –



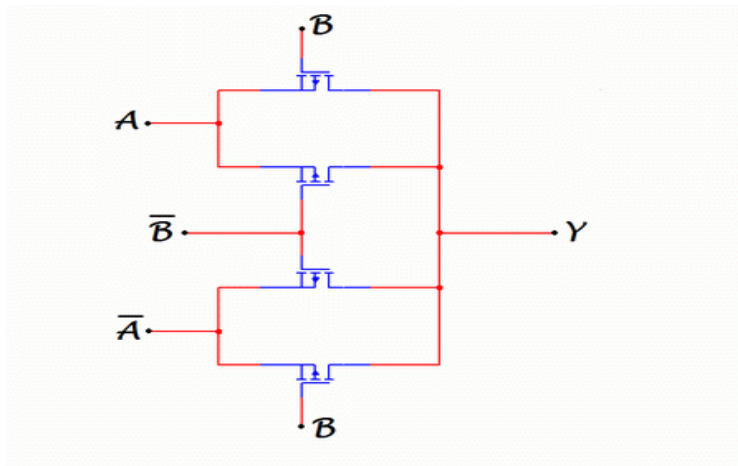
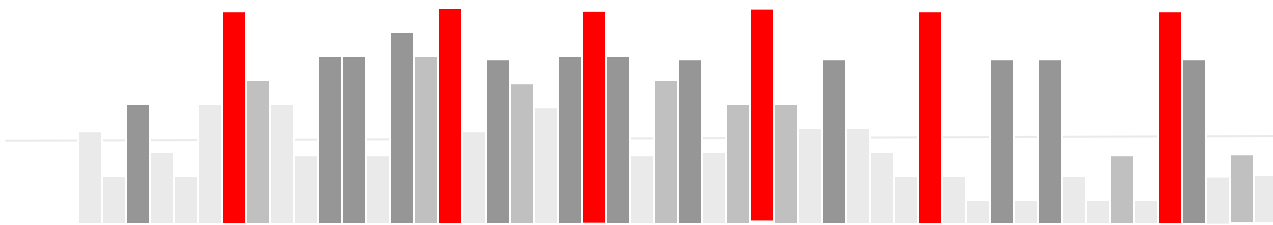
- a. $xyz + xy' + xz'$
- b. $xy + yz + xz$
- c. $yz + xy' + xz'$
- d. $xyz + xy' + x'z$

Q 4 The small signal gain of the circuit shown is given by:



- a. $-gmro$
- b. $-gmro/(1 + gmR_s)$
- c. $-gm(ro \parallel R_s)$
- d. $-gmro/(R_s + ro + gmroR_s)$

Q 5. Which logic function is realized by the given circuit.



- a. NOR
- b. XOR
- c. XNOR
- d. None of these

ENGLISH

Q1. Select the word which is OPPOSITE in the meaning of the given word: **INDISCREET**

- ☐ Reliable
- ☐ Honest
- ☐ Prudent
- ☐ Stupid

Q2. Select the word or phrase that is SIMILAR in meaning to the given word: **NONCHALANCE**

- ☐ Neutrality
- ☐ Indifference
- ☐ All-knowing
- ☐ Ignorance
- ☐ Untimeliness

Q3. The given sentences when properly sequenced form a coherent paragraph. Each sentence is labelled with a number. Choose the most logical order of sentences from among the four given choices to construct a coherent paragraph.

1. He was so busy with them that he did not get time to eat.
2. Thousands of people came to him and asked different types of questions.
3. No one cared to see that he had his food or rest that night.
4. Swami Vivekananda once stayed in a small village.

- ☐ 2341
- ☐ 3214
- ☐ 4213
- ☐ 4231

Q4. In the question a part of the sentence is italicized. Alternatives to the italicised part are given which may improve the sentence. Choose the correct alternative. In case no improvement is needed. Option 'D' is the answer.

She ***gave*** most of her time to music.

- ☐ Spent
- ☐ lent
- ☐ devoted

- No improvement

Q5. Read the 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 'D'. (Ignore the errors of punctuation, if any)

(A) The whole thing moves/ (B) around the concept of building a small dynamic/(C) organization into a larger one. / (D) No error.

- (A)
- (B)
- (C)
- (D)

LOGICAL ABILITY

Q1. Find the missing pattern - BOQD: ERTG:: ANPC : ?

- ☐ DQSF
- ☐ FSHU
- ☐ SHFU
- ☐ DSQF

Q2. If HARD is coded as 1357 and SOFT is coded as 2468, what will 21448 stand for?

- ☐ SHAFT
- ☐ SHORT
- ☐ SHOOT
- ☐ SHART

Q3. Raman is not wearing purple and Aman is not wearing black. Raman and Sahil wear different colors. Avinash alone wears green. What is Sahil's color, if all four of them are wearing different colors?

- ☐ Green
- ☐ Black
- ☐ Purple
- ☐ Can't Say

Q4. The question is followed by two arguments numbered I and II. You have to decide which of the arguments is a strong argument and which is a weak argument.

Statement:

Should a total ban be put on trapping wild animals?

Arguments:

I. Yes, Trappers are making a lot of money.

II. No, bans on hunting and trapping are not effective.

- ☐ Only argument I is strong.
- ☐ Only argument II is strong.
- ☐ Either I or II is strong.
- ☐ Neither I nor II is strong.
- ☐ Both I and II are strong

Q5. In the question a statement is followed by some courses of action. A course of action is a step or administrative decisions to be taken for improvement, follow-up, or further action in regard to the problem, policy, etc. You have to assume everything in the statement to be true and then decide which of the given suggested course(s) of action logically follows for pursuing.

Statement:

'The World Bank has approved a \$ 300 million loan to finance a project to construct coal ports by Madras Port Trusts.

Courses of Action:

I. India should take financial help from other international financial institutions to develop such ports in other places.

II. India should not seek any help from the international financial institutions.

- Only I follows
- Only II follows
- Either I or II follows
- Neither I nor II follows
- Both I and II follow.

QUANTITATIVE ABILITY

Q1. Pipe A takes 16 min to fill a tank. Pipes B and C, whose cross-sectional circumferences are in the ratio 2:3, fill another tank twice as big as the first. If A has a cross-sectional circumference that is one-third of C, how long will it take for B and C to fill the second tank? (Assume the rate at which water flows through a unit cross-sectional area is same for all the three pipes.)

- ☐ 66/13
- ☐ 40/13
- ☐ 16/13
- ☐ 32/13

Q2. Which pair of rational numbers lie between $1/5$ and $2/5$ –

- ☐ 262/1000, 275/1000
- ☐ 362/1000, 562/1000
- ☐ 451/1000, 552/1000
- ☐ 121/1000, 131/1000

Q3. If x increases linearly, how will a^x behave ($a > 1$)?

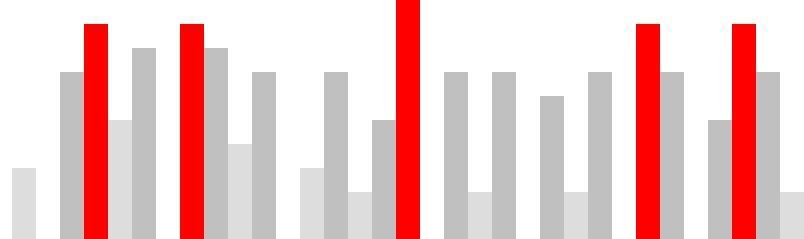
- ☐ Increase linearly
- ☐ Decrease linearly
- ☐ Increase exponentially
- ☐ Decrease exponentially

Q4. If $x\%$ of a is the same as $y\%$ of b , then $z\%$ of b is :

- ☐ $(xy/z)\%$ of a
- ☐ $(yz/x)\%$ of a
- ☐ $(xz/y)\%$ of a
- ☐ None of these

Q5. Three consecutive whole numbers are such that the square of the middle number is greater than the product of the other two by 1. Find the middle number.

- ☐ 6
- ☐ 18
- ☐ 12
- ☐ All of these



ENGLISH COMPREHENSION: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

In the following question select the word which is OPPOSITE in the meaning of the given word.

Q1. INDISCREET

- a. reliable
- b. honest
- c. prudent
- d. stupid

Q2. SOLICITUDE

- a. insouciance
- b. ingenuity
- c. propriety
- d. austerity

Q3. In the sentence there is a bold word or phrase. One of the words or phrases given in the options conveys almost the same meaning as the bold word or phrase in the sentence. Select that option which is nearest in meaning.

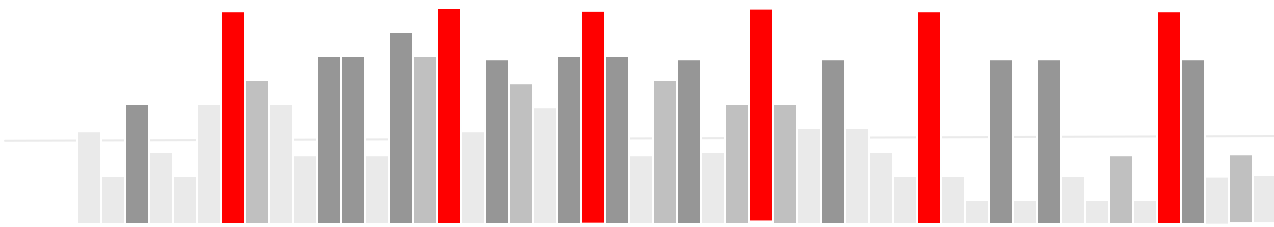
It is **preposterous** on your part to look for a job without first completing your education.

- a. Wise
- b. Imperative
- c. Advisable
- d. Most admirable
- e. Very absurd

In the following questiones, fill in the blank space.

Q4. The success that he has gained, though striking enough, does not, however, commensurate . . . the efforts made by him.

- a. About
- b. From
- c. With
- d. Beside
- e. Over



Q5. Vinod took his meals after he

- a. Had completed his work
- b. Had been completing his work
- c. Was completing his work
- d. Had been completed his work
- e. Had got completed his work

In the following questions, select the word or phrase that is similar in meaning to the given word.

Q6. Nonchalance

- a. Neutrality
- b. Indifference
- c. All-knowing
- d. Ignorance
- e. Untimeliness

Q7. Conceal

- a. Hide
- b. Seal
- c. Ceiling
- d. Horrifying

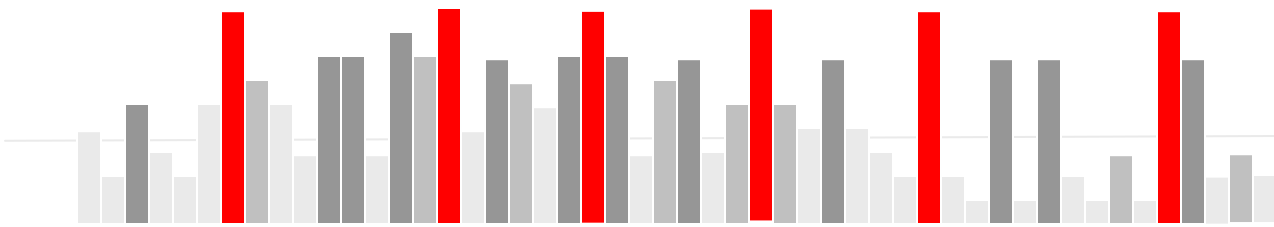
Q8. Read the sentence to find out whether there is any grammatical error in it. The error, if any, will be in one part of the sentence. The letter of that part is the answer. If there is no error, the answer is 'D'. (Ignore - the errors of punctuation,if any)

(A) The whole thing moves/ (B) around the concept of building a small dynamic/(C) organisation into a larger one./(D) No error.

- a. (A)
- b. (B)
- c. (C)
- d. (D)

Q9. In the question a part of the sentence is italicised. Alternatives to the italicised part is given which may improve the sentence. Choose the correct alternative. In case no improvement is needed. Option 'D' is the answer.

She *gave* most of her time to music.



- a. spent
- b. lent
- c. devoted
- d. No improvement

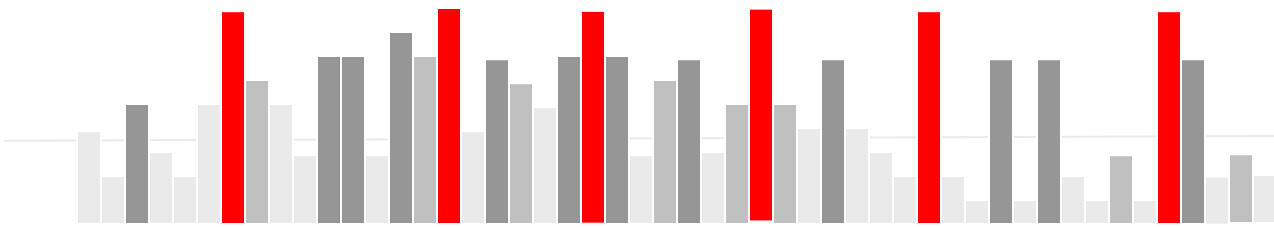
Q10. The given sentences when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Choose the most logical order of sentences from among the four given choices to construct a coherent paragraph.

1. He was so busy with them that he did not get time to eat. 2. Thousands of people came to him and asked different types of questions. 3. No one cared to see that he had his food or rest that night. 4. Swami Vivekanand once stayed in a small village.

- a. 2341
- b. 3214
- c. 4213
- d. 4231

Answer the question based on the given passage

Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most important aspects of management include planning, budgeting, organising, staffing, controlling, and problem-solving. Leadership is a set of processes that creates organisations in the first place or adapts them to significantly changing circumstances. Leadership defines what the future should look like, aligns people with that vision, and inspires them to make it happen despite the obstacles. This distinction is absolutely crucial for our purposes here: Successful transformation is 70 to 90 per cent leadership and only 10 to 30 percent management. Yet for historical reasons, many organisations today don't have much leadership. And almost everyone thinks about the problem here as one of managing change. For most of this country, as we created thousands and thousands of large organisations for the first time in human history, we didn't have enough good managers to keep all those bureaucracies functioning. So many companies and universities developed management programs and hundreds and thousands of people were encouraged to learn management on the job. And they did. But, people were taught little about leadership. To some degree, management was emphasised because it's easier to teach than leadership. But even more so, management was the main item on the twentieth-century agenda because that's what was needed. For every entrepreneur or business builder who was a leader, we needed hundreds of managers to run their ever-growing enterprises. Unfortunately for us today, this emphasis on management has often been institutionalised in corporate cultures that discourage employees from learning how to lead. Ironically, past success is usually the key ingredient in producing this outcome. The syndrome, as I have observed it on many occasions, goes like this: success creates some degree of marked dominance which in



turn produces much growth. After a while keeping the ever-larger organisation under control becomes the primary challenge. So attention turns inward and managerial competencies are nurtured. With a strong emphasis on management but not leadership, bureaucracy and an inward focus takeover. But with continued success, the result mostly of market dominance, the problem often goes unaddressed and an unhealthy arrogance begins to evolve. All of these characteristics then make any transformation effort much more difficult. Arrogant managers can over-evaluate their current performance and competitive position, listen poorly and learn slowly. Inwardly focused employees can have difficulty seeing the very forces that present threats and opportunities. Bureaucratic cultures can smother those who want to respond to shifting conditions. And the lack of leadership leaves no force inside these organisations to break out of the morass.

Q11. Why did companies and universities develop programmes to prepare managers in such a large number?

- a. (A) Companies and universities wanted to generate funds through these programmes
- b. (B) The large number of organisations were created as they needed managers in good number
- c. (C) Organisations did not want to spend their scarce resources in training managers
- d. (D) Organisations wanted to create communication network through trained managers

Q12. How has the author defined management?

- a. It is the process of adapting organisations to changing circumstances.
- b. It is the system of aligning people with the direction it has taken.
- c. It refers to creating a vision to help direct the change effectively.
- d. Creating better performance through customer orientation.

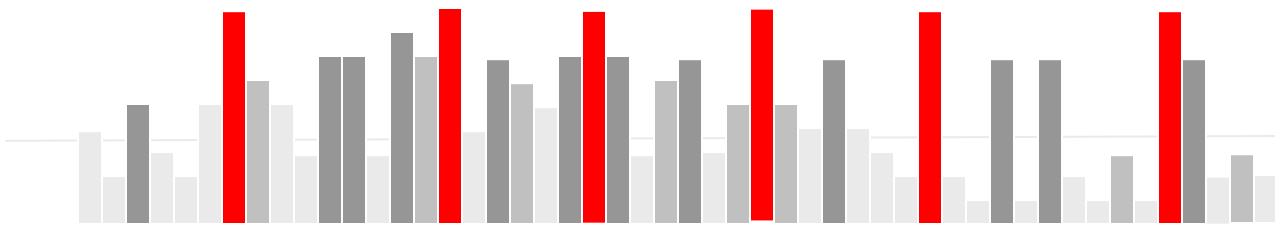
Q13. What is the historical reason for many organisations not having leadership?

- a. A view that leaders are born, they are not made
- b. Leaders lack managerial skills and organisations need managers
- c. Leaders are weak in carrying out traditional functions of management
- d. Leaders allow too much complacency in organisations

Q14. Which of the following characteristics help organisations in their transformation efforts?

- a. Emphasis on leadership but not management
- b. A strong and dogmatic culture
- c. Bureaucratic and inward looking approach
- d. Failing to acknowledge the value of customers and shareholders

Q15. Which of the following is similar in meaning of the word 'smother' as used in



the passage?

- a. Suppress
- b. Encourage
- c. Instigate
- d. Criticise

QUANTITATIVE ABILITY: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. In a kilometre race, if A gives B a 40 m start, A wins by 19 s. But if A gives B a 30 s start, B wins by 40 m. Find the time taken by B to run 5,000 m?

- a. 150 s
- b. 450 s
- c. 750 s
- d. 825 s

Q2. Pipe A takes 16 min to fill a tank. Pipes B and C, whose cross-sectional circumferences are in the ratio 2:3, fill another tank twice as big as the first. If A has a cross-sectional circumference that is one-third of C, how long will it take for B and C to fill the second tank? (Assume the rate at which water flows through a unit cross-sectional area is same for all the three pipes.)

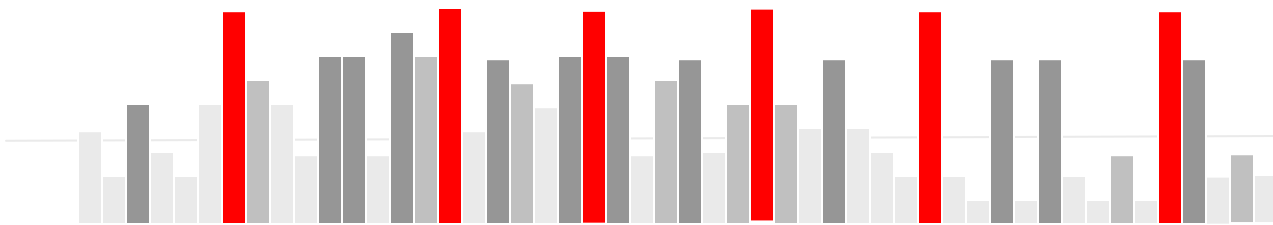
- a. 66/13
- b. 40/13
- c. 16/13
- d. 32/13

Q3. Three consecutive whole numbers are such that the square of the middle number is greater than the product of the other two by 1. Find the middle number.

- a. 6
- b. 18
- c. 12
- d. All of these

Q4. The arithmetic mean of 2 numbers is 34 and their geometric mean is 16. One of the numbers will be

- a. 4



- b. 16
- c. 18
- d. 12

Q5. If $x\%$ of a is the same as $y\%$ of b , then $z\%$ of b is :

- a. $(xy/z)\%$ of a
- b. $(yz/x)\%$ of a
- c. $(xz/y)\%$ of a
- d. None of these

Q6. The letters of the word WOMAN are written in all possible orders and these words are written out as in a dictionary ,then the rank of the word 'WOMAN' is

- a. 117
- b. 120
- c. 118
- d. 119

Q7. What least number must be subtracted from 9400 to get a number exactly divisible by 65?

- a. 40
- b. 20
- c. 80
- d. none of these

Q8. If $2505 / 0.5 = 5010$ then $25.05 / 0.5 = ?$

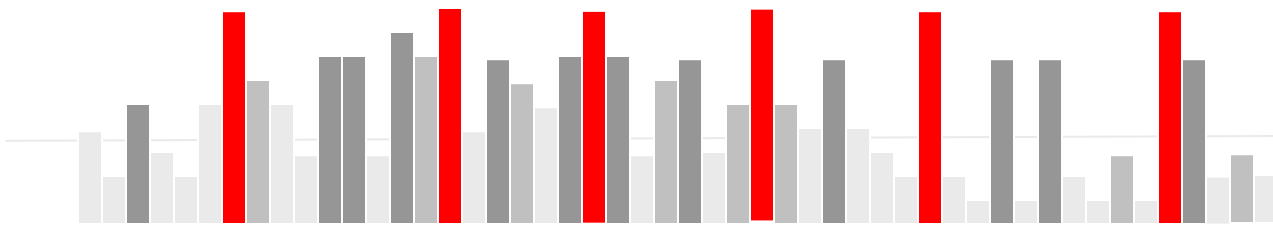
- a. 5.010
- b. 50.10
- c. 501.0
- d. None of these

Q9. Which pair of rational numbers lie between $1/5$ and $2/5$ -

- a. $262/1000, 275/1000$
- b. $362/1000, 562/1000$
- c. $451/1000, 552/1000$
- d. $121/1000, 131/1000$

Q10. What is the value of the following expression: $2 \log_{10} 5 + \log_{10} 4$?

- a. 2



- b. 2.5
- c. 3
- d. None of these

Q11. If x increases linearly, how will a^x behave ($a > 1$) ?

- a. Increase linearly
- b. Decrease linearly
- c. Increase exponentially
- d. Decrease exponentially

Q12. What is the probability of getting the sum 5 in two throws of the dice?

- a. $1/12$
- b. $1/5$
- c. $1/9$
- d. None of these

LOGICAL ABILITY: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. The question shows a pair of words in which the first is related to the second in some way. It is followed by a single word which bears a similar relation to one of the given alternatives. Find the correct alternative to complete the analogy.

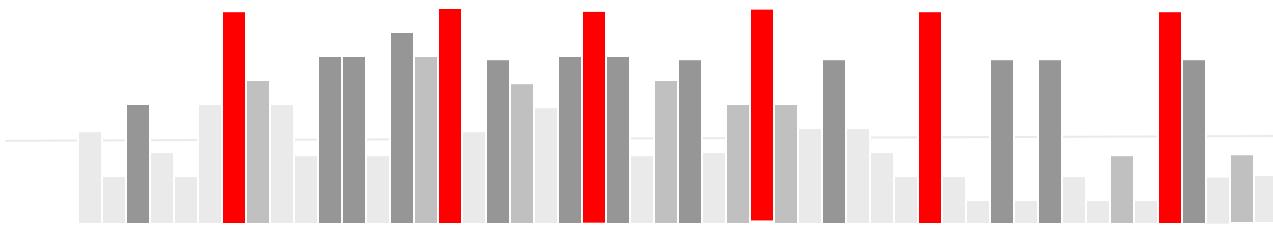
Melt:Liquid::Freeze: ?

- a. Ice
- b. Condense
- c. Solid
- d. Crystal

Q2. Fill in the blank Guilt is to Past as Hope is to

- a. Present
- b. Future
- c. Today
- d. Despair
- e. Hopeless

Q3. From the given choices select the odd man out:



- a. Bird
- b. Kite
- c. Crow
- d. Pigeon
- e. Sparrow

Q4. Find the missing pattern

BOQD : ERTG :: ANPC : ?

- a. DQSF
- b. FSHU
- c. SHFU
- d. DSQF

Q5. Find the missing number

5 : 24 :: 8 : ?

- a. 65
- b. 63
- c. 62
- d. 64

Q6. From the given choices select the odd man out

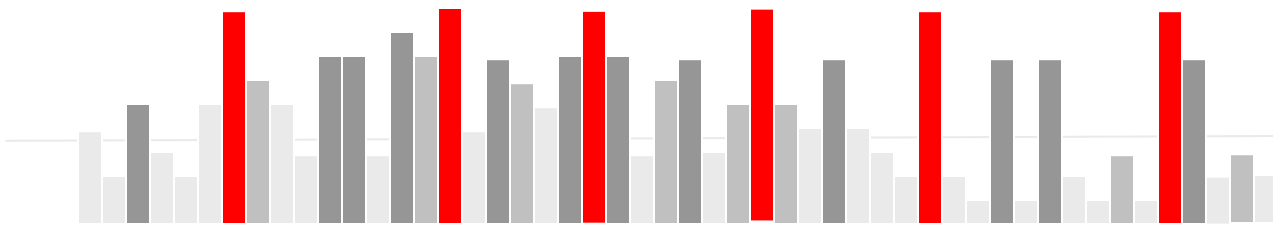
- a. DFHEG
- b. TWXUV
- c. OQSPR
- d. JLNKM

Q7. If HARD is coded as 1357 and SOFT is coded as 2468, what will 21448 stand for?

- a. SHAFT
- b. SHORT
- c. SHOOT
- d. SHART

Q8. Find the next number in the series

1, 6, 13, 22, 33,



- a. 44
- b. 45
- c. 46
- d. 47

Q9. The question contains some statements followed by some conclusions. Decide which of the given conclusions logically follow from the given statements, disregarding commonly known facts.

Statements:

- I) All tomatoes are red.
- II) All grapes are tomatoes.

Conclusions:

- I) All grapes are red.
- II) Some Tomatoes are grapes.

- a. Only conclusion I follows.
- b. Only conclusion II follows.
- c. Neither I nor II follows
- d. Both I and II follow.
- e. Either I or II follows

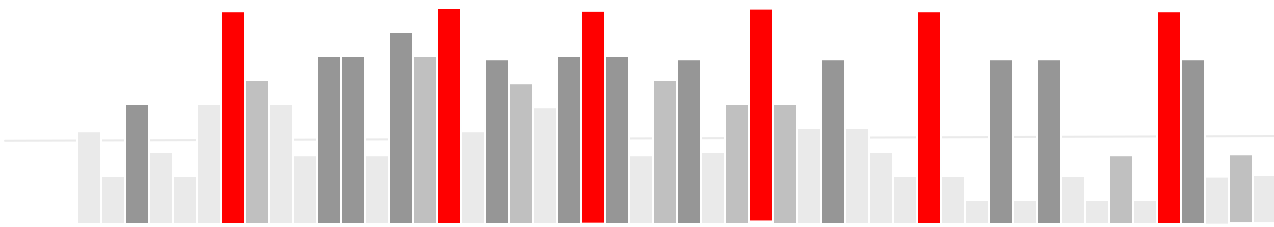
Q9. Old woman's son is my daughter's uncle, then what relation has the old woman to me ?

- a. Sister
- b. Mother
- c. Grandmother
- d. Mother - in - law

Q10. Ramu was facing East.He walked 4 km forward and then after turning to his right walked 6 km. Again he turned to his right and walked 7 km. After this he turned back.Which direction was he facing at the time?

- a. East
- b. North
- c. South
- d. West
- e. North-East

Q11. Raman is not wearing purple and Aman is not wearing black.Raman and Sahil



wear different colours. Avinash alone wears green. What is Sahil's colour, if all four of them are wearing different colours.

- a. Green
- b. Black
- c. Purple
- d. Can't Say

Q12. The question is followed by two arguments numbered I and II. You have to decide which of the arguments is a strong argument and which is a weak argument.

Statement :

Should a total ban be put on trapping wild animals?

Arguments :

- I. Yes, Trappers are making a lot of money.
- II. No, bans on hunting and trapping are not effective.

- a. Only argument I is strong.
- b. Only argument II is strong.
- c. Either I or II is strong.
- d. Neither I nor II is strong.
- e. Both I and II are strong

Q13. The question contains a statement followed by two Assumptions I and II. Find out which assumption(s) is implicit.

Statements:

Vitamin E tablets improve circulation, keep your complexion in glowing condition.

Assumptions :

- I. People like glowing complexion.
- II. Complexion becomes dull in the absence of circulation.

- a. Only assumption I is implicit
- b. Only assumption II is implicit
- c. Both assumption I and II are implicit.
- d. Neither assumption I nor II is implicit

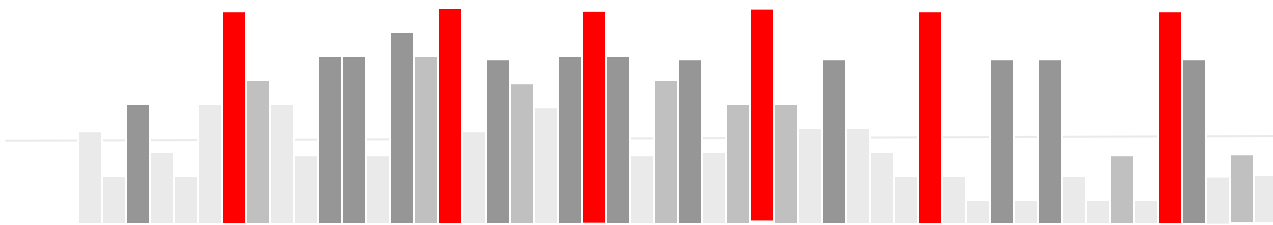
Q14. Study the statement(s) and the conclusions and select the correct option.

Statement :

No country is absolutely self - dependent these days.

Conclusions :

- I. It is impossible to grow and produce all that a country needs.
- II. Countrymen in general have become lazy.



- a. Only Conclusion I follows
- b. Only Conclusion II follows
- c. Both the conclusion I and II follow
- d. Either conclusion I or II follows
- e. Neither conclusion I nor II follows

Q15. In the question a statement is followed by some courses of action . A course of action is a step or administrative decisions to be taken for improvement, follow-up, or further action in regard to the problem, policy, etc. You have to assume everything in the statement to be true and then decide which of the given suggested course(s) of action logically follows for pursuing.

Statement:

'The World Bank has approved a \$ 300 million loan to finance a project to construct coal ports by Madras Port Trusts.

Courses of Action :

I. India should take financial help from other international financial institutions to develop such ports in other places.

II. India should not seek any help from the international financial institutions.

- a. Only I follows
- b. Only II follows
- c. Either I or II follows
- d. Neither I nor II follows
- e. Both I and II follow.

COMPUTER PROGRAMMING PRINCIPLES AND APPLICATIONS: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

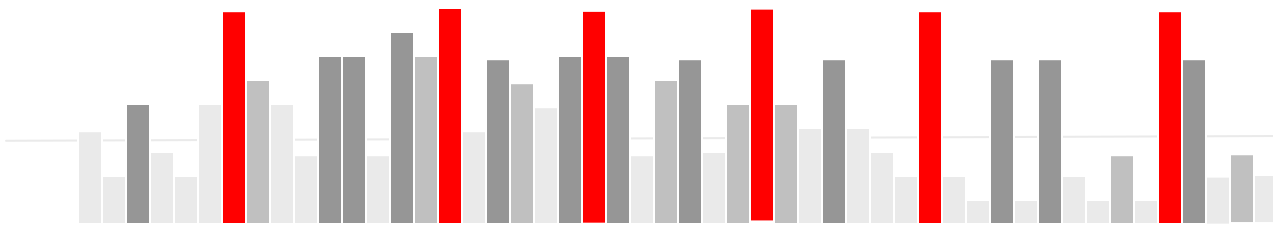
Q1. A 8-bit signed integer has the following range:

- a. 0 to 255
- b. -128 to 127
- c. -255 to 254
- d. 0 to 509

Q2. What will be the output of the following code statements?

```
integer x = 34.54, y = 20, z = -5  
print ( y > 50 AND z > 10 or x > 30 )
```

- a. 0



- b. 1
- c. -1
- d. 10

Q3. Pankaj makes a program to print the product of cubes of the first 10 whole numbers. She writes the following program:

```
integer x = 0 // statement 1
integer sum = 0 // statement 2
while ( x < 10 ) // statement 3
{
    sum = x*x*x // statement 4
    x = x + 1 // statement 5
}
print sum // statement 6
```

Is her program correct? If not, which statement will you modify to correct it?

- a. No error, the program is correct.
- b. Statement 1
- c. Statement 4
- d. statement 6

Q4. I have a problem to solve which takes as input a number n. The problem has a property that given the solution for (n-1), I can easily solve the problem for n. Which programming technique will I use to solve such a problem?

- a. Iteration
- b. Decision-making
- c. Object Oriented Programming
- d. Recursion

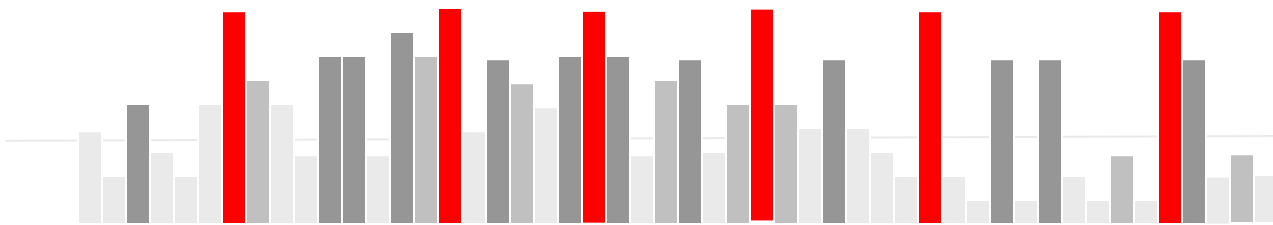
Q5. Given:

integer x = 40, y = 35, z = 20, w = 10

Comment about the output of the following two statements:

```
print x * y / z - w
print x * y / (z - w)
```

- a. Differ by 80
- b. Same
- c. Differ by 50
- d. Differ by 160



Q6. Data and function in which area of a class are directly accessible outside the class?

- a. Public
- b. Private
- c. Protected
- d. None of these

Q7. Here is an infix notation: $((A+B)*C-(D-E))^{(F+G)}$ Choose the correct postfix notation of the above from the given options.

- a. $AB+CD*E--FG+^{\wedge}$
- b. $AB+C*DE--FG+^{\wedge}$
- c. $AB+C*DE-FG-+^{\wedge}$
- d. $A+BC*DE-FG-+^{\wedge}$

Q8. If the depth of a tree is 3 levels, then what is the size of the Tree?

- a. 2
- b. 4
- c. 6
- d. 8

Q9. One of the following options is a form of access used to add and remove nodes from a queue.

- a. LIFO
- b. FIFO
- c. Both LIFO and FIFO
- d. None of these

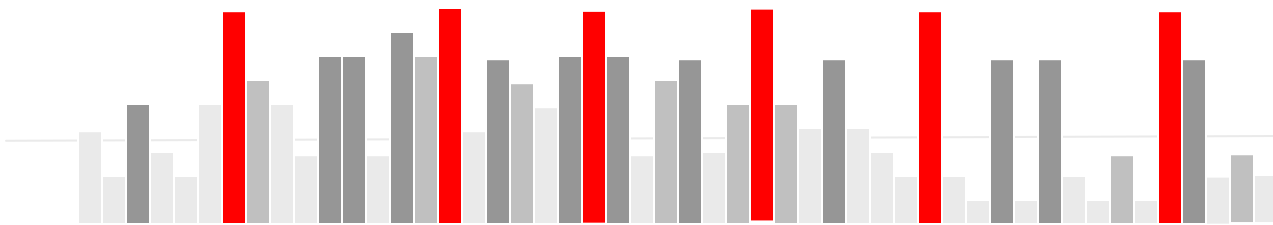
Q10. What is the time complexity of adding three matrices of size $N \times N$ cell-by-cell?

- a. $O(N)$
- b. $O(N^2)$
- c. $O(N^3)$
- d. None of these

CIVIL MODULE: Sample Questions

Q1. Which of the following should be added to improve the yield strength and tensile strength of low carbon steel?

- a. manganese



- b. chromium
- c. tungsten
- d. nickel
- e. vanadium

Q2. What is the maximum velocity of a body vibrating with a simple harmonic motion of amplitude 150 mm and frequency 2 vibrations/ sec?

- a. 188.5 m/sec
- b. 1.885 m/sec
- c. 18.85 m/sec
- d. 0.18845 m/sec

Q3. How is the divergent cone kept in a venturimeter?

- a. shorter than the convergent cone
- b. longer than the convergent cone
- c. equal to convergent cone
- d. none of the above

Q4. What is the amount of water required per bag of cement?

- a. 7 kg
- b. 14 kg
- c. 21 kg
- d. 28 kg
- e. 35 kg

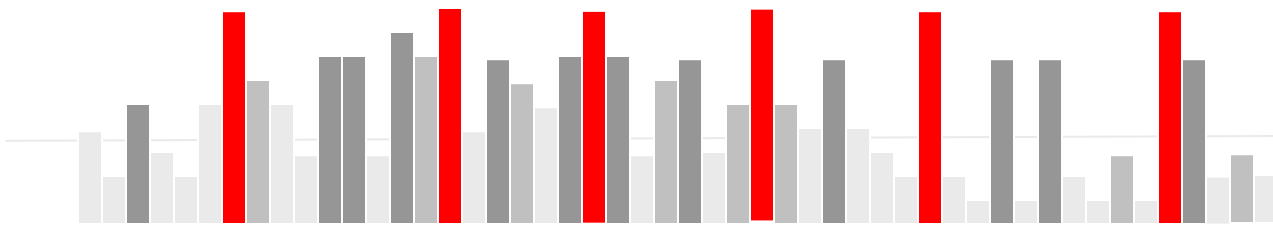
Q5. Which of these are the most commonly used sections in the lateral system to carry shear force in built up columns?

- a. rolled steel flats
- b. rolled channels
- c. rolled angles
- d. none of the above

MECHANICAL MODULE: Sample Questions

Q1. What is the latent enthalpy of vaporization at critical point?

- a. zero
- b. minimum
- c. maximum
- d. none of the above



Q2. What is the purpose of using a capillary tube in a small refrigerator?

- a. evaporator
- b. thermostat
- c. condenser
- d. expansion valve

Q3. Which is the simplest form of manometer used to measure moderate pressure of liquid?

- a. piezometer
- b. differential manometer
- c. U-tube manometer
- d. none of the above

Q4. What does percentage elongation indicate during tensile test?

- a. malleability
- b. fatigue strength
- c. ductility
- d. creep

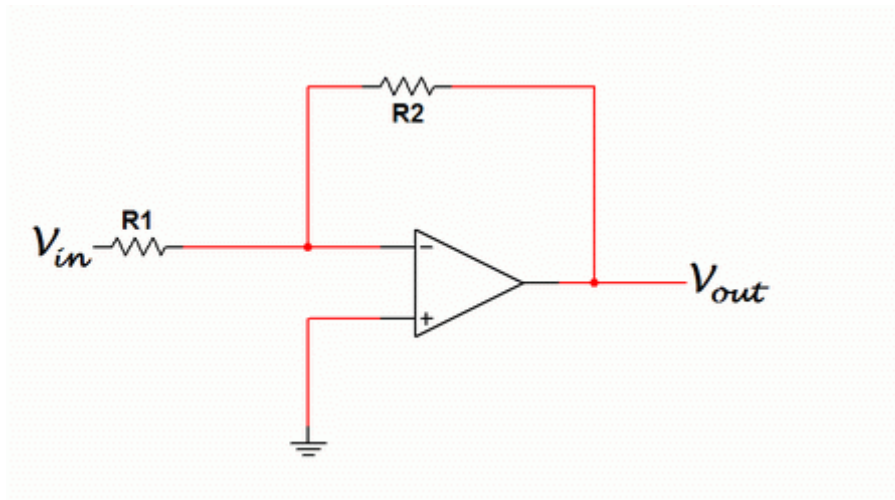
Q5. Which type of key is used for mounting shifting gears in gear boxes?

- a. saddle key
- b. flat key
- c. square key
- d. splines
- e. none of the above

Electronics & Semiconductors: Sample Questions

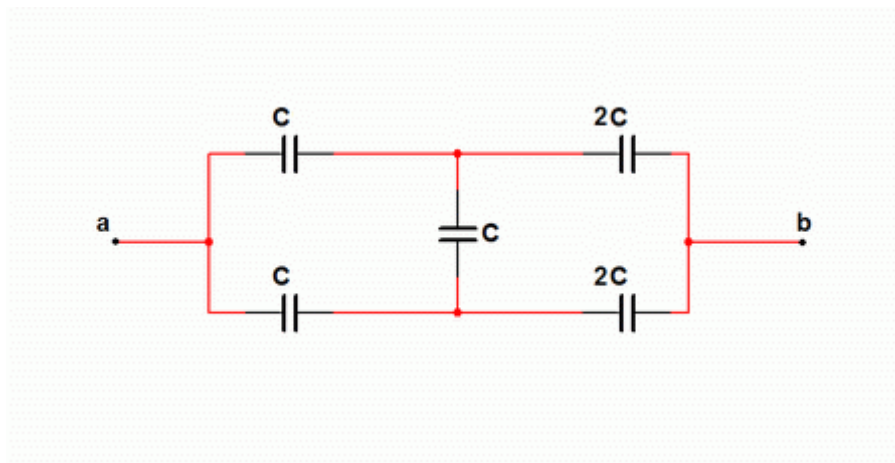
All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q 1. The input resistance of the inverter shown below is



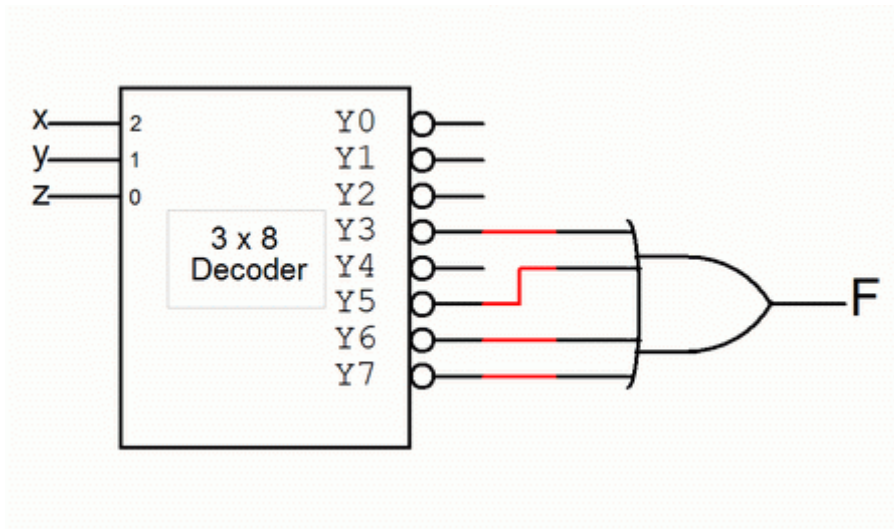
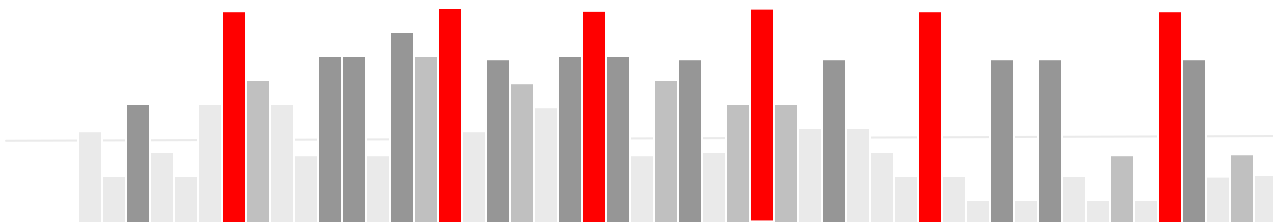
- a. $R1$
- b. $R1 + R2$
- c. $R1 \parallel R2$
- d. $R2$

Q 2. Find the equivalent capacitance of the system shown in the figure between points a and b.



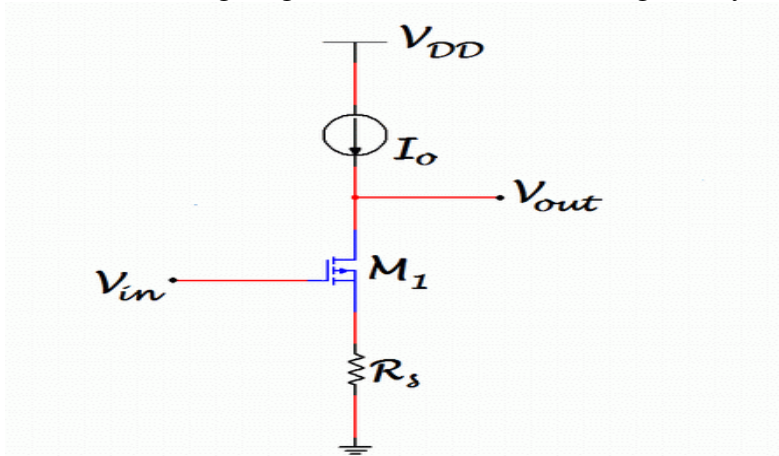
- a. $2C$
- b. $2C/3$
- c. $4C/3$
- d. C

Q3. The Boolean function F is given by –



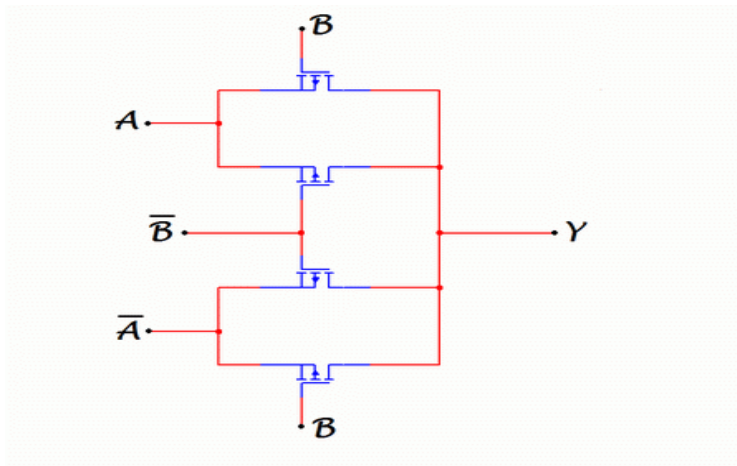
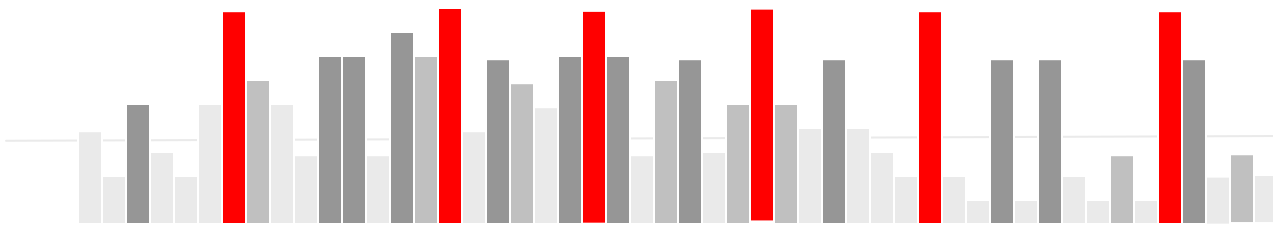
- a. $xyz + xy' + xz'$
- b. $xy + yz + xz$
- c. $yz + xy' + xz'$
- d. $xyz + xy' + x'z$

Q 4 The small signal gain of the circuit shown is given by:



- a. $-gmro$
- b. $-gmro/(1 + gmR_s)$
- c. $-gm(ro \parallel R_s)$
- d. $-gmro/(R_s + ro + gmroR_s)$

Q 5. Which logic function is realized by the given circuit.



- a. NOR
- b. XOR
- c. XNOR
- d. None of these

AMCAT ENGLISH COMPREHENSION

The given multiple choice questions contain only one option as the correct answer.

Select the word **OPPOSITE** in meaning to that of the given word.

1. INDISCREET

- a. Reliable
- b. Honest
- c. Prudent
- d. Stupid

2. SOLICITUDE

- a. Insouciance
- b. Ingenuity
- c. Propriety
- d. Austerity

3. Select an option that is closest in meaning to the word marked in bold letters.

“It is **preposterous** on your part to look for a job without first completing your education.”

- a. Wise
- b. Imperative
- c. Advisable
- d. Most admirable
- e. Very absurd

Fill in the blanks.

4. The success that he has gained, though striking enough, does not, however, commensurate _____ the efforts made by him.

- a. about
- b. from
- c. with
- d. beside
- e. over

5. Alex had his dinner after he _____

- a. completed his work
- b. had been completing his work
- c. was completing his work
- d. had been completed his work
- e. had got completed his work

In the given questions, select the word or phrase that is closest in meaning to that of the given word.

6. Nonchalance

- a. Neutrality
- b. Indifference
- c. All-knowing
- d. Ignorance
- e. Untimeliness

7. Conceal

- a. Hide
- b. Seal
- c. Ceiling
- d. Horrifying

8. Read the sentence and identify the grammatical error. The error, if any, will be found in ONLY ONE part of the sentence.

(Ignore punctuation errors, if any)

(A) The whole thing moves (B) around the concept of building a small dynamic (C) organization into a larger one. (D) No error.

- a. (A)
- b. (B)
- c. (C)
- d. (D)

9. A part of the sentence given below is italicized. Which of the given alternatives can improve the meaning?

She *gave* most of her time to music.

- a. spent
- b. lent
- c. devoted
- d. no improvement needed

Read the passage and answer the questions.

Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most important aspects of management include planning, budgeting, organizing, staffing, controlling and problem-solving. Leadership is a set of processes that creates organizations in the first place or adapts them to significantly changing circumstances. Leadership defines what the future should look like, aligns people with that vision and inspires them to make it happen despite the obstacles. This distinction is absolutely crucial for our purposes here: Successful transformation is 70 to 90 per cent leadership and only 10 to 30 percent management. Yet for historical reasons, many organizations today don't have much leadership. And almost everyone thinks about the problem here as one of managing change. For most of this country, as we created thousands and thousands of large organizations for the first time in human history, we didn't have

enough good managers to keep all those bureaucracies functioning. So many companies and universities developed management programs and hundreds and

thousands of people were encouraged to learn management on the job. And they did. But, people were taught little about leadership. To some degree, management was emphasized because it's easier to teach than leadership. But even more so, management was the main item on the twentieth century agenda because that's what was needed. For every entrepreneur or business builder who was a leader, we needed hundreds of managers to run their ever-growing enterprises. Unfortunately for us today, this emphasis on management has often been institutionalized in corporate cultures that discourage employees from learning how to lead. Ironically, past success is usually the key ingredient in producing this outcome. The syndrome, as I have observed it on many occasions, goes like this: Success creates some degree of marked dominance which in turn produces much growth. After a while keeping the ever-larger organization under control becomes the primary challenge. So attention turns inward and managerial competencies are nurtured. With a strong emphasis on management but not leadership, bureaucracy and an inward focus takeover. But with continued success, the result mostly of market dominance, the problem often goes unaddressed and an unhealthy arrogance begins to evolve. All of these characteristics then make any transformation effort much more difficult. Arrogant managers can over-evaluate their current performance and competitive position, listen poorly and learn slowly. Inwardly focused employees can have difficulty seeing the very forces that present threats and opportunities. Bureaucratic cultures can smother those who want to respond to shifting conditions. And the lack of leadership leaves no force inside these organizations to break out of the morass.

11. Why did companies and universities develop programs to prepare managers in such large numbers?

- a. Companies and universities wanted to generate funds through these programs.
- b. The large number of organizations were created as they needed managers in good number.
- c. Organizations did not want to spend their scarce resources in training managers.
- d. Organizations wanted to create communication network through trained managers.

12. How has the author defined management?

- a. It is the process of adapting organizations to changing circumstances.
- b. It is the system of aligning people with the direction it has taken.
- c. It refers to creating a vision to help direct the change effectively.
- d. It refers to creating better performance through customer orientation.

13. What is the historical reason for many organizations not having leaders?

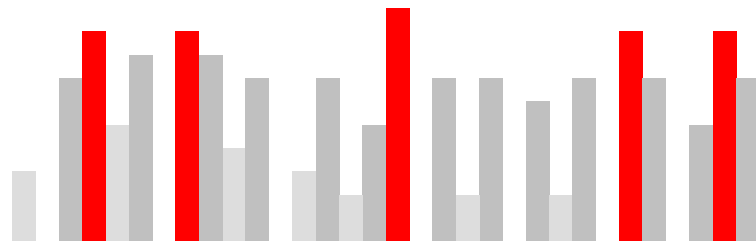
- a. Leaders are born; they are not made.
- b. Leaders lack managerial skills and organizations need managers.
- c. Leaders are weak in carrying out traditional functions of management.
- d. Leaders allow too much complacency in organizations.

14. Which of the following characteristics helps an organization in its efforts to transform?

- a. Emphasis on leadership and not management
- b. Strong and dogmatic culture
- c. Bureaucratic and inward-looking approach
- d. Failing to acknowledge the value of customers and shareholders

15. Find the word that most closely means the same as the word 'smother'?

- a. Suppress
- b. Encourage
- c. Instigate
- d. Criticize



ENGLISH COMPREHENSION: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

In the following question select the word which is **OPPOSITE** in the meaning of the given word.

Q1. **INDISCREET**

- a. reliable
- b. honest
- c. prudent
- d. stupid

Q2. **SOLICITUDE**

- a. insouciance
- b. ingenuity
- c. propriety
- d. austerity

Q3. In the sentence there is a bold word or phrase. One of the words or phrases given in the options conveys almost the same meaning as the bold word or phrase in the sentence. Select that option which is nearest in meaning.

It is **preposterous** on your part to look for a job without first completing your education.

- a. Wise
- b. Imperative
- c. Advisable
- d. Most admirable
- e. Very absurd

In the following questiones, fill in the blank space.

Q4. The success that he has gained, though striking enough, does not, however, commensurate the efforts made by him.

- a. About
- b. From
- c. With
- d. Beside
- e. Over

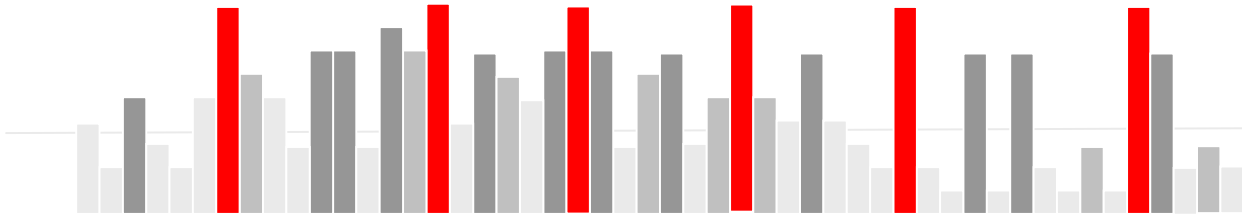
Q5. Vinod took his meals after he

- a. Had completed his work
- b. Had been completing his work
- c. Was completing his work
- d. Had been completed his work
- e. Had got completed his work

In the following questions, select the word or phrase that is similar in meaning to the given word.

Q6. **Nonchalance**

- a. Neutrality
- b. Indifference
- c. All-knowing
- d. Ignorance



e. Untimeliness

Q7. Conceal

- a. Hide
- b. Seal
- c. Ceiling
- d. Horrifying

Q8. Read the 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 'D'. (Ignore - the errors of punctuation, if any)

(A) The whole thing moves/ (B) around the concept of building a small dynamic/(C) organisation into a larger one./ (D) No error.

- a. (A)
- b. (B)
- c. (C)
- d. (D)

Q9. In the question a part of the sentence is italicised. Alternatives to the italicised part is given which may improve the sentence. Choose the correct alternative. In case no improvement is needed. Option 'D' is the answer.

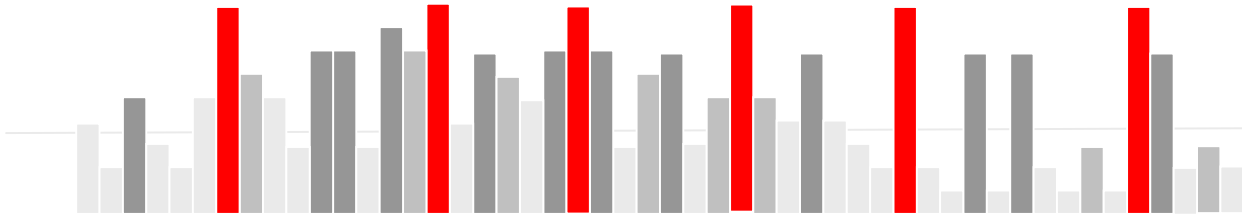
She *gave* most of her time to music.

- a. spent
- b. lent
- c. devoted
- d. No improvement

Q10. The given sentences when properly sequenced, form a coherent paragraph. Each sentence is labelled with a number. Choose the most logical order of sentences from among the four given choices to construct a coherent paragraph.

1. He was so busy with them that he did not get time to eat. 2. Thousands of people came to him and asked different types of questions. 3. No one cared to see that he had his food or rest that night. 4. Swami Vivekanand once stayed in a small village.

- a. 2341
- b. 3214
- c. 4213
- d. 4231



Answer the question based on the given passage

Management is a set of processes that can keep a complicated system of people and technology running smoothly. The most important aspects of management include planning, budgeting, organising, staffing, controlling, and problem-solving. Leadership is a set of processes that creates organisations in the first place or adapts them to significantly changing circumstances. Leadership defines what the future should look like, aligns people with that vision, and inspires them to make it happen despite the obstacles. This distinction is absolutely crucial for our purposes here: Successful transformation is 70 to 90 per cent leadership and only 10 to 30 percent management. Yet for historical reasons, many organisations today don't have much leadership. And almost everyone thinks about the problem here as one of managing change. For most of this country, as we created thousands and thousands of large organisations for the first time in human history, we didn't have enough good managers to keep all those bureaucracies functioning. So many companies and universities developed management programs and hundreds and thousands of people were encouraged to learn management on the job. And they did. But, people were taught little about leadership. To some degree, management was emphasised because it's easier to teach than leadership. But even more so, management was the main item on the twentieth-century agenda because that's what was needed. For every entrepreneur or business builder who was a leader, we needed hundreds of managers to run their ever-growing enterprises. Unfortunately for us today, this emphasis on management has often been institutionalised in corporate cultures that discourage employees from learning how to lead. Ironically, past success is usually the key ingredient in producing this outcome. The syndrome, as I have observed it on many occasions, goes like this: success creates some degree of marked dominance which in turn produces much growth. After a while keeping the ever-larger organisation under control becomes the primary challenge. So attention turns inward and managerial competencies are nurtured. With a strong emphasis on management but not leadership, bureaucracy and an inward focus takeover. But with continued success, the result mostly of market dominance, the problem often goes unaddressed and an unhealthy arrogance begins to evolve. All of these characteristics then make any transformation effort much more difficult. Arrogant managers can over-evaluate their current performance and competitive position, listen poorly and learn slowly. Inwardly focused employees can have difficulty seeing the very forces that present threats and opportunities. Bureaucratic cultures can smother those who want to respond to shifting conditions. And the lack of leadership leaves no force inside these organisations to break out of the morass.

Q11. Why did companies and universities develop programmes to prepare managers in such a large number?

- a. (A) Companies and universities wanted to generate funds through these programmes
- b. (B) The large number of organisations were created as they needed managers in good number
- c. (C) Organisations did not want to spend their scarce resources in training managers
- d. (D) Organisations wanted to create communication network through trained managers

Q12. How has the author defined management?

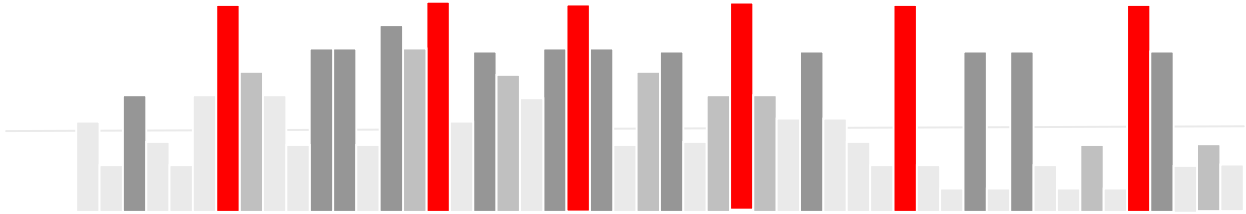
- a. It is the process of adapting organisations to changing circumstances.
- b. It is the system of aligning people with the direction it has taken.
- c. It refers to creating a vision to help direct the change effectively.
- d. Creating better performance through customer orientation.

Q13. What is the historical reason for many organisations not having leadership?

- a. A view that leaders are born, they are not made
- b. Leaders lack managerial skills and organisations need managers
- c. Leaders are weak in carrying out traditional functions of management
- d. Leaders allow too much complacency in organisations

Q14. Which of the following characteristics help organisations in their transformation efforts?

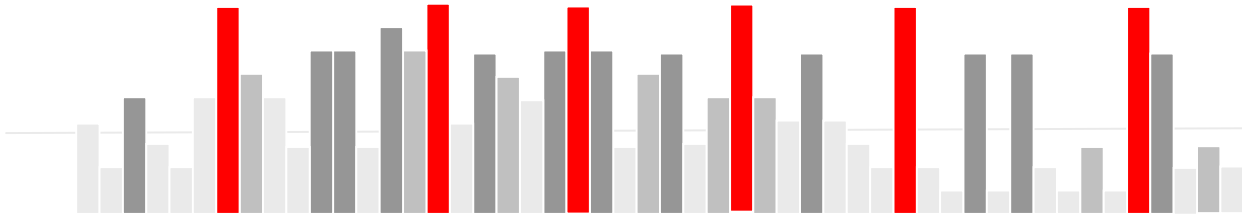
- a. Emphasis on leadership but not management
- b. A strong and dogmatic culture
- c. Bureaucratic and inward looking approach



d. Failing to acknowledge the value of customers and shareholders

Q15. Which of the following is similar in meaning of the word 'smother' as used in the passage?

- a. Suppress
- b. Encourage
- c. Instigate
- d. Criticise



QUANTITATIVE ABILITY: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. In a kilometre race, if A gives B a 40 m start, A wins by 19 s. But if A gives B a 30 s start, B wins by 40 m. Find the time taken by B to run 5,000 m?

- a. 150 s
- b. 450 s
- c. 750 s
- d. 825 s

Q2. Pipe A takes 16 min to fill a tank. Pipes B and C, whose cross-sectional circumferences are in the ratio 2:3, fill another tank twice as big as the first. If A has a cross-sectional circumference that is one-third of C, how long will it take for B and C to fill the second tank? (Assume the rate at which water flows through a unit cross-sectional area is same for all the three pipes.)

- a. 66/13
- b. 40/13
- c. 16/13
- d. 32/13

Q3. Three consecutive whole numbers are such that the square of the middle number is greater than the product of the other two by 1. Find the middle number.

- a. 6
- b. 18
- c. 12
- d. All of these

Q4. The arithmetic mean of 2 numbers is 34 and their geometric mean is 16. One of the numbers will be

- a. 4
- b. 16
- c. 18
- d. 12

Q5. If $x\%$ of a is the same as $y\%$ of b , then $z\%$ of b is :

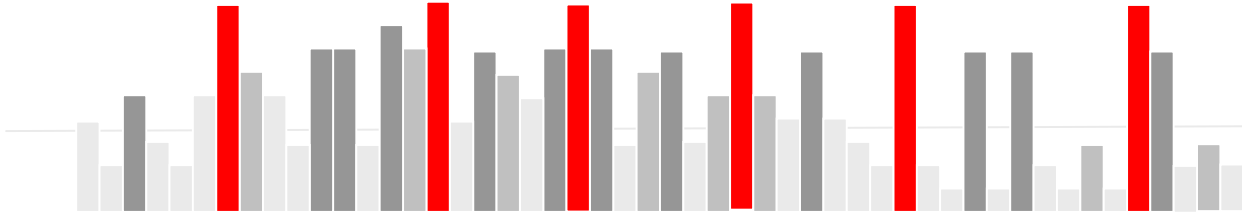
- a. $(xy/z)\%$ of a
- b. $(yz/x)\%$ of a
- c. $(xz/y)\%$ of a
- d. None of these

Q6. The letters of the word WOMAN are written in all possible orders and these words are written out as in a dictionary ,then the rank of the word 'WOMAN' is

- a. 117
- b. 120
- c. 118
- d. 119

Q7. What least number must be subtracted from 9400 to get a number exactly divisible by 65?

- a. 40
- b. 20
- c. 80



d. none of these

Q8. If $2505 / 0.5 = 5010$ then $25.05 / 0.5 = ?$

- a. 5.010
- b. 50.10
- c. 501.0
- d. None of these

Q9. Which pair of rational numbers lie between $1/5$ and $2/5$ -

- a. $262/1000$, $275/1000$
- b. $362/1000$, $562/1000$
- c. $451/1000$, $552/1000$
- d. $121/1000$, $131/1000$

Q10. What is the value of the following expression: $2 \log_{10} 5 + \log_{10} 4$?

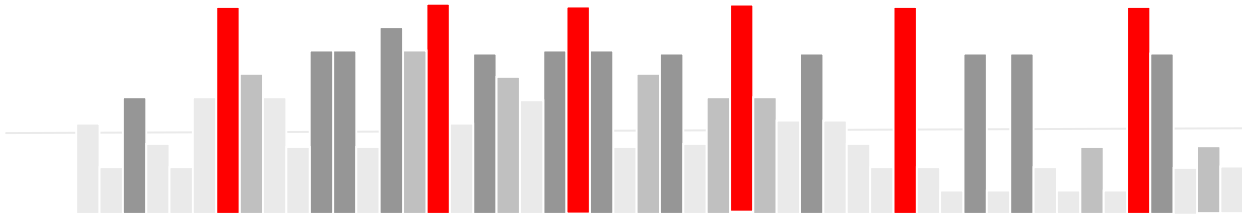
- a. 2
- b. 2.5
- c. 3
- d. None of these

Q11. If x increases linearly, how will a^x behave ($a > 1$) ?

- a. Increase linearly
- b. Decrease linearly
- c. Increase exponentially
- d. Decrease exponentially

Q12. What is the probability of getting the sum 5 in two throws of the dice?

- a. $1/12$
- b. $1/5$
- c. $1/9$
- d. None of these



LOGICAL ABILITY: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. The question shows a pair of words in which the first is related to the second in some way. It is followed by a single word which bears a similar relation to one of the given alternatives. Find the correct alternative to complete the analogy.

Melt:Liquid::Freeze: ?

- a. Ice
- b. Condense
- c. Solid
- d. Crystal

Q2. Fill in the blank: Guilt is to Past as Hope is to

- a. Present
- b. Future
- c. Today
- d. Despair
- e. Hopeless

Q3. From the given choices select the odd man out:

- a. Bird
- b. Kite
- c. Crow
- d. Pigeon
- e. Sparrow

Q4. Find the missing pattern

BOQD : ERTG :: ANPC : ?

- a. DQSF
- b. FSHU
- c. SHFU
- d. DSQF

Q5. Find the missing number

5 : 24 :: 8 : ?

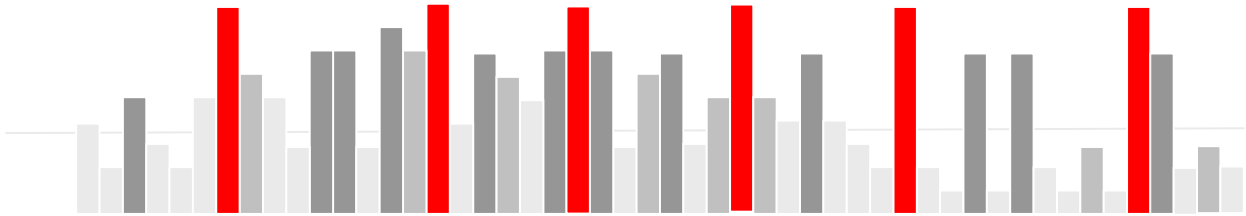
- a. 65
- b. 63
- c. 62
- d. 64

Q6. From the given choices select the odd man out

- a. DFHEG
- b. TWXUV
- c. OQSPR
- d. JLNKM

Q7. If HARD is coded as 1357 and SOFT is coded as 2468, what will 21448 stand for?

- a. SHAFT



- b. SHORT
- c. SHOOT
- d. SHART

Q8. Find the next number in the series

1, 6, 13, 22, 33,

- a. 44
- b. 45
- c. 46
- d. 47

Q9. The question contains some statements followed by some conclusions. Decide which of the given conclusions logically follow from the given statements, disregarding commonly known facts.

Statements:

- I) All tomatoes are red.
- II) All grapes are tomatoes.

Conclusions:

- I) All grapes are red.
- II) Some Tomatoes are grapes.

- a. Only conclusion I follows.
- b. Only conclusion II follows.
- c. Neither I nor II follows
- d. Both I and II follow.
- e. Either I or II follows

Q9. Old woman's son is my daughter's uncle, then what relation has the old woman to me ?

- a. Sister
- b. Mother
- c. Grandmother
- d. Mother - in - law

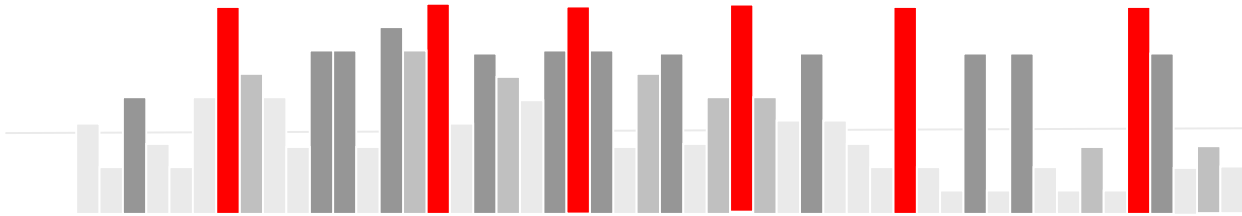
Q10. Ramu was facing East. He walked 4 km forward and then after turning to his right walked 6 km. Again he turned to his right and walked 7 km. After this he turned back. Which direction was he facing at the time?

- a. East
- b. North
- c. South
- d. West
- e. North-East

Q11. Raman is not wearing purple and Aman is not wearing black. Raman and Sahil wear different colours. Avinash alone wears green. What is Sahil's colour, if all four of them are wearing different colours.

- a. Green
- b. Black
- c. Purple
- d. Can't Say

Q12. The question is followed by two arguments numbered I and II. You have to decide which of the arguments is a strong argument and which is a weak argument.



Statement :

Should a total ban be put on trapping wild animals?

Arguments :

I. Yes, Trappers are making a lot of money.

II. No, bans on hunting and trapping are not effective.

- a. Only argument I is strong.
- b. Only argument II is strong.
- c. Either I or II is strong.
- d. Neither I nor II is strong.
- e. Both I and II are strong

Q13. The question contains a statement followed by two Assumptions I and II. Find out which assumption(s) is implicit.

Statements:

Vitamin E tablets improve circulation, keep your complexion in glowing condition.

Assumptions :

I. People like glowing complexion.

II. Complexion becomes dull in the absence of circulation.

- a. Only assumption I is implicit
- b. Only assumption II is implicit
- c. Both assumption I and II are implicit.
- d. Neither assumption I nor II is implicit

Q14. Study the statement(s) and the conclusions and select the correct option.

Statement :

No country is absolutely self - dependent these days.

Conclusions :

I. It is impossible to grow and produce all that a country needs.

II. Countrymen in general have become lazy.

- a. Only Conclusion I follows
- b. Only Conclusion II follows
- c. Both the conclusion I and II follow
- d. Either conclusion I or II follows
- e. Neither conclusion I nor II follows

Q15. In the question a statement is followed by some courses of action . A course of action is a step or administrative decisions to be taken for improvement, follow-up, or further action in regard to the problem, policy, etc. You have to assume everything in the statement to be true and then decide which of the given suggested course(s) of action logically follows for pursuing.

Statement:

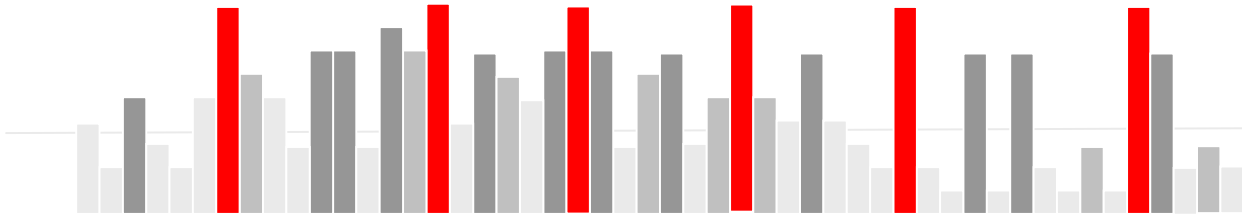
'The World Bank has approved a \$ 300 million loan to finance a project to construct coal ports by Madras Port Trusts.

Courses of Action :

I. India should take financial help from other international financial institutions to develop such ports in other places.

II. India should not seek any help from the international financial institutions.

- a. Only I follows
- b. Only II follows
- c. Either I or II follows
- d. Neither I nor II follows
- e. Both I and II follow.



COMPUTER PROGRAMMING PRINCIPLES AND APPLICATIONS: Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q1. A 8-bit signed integer has the following range:

- a. 0 to 255
- b. -128 to 127
- c. -255 to 254
- d. 0 to 509

Q2. What will be the output of the following code statements?

```
integer x = 34.54, y = 20, z = -5  
print ( y > 50 AND z > 10 or x > 30 )
```

- a. 0
- b. 1
- c. -1
- d. 10

Q3. Pankaj makes a program to print the product of cubes of the first 10 whole numbers. She writes the following program:

```
integer x = 0 // statement 1  
integer sum = 0 // statement 2  
while ( x < 10 ) // statement 3  
{  
    sum = x*x*x // statement 4  
    x = x + 1 // statement 5  
}  
print sum // statement 6
```

Is her program correct? If not, which statement will you modify to correct it?

- a. No error, the program is correct.
- b. Statement 1
- c. Statement 4
- d. statement 6

Q4. I have a problem to solve which takes as input a number n. The problem has a property that given the solution for (n-1), I can easily solve the problem for n. Which programming technique will I use to solve such a problem?

- a. Iteration
- b. Decision-making
- c. Object Oriented Programming
- d. Recursion

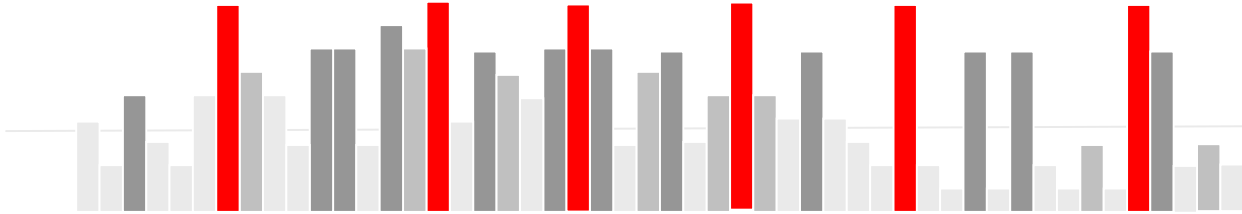
Q5. Given:

```
integer x = 40, y = 35, z = 20, w = 10
```

Comment about the output of the following two statements:

```
print x * y / z - w  
print x * y / (z - w)
```

- a. Differ by 80



- b. Same
- c. Differ by 50
- d. Differ by 160

Q6. Data and function in which area of a class are directly accessible outside the class?

- a. Public
- b. Private
- c. Protected
- d. None of these

Q7. Here is an infix notation: $((A+B)*C-(D-E))^{(F+G)}$ Choose the correct postfix notation of the above from the given options.

- a. $AB+CD^*E--FG+^{\wedge}$
- b. $AB+C^*DE--FG+^{\wedge}$
- c. $AB+C^*DE-FG-+^{\wedge}$
- d. $A+BC^*DE-FG-+^{\wedge}$

Q8. If the depth of a tree is 3 levels, then what is the size of the Tree?

- a. 2
- b. 4
- c. 6
- d. 8

Q9. One of the following options is a form of access used to add and remove nodes from a queue.

- a. LIFO
- b. FIFO
- c. Both LIFO and FIFO
- d. None of these

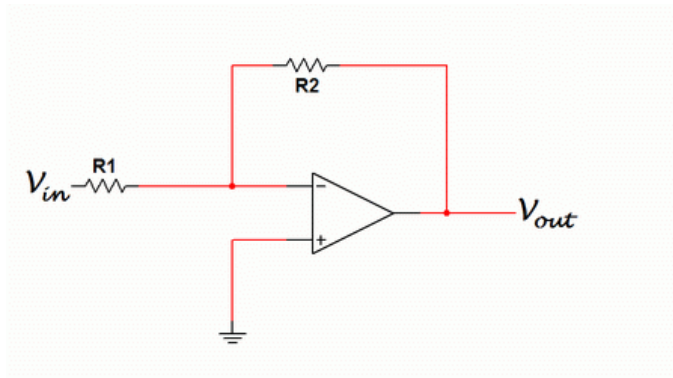
Q10. What is the time complexity of adding three matrices of size $N \times N$ cell-by-cell?

- a. $O(N)$
- b. $O(N^2)$
- c. $O(N^3)$
- d. None of these

Electronic: Sample Questions

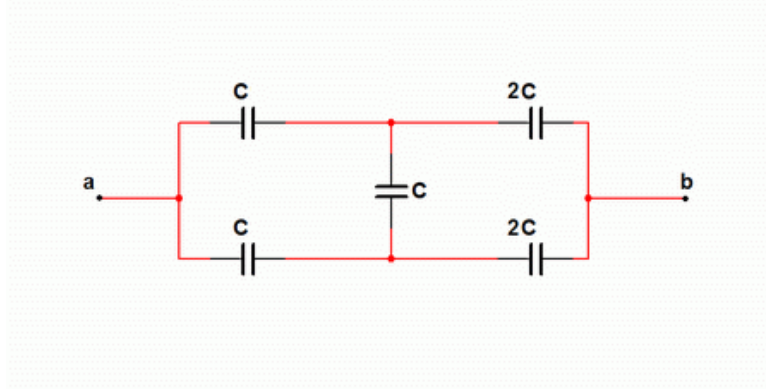
All questions are Multiple-Choice-Questions with only one option as the correct answer.

Q 1. The input resistance of the inverter shown below is



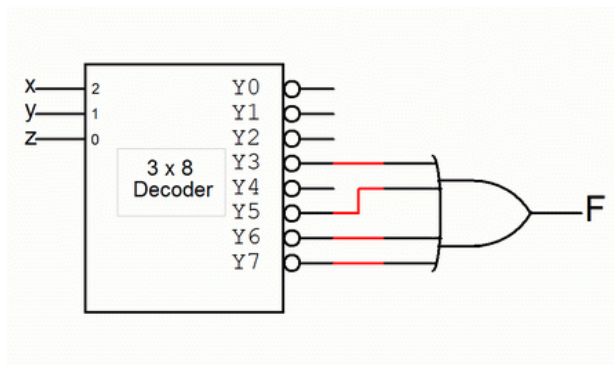
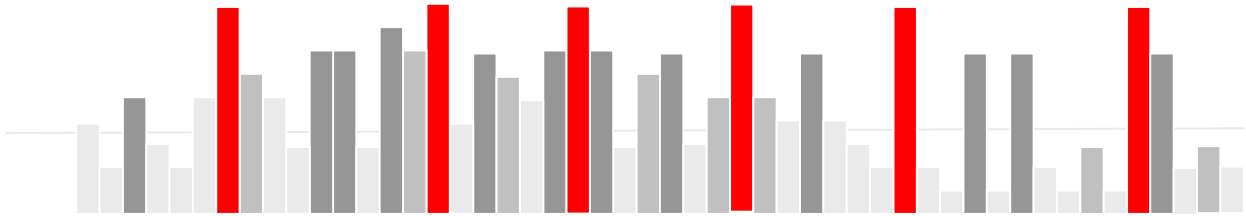
- a. R_1
- b. $R_1 + R_2$
- c. $R_1 \parallel R_2$
- d. R_2

Q 2. Find the equivalent capacitance of the system shown in the figure between points a and b.



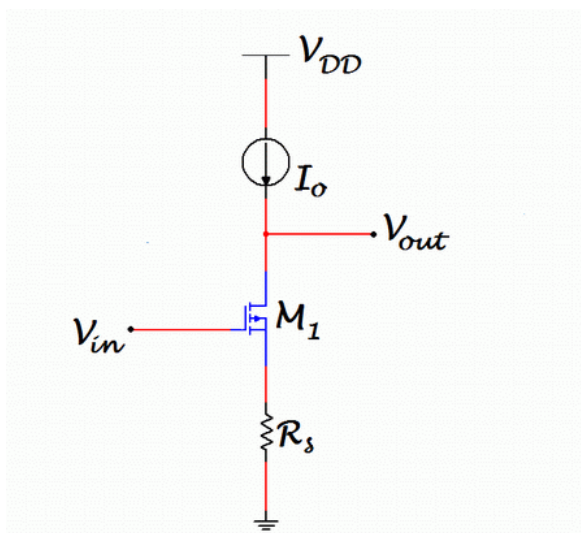
- a. $2C$
- b. $2C/3$
- c. $4C/3$
- d. C

Q3. The Boolean function F is given by -



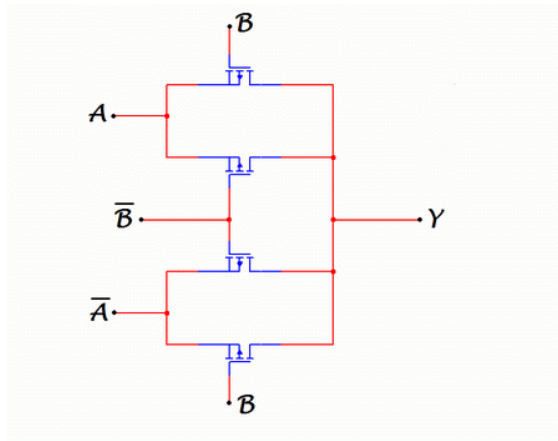
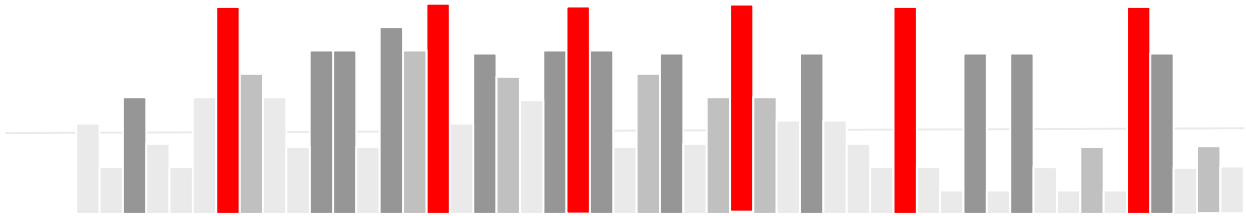
- a. $xyz + xy' + xz'$
- b. $xy + yz + xz$
- c. $yz + xy' + xz'$
- d. $xyz + xy' + x'z$

Q 4 The small signal gain of the circuit shown is given by:

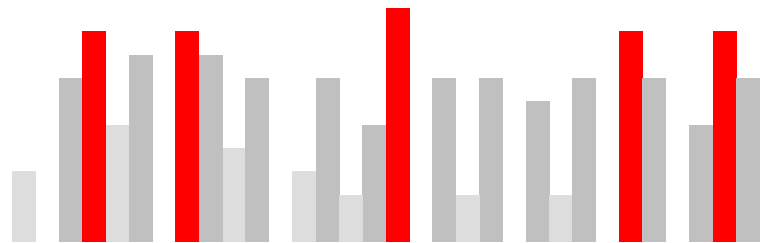


- a. $-g_m r_o$
- b. $-g_m r_o / (1 + g_m R_s)$
- c. $-g_m (r_o || R_s)$
- d. $-g_m r_o / (R_s + r_o + g_m r_o R_s)$

Q 5. Which logic function is realized by the given circuit.



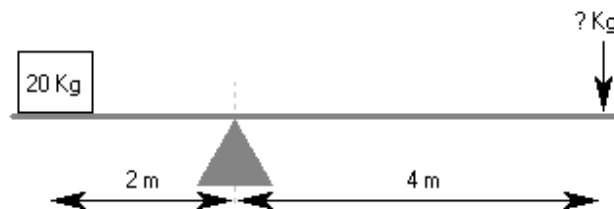
- a. NOR
- b. XOR
- c. XNOR
- d. None of these



Mechanical : Sample Questions

All questions are Multiple-Choice-Questions with only one option as the correct answer.

1) How much weight is required to balance the lever?



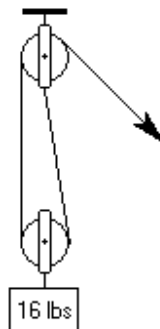
- | | | | | |
|----------|----------|----------|----------|----------|
| A | B | C | D | E |
| 15Kg | 5Kg | 10Kg | 7.5Kg | 20Kg |

Hint: the force required in the following way: $w \times d1 = f \times d2$

Where:

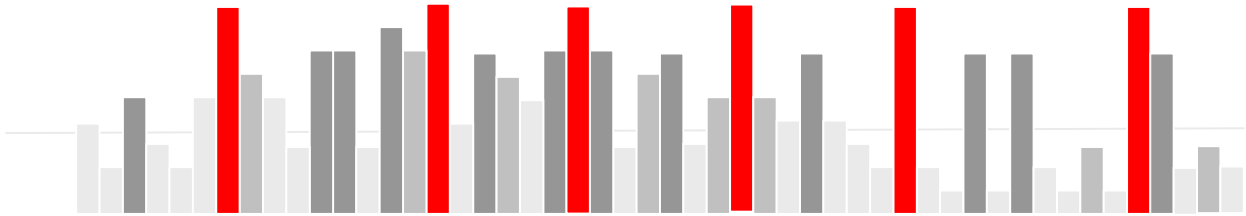
- w = weight
- d1 = distance from fulcrum to weight
- f = force needed
- d2 = distance from fulcrum to point where force is applied

2) Approximately how much force is needed to lift the weight?



- | | | | | |
|----------|----------|----------|----------|----------|
| A | B | C | D | E |
| 9 lbs | 8 lbs | 6 lbs | 4 lbs | 16 lbs |

Hint: If the pulley is fixed, then the force required is equal to the weight. If the pulley moves with the weight then the force is equal to half of the weight. Another way of thinking about this is to divide the weight by the number of sections of rope supporting it to obtain the force needed to lift it.



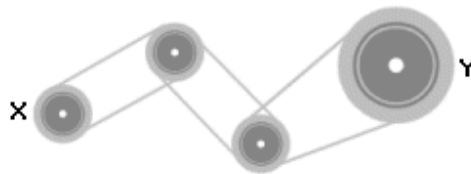
3) If gear X turns clockwise at a constant speed of 10 rpm. How does gear Y turn?



- A** anti c/w 10 rpm **B** c/w 10 rpm **C** c/w 5 rpm **D** anti c/w 5 rpm **E** c/w 20 rpm

Hint: When gears are touching (meshed) then adjacent gears move in opposite directions. In this example the first and third gear will turn in the same direction. When there are an odd number of meshed gears then the last gear will always turn in the same direction as the first one. The rate at which the gears turn is directly proportional to the number of teeth on each gear, with the smaller gear turning faster.

4) If drive wheel X rotates clockwise at a speed of 10 rpm. How does wheel Y turn?



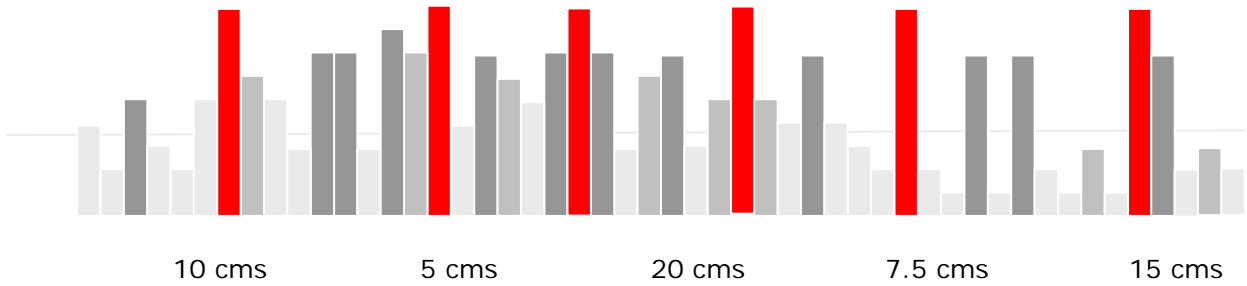
- A** anti c/w faster **B** c/w slower **C** c/w faster **D** anti c/w slower **E** anti c/w same

Hint: Where pulley wheels are driven by belts, they rotate in the same direction. Smaller wheels will turn faster than larger wheels.

5) A force of 15 Kg compresses the parallel in series 10cm. What will be the total distance that the springs in series are compressed?

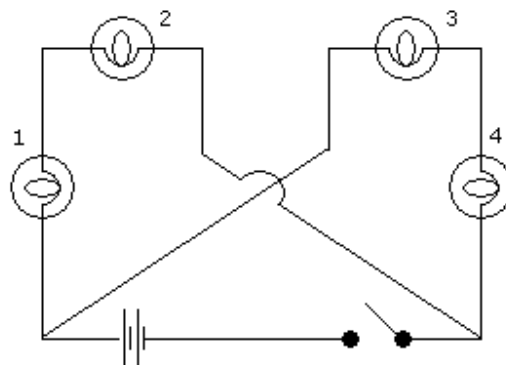


- A** **B** **C** **D** **E**



Hint: When springs are arranged in series, each spring is subjected to the force applied. When the springs are arranged in parallel the force is divided equally between the springs.

6) If bulb 1 is removed, how many bulbs will light up when the switch is closed?



A
None

B
One

C
Two

D
Three

E
Four

Hint: These diagrams are usually restricted to showing the power source, switches, loads (typically bulbs), and the path of the wiring. To answer these questions you need a basic understanding of how electricity flows around a circuit.

7) Which is the most suitable tool for general carpentry?



A
None

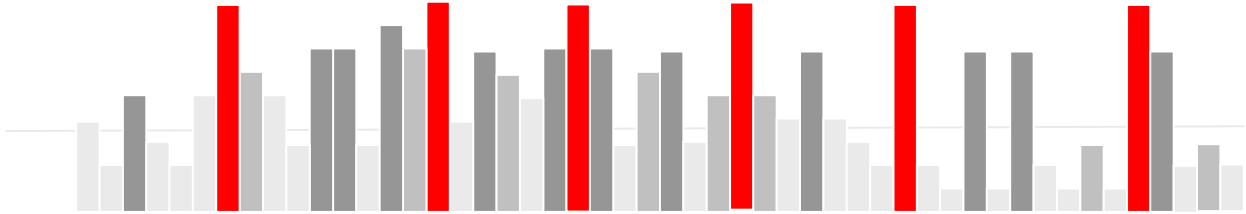
B
1

C
2

D
3

E
4

Hint: Whilst all of the tools shown could be used, one of them is designed specifically for the job.



8) Which tool or combination of tools would be most useful for constructing a mild steel frame?



A
3 & 4

B
9

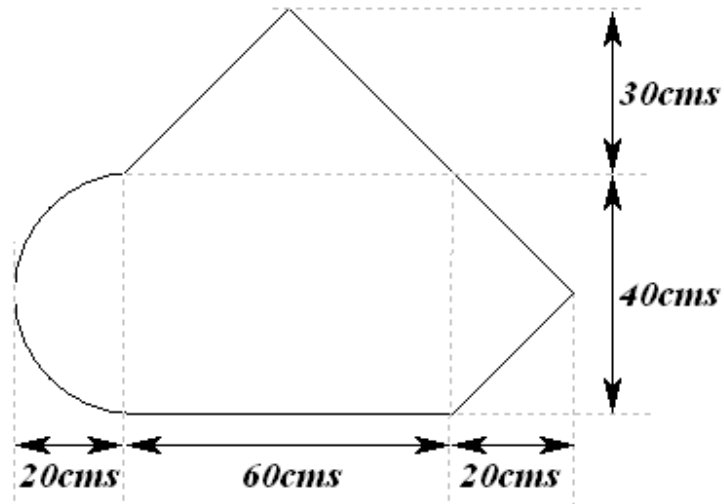
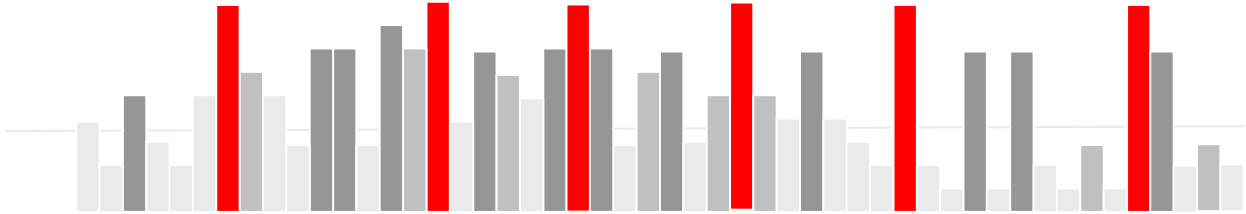
C
1 & 9

D
2 & 8

E
6

Hint: If you don't have much practical experience of making and fixing things then you will need to make some effort to improve your knowledge of everyday tools. You can do this by getting hold of a catalog for a tool hire company and simply reading through it.

The sketch shows a component which is stamped out of sheet steel. These components are stamped out of a continuous steel coil with a width of 75 cms. The stamping process requires a gap of 25mm between each component. The steel is supplied in lengths of 30 meters costing \$200.



9) What is the approximate area of the component in square centimetres?

- | | | | | |
|----------|----------|----------|----------|----------|
| A | B | C | D | E |
| 4688 | 4470 | 4562 | 4860 | 4328 |

10) What is the approximate percentage of steel wasted?

- | | | | | |
|----------|----------|----------|----------|----------|
| A | B | C | D | E |
| 42% | 35% | 44% | 37% | 39% |

Hint: Some questions may require you to know some simple formulas. For example, the areas of simple shapes like rectangles, circles and triangles.

Computer Programming

1. A 8-bit signed integer has the following range

- a. 0 to 255
- b. -128 to 127
- c. -255 to 254
- d. 0 to 509

2. What will the output of the following code statements be?

Integer x = 34.54, y = 20, z = -5 print (y > 50 AND z > 10 or x > 30)

- a. 0
- b. 1
- c. -1
- d. 10

3. Annie makes a program to print the product of cubes of the first 10 whole numbers. She writes the following program

```
integer x = 0 // statement 1 integer sum = 0 //  
statement 2 while ( x < 10 ) // statement 3  
{  
    sum = x*x*x // statement 4 x = x + 1 //  
    statement 5  
}  
print sum // statement 6
```

Is her program correct? If not, which statement will you modify to correct

it?

- a. No error, the program is correct.
- b. Statement 1
- c. Statement 4
- d. statement 6

4. I have a problem to solve that takes n as an input number. The problem has a property that given the solution for $(n-1)$, I can easily solve the problem for n . Which programming technique will I use to solve such a problem?

- a. Iteration
- b. Decision-making
- c. Object Oriented Programming
- d. Recursion

5. Given

Integer $x = 40$, $y = 35$, $z = 20$, $w = 10$

Comment on the output of the following two statements

```
print x * y / z - w  
print x * y / (z - w)
```

- a. Differ by 80
- b. Same
- c. Differ by 50
- d. Differ by 160

6. In which area of a class are data and function directly accessible outside the class?

- a. Public
- b. Private
- c. Protected
- d. None of these

7. Here is an infix notation $((A+B)*C-(D-E))^{(F+G)}$ Choose the correct postfix notation of the above from the given options.

- a. $AB+CD*E--FG+^{\wedge}$
- b. $AB+C*DE--FG+^{\wedge}$
- c. $AB+C*DE-FG-+^{\wedge}$
- d. $A+BC*DE-FG-+^{\wedge}$

8. If the depth of a tree is 3 levels, then what is the size of the tree?

- a. 2
- b. 4
- c. 6
- d. 8

9. One of the following options is a form of access used to add and remove nodes from a queue.

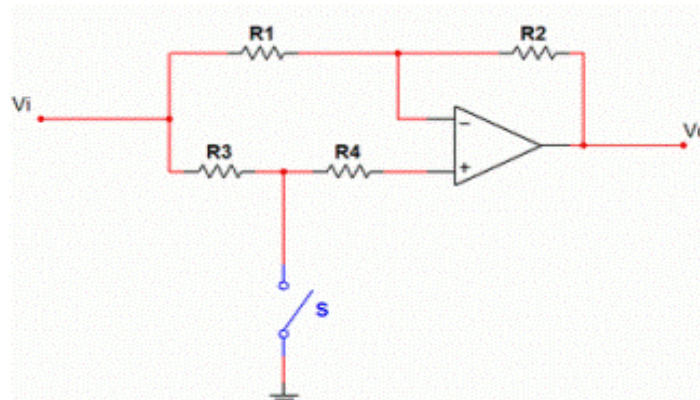
- a. LIFO
- b. FIFO
- c. Both LIFO and FIFO
- d. None of these

10. What is the time complexity of adding three matrices of size $N \times N$ cell-by-cell?

- a. $O(N)$
- b. $O(N^2)$
- c. $O(N^3)$
- d. None of these

Electronics and Semiconductor

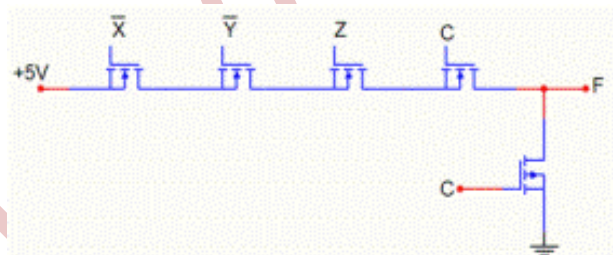
1. The ratio of the output to input voltage for the given circuit is-



- a. +1 when S is open, $(1 + R_2/R_1)$ when S is closed
b. +1 when S is open, $-(R_2/R_1)$ when S is closed.
c. -1 when S is open, $(1 + R_3/R_4)$ when S is closed.
d. $(R_4/R_3 - R_2/R_1)$ when S is open, +1 when S is closed.
2. A diode is operated in reverse biased region with a very high frequency. Which of the following statements is false?
- a. There won't be any shunt capacitive effect on diode's operation.
b. Storage capacitance will be dominant and will affect diode's operation.
c. Both transition and storage capacitance will affect diode equally.
d. Both 2 and 3
e. Both 1 and 3
3. The Boolean expression $f(A,B,C) = A[B+C(AB+AC)']$ can be simplified to –
(<http://allcomputertopics.blogspot.com/2012/11/simplification-of-boolean-expressions.html>)
- a. A
b. AB
c. 1
d. B'

4. A series string of 5 diodes is connected through a resistor R to a 10 V supply. For diodes having 0.7 V drop at 1 mA and a 0.1 V/decade characteristic, what value of R is required to establish a total voltage drop across all the diodes to be 4 V?
- a. 700 Ohms
 - b. 500 Ohms
 - c. 300 Ohms
 - d. 400 Ohms
5. Which of the following is/are false?
- A) According to continuity equation- Electrons and holes cannot mysteriously appear or disappear at a given point, but must be transported to or created at the given point via some type of carrier action.
- B) The continuity equation satisfies the condition that particles should be conserved.
- C) According to continuity equation change in carrier density over a period of time is due to the generation of electron hole pairs and recombination of electron hole pairs only. There is no role of incoming and outgoing flux of carrier.
- a. B
 - b. C
 - c. Both A and B
 - d. Both A and C
6. In a MOSFET, which of the following secondary effects is caused by short channel?
- (I) Threshold voltage variation (II) Mobility degradation
- (III) Velocity saturation
- a. (I)
 - b. (II) & (III)
 - c. (III)
 - d. (I), (II) & (III)

7. Which of the following is true if two identical RC low pass filters are cascaded?
- As the order of the filter decreases, the actual stop band responses of the filter approaches its ideal stop band characteristics.
 - 2nd order filters can be used to design any other higher order filter system.
 - Due to cascading the resulting gain at the respective cut-off frequency is reduced.
 - The roll-off slope of the filter will be $1/4^*$ (-20db/decade).
8. Which of the following will not happen In a CMOS inverter, if the supply voltage is reduced to just below threshold voltage of the transistors?
- The CMOS inverter stops working as both transistors get switched off
 - The CMOS inverter works with a slightly reduced gain, due to sub threshold conduction.
 - The CMOS inverter works with a very low gain and high delay.
 - Only A
 - Both A and B
9. Identify the function $F(X, Y, Z, C)$ implemented by the CMOS circuit shown below-



- $X'YZ'C'$
- $XYZ'C'$
- $(X' + Y' + Z).C$
- $XY'Z'C$
- none of these

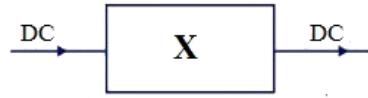
Electrical Engineering

1. Which of the following is the reason of crawling in a 3- Φ SCIM?
 - a. Unbalance supply voltage
 - b. 7th space harmonic of air gap field
 - c. 5th space harmonic
 - d. None of these

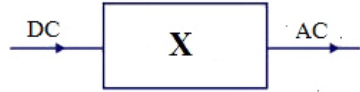
2. What is the time period of a triangular wave having a frequency of 500 Hz?
 - a. 0.002 sec
 - b. 0.0002 sec
 - c. 0.02 sec
 - d. 0.2 sec

3. Two sinusoidal signals having the same amplitude and frequency are applied to X and Y inputs of a CRO. The observed lissajous figure is a straight line. What will be the phase shift between the two signals?
 - a. Zero
 - b. 90°
 - c. Either zero or 180°
 - d. Either 90° or 270°

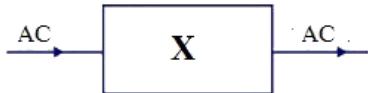
4. Which of the following block diagram describes the function of a cycloconverter?



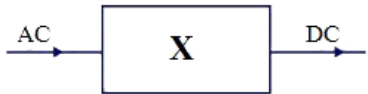
a.



b.



c.



d.

5. State whether the following is true or false Phase margin of a system specifies its relative stability.

- a. True
- b. False

6. The per unit impedance of a line, to a 50 MVA, 132 kV base, is 0.4. What will be the per unit impedance of a 100 MVA, 132 kV?

- a. 0.5
- b. 0.9
- c. 0.4
- d. 0.8

7. The output at any instant of time in a sequential circuit depends upon _____.
a. the inputs at that instant of time
b. past outputs as well as present inputs
c. past inputs
d. past outputs
8. Which of the following circuits is protected by metal oxide varistor?
a. Anode circuit against over currents
b. Gate circuit against over voltages
c. Gate circuit against over currents
d. Anode circuit against over voltages
9. In a torque voltage analogy, to which of the following is inductance analogous?
a. Damping coefficient
b. Moment of inertia
c. Stiffness
d. None of these

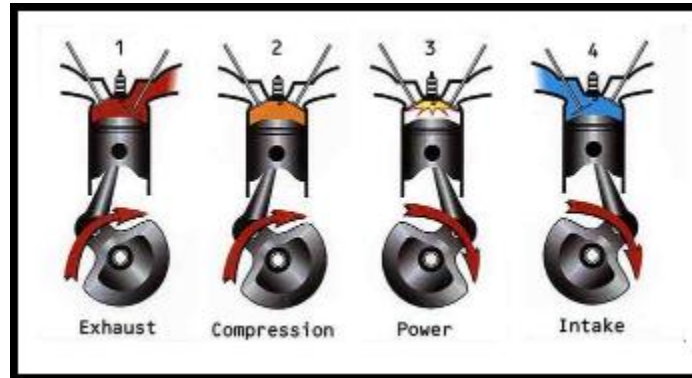
Sample Questions

Mechanical Engineering

1. A thread is wound around a cylindrical bottle. What would be the locus of a point on the thread, when it is unwound?
 - a. Straight line
 - b. Circle
 - c. Involute
 - d. Helix

2. What is the use of a reheater in the thermal power plant?
 - a. To increase the temperature of feed water.
 - b. To increase the temperature of steam before it enters the low pressure turbine.
 - c. To increase the rate of combustion of fuel during the combustion cycle.
 - d. To pre-heat the air before it enters the combustion cycle.

3. Arrange the following strokes in the order in which they occur in a 4- stroke engine.



- a. 4,2,1,3
 - b. 4,3,2,1
 - c. 4,2,3,1
 - d. 4,3,1,2
4. What is the effect on the transmitted power when there is excess tension in the belt?
- a. Transmitted power decreases
 - b. Belt efficiency increases
 - c. Belt wear and tear decreases
 - d. Transmitted power first increases and then decreases
5. Which of the following does not affect the drag and lift forces experienced by an object placed in a fluid stream?
- a. Temperature
 - b. Pressure
 - c. Velocity
 - d. Viscosity

6. For which of the following purposes is an agitated film evaporator suitable?

- a. For concentrating viscous liquids
- b. For concentrating non-sensitive liquids
- c. For concentrating corrosive liquids
- d. For concentrating low temperature liquids

7. Why is oil added to green molding sand?

- a. To improve its moldability
- b. To improve the surface finish
- c. To improve its permeability
- d. To improve the sand binding

8. Which of the following statements is correct with reference to NC machines?

- a. Postprocessor is the interface between CAM systems and NC machines.
- b. Paper tapes and floppy tapes are not used as data storage devices to store all the instructions for NC machine.
- c. Only open loop systems are used in NC machine control system.
- d. Digitizers are used as data storage devices to store all the instructions for NC machine.

Civil Engineering

1. In a lifting machine with efficiency 80% and velocity ratio 50, how much effort is required to raise a load of 800 lbs?
 - a. 10 lbs
 - b. 20 lbs
 - c. 30 lbs
 - d. 80 lbs

2. A blanket of impermeable material is laid for some length along the downstream ground surface. What is the purpose of this step in piping?
 - a. To increase factor of safety
 - b. To add clearance
 - c. To prevent the pipes from rusting
 - d. Any of the above
 - e. None of the above

3. What is the maximum deflection of a fixed beam carrying a central load W ?
 - a. $WL^3/48EI$
 - b. $WL^3/96EI$
 - c. $WL^3/198EI$
 - d. $5WL^3/384EI$

4. Which of the following activities is/are a constituent of track construction?
 - a. Earth work
 - b. Ballasting
 - c. Plate laying
 - d. All of the above.

5. Whenever a number of columns are to be constructed in a row, which of the following will be preferred?
- a. Strip
 - b. Pile
 - c. Strap
 - d. Raft
6. In which of the following situations is compass surveying recommended?
- a. Area is large and crowded
 - b. Area is small and uncrowded
 - c. Area is suspected of presence of magnetic substances
 - d. None of the above
7. Propagation of an existing crack or joint upward to the new pavement surface is called ____.
- a. Creeping
 - b. Alligator Cracking
 - c. Tearing
 - d. Reflection cracking
 - e. Shear failure
8. For which of the following is the friction drag not more than pressure drag?
- a. An air foil
 - b. A streamlined body
 - c. A circular disc placed normal to the flow direction
 - d. All of the above
9. In which of the following river reach, can head works be constructed usefully?
- a. Hilly
 - b. Sub-mountainous
 - c. Plain
 - d. Both B and C

Metallurgical Engineering

1. Which of the following heat treatment creates a case hardened surface?
 - a. Flame hardening
 - b. Carburizing
 - c. Nitriding
 - d. Cyaniding

2. The breaking stress of a particular steel is 1.5 GPa. What force will be needed to break a piece of wire of diameter 1 mm?
 - a. 1178 N
 - b. 1195 N
 - c. 1170 N
 - d. 1180 N

3. Which of the following elements in steel can enhance the machinability by increasing sulphur content?
 - a. Aluminium
 - b. Manganese
 - c. Copper
 - d. Calcium

4. Flaws in conductive material can be detected by _____.
 - a. Radiography
 - b. Holography
 - c. Eddy current testing
 - d. Ultrasonic testing

5. Which of the following methods is used to determine the atomic and/or magnetic structure of a material?
 - a. Scanning electron microscopy
 - b. Transmission electron microscopy
 - c. X-ray diffraction

- d. Optical microscopy
- e. Neutron diffraction

6. Which of the following mills is not used for fine grinding of ores?

- a. Ball mill
- b. Turbo mill
- c. Vibrating mill
- d. Hammer mill

7. Which of the following laws states that the vapor pressure of an ideal solution is proportional to the mole fraction of solvent?

- a. Henry's law
- b. Sievert's law
- c. Raoult's law
- d. Gibbs-Duhem equation

8. Why are low alloy steels welded using nickel alloys as filler metals?

- a. For controlling hot cracking
- b. For controlling cold cracking
- c. For controlling porosity
- d. For controlling distortion

9. Which of the following metal working processes is not a hot working process?

- a. Rolling
- b. Forging
- c. Extrusion
- d. Wire drawing

Automotive Engineering

1. For which of the following reason(s) is it advisable to lubricate all moving parts of an engine?
A .To increase friction
B. To reduce friction
C. To increase velocity
D. To reduce velocity
 - a. Only A
 - b. Only B
 - c. Both A and C
 - d. Both A and D

2. What is the use of Damper spring in a clutch system?
 - a. Softens the torsional vibration produced when the friction plate is pressed by the pressure plate
 - b. To exert pressure on the driven plate
 - c. Store kinetic energy and release it when needed,
 - d. None of the above.

3. Which of the following is a remedy for air in the hydraulic system problem?
 - a. Bleed the system
 - b. Adjust the brake pedal
 - c. Use brake oil
 - d. None of these

4. The part of the rim that provides lateral support to the tire is known as _____.
 - a. Well
 - b. Bead seat
 - c. Flange
 - d. Gutter

5. Which of the following is preferred to tighten cylinder head bolts?
- Ring spanner
 - Ratcheting box wrench
 - Open-ended spanner
 - All of the above
6. What is the use of distributor in a spark ignition engine?
- For providing correct firing order
 - For breaking and mixing the fuel with air
 - For providing high voltage to the spark plug
 - For removing the burnt exhaust gases
7. Which of the following statements is/are false?
- The spark plug gap is normally kept at 0.8 mm to 1.0 mm
 - A fuel will detonate less if it has lower self-ignition temperature
 - The relative fuel-air ratio (Fr) is equal to (chemically correct fuel air ratio)/actual fuel-air ratio
 - All of the above
8. Torque converter is a type of hydrodynamic coupling. What is the key characteristic of a torque converter?
- It transmits torque from the prime mover to the drive axles directly
 - It multiplies torque when there is a substantial difference between input & output rotational speed
 - It acts as a replacement of transmission to control the speed of the vehicle
 - It decreases the torque at the wheels
9. What is/are the thing(s) to check when an engine does not start/crank?
- Battery
 - Fuel
 - Clutch
 - Brake oil
 - Both a and b

Telecommunications

1. Identify the correct statement.
 - a. DSB-SC modulation is used for broadcast purposes.
 - b. Bandwidth required for SSB-SC is half of that required for VSB.
 - c. At high power levels, conventional AM is easier to generate than SSB-SC wave.
 - d. SSB and DSB-SC are linear modulation schemes whereas VSB and SSB-SC are non-linear.

2. The modulation schemes used in GSM and CDMA mobile communication are _____ respectively.
 - a. GMSK and BPSK
 - b. QPSK and BPSK
 - c. GMSK and QPSK
 - d. M-ary PSK and GMSK

3. Which of the following errors may occur in delta modulation when the modulating input signal is changing at a very slow rate?
 - a. Slope-overload
 - b. Under-sampling
 - c. Granular noise
 - d. Both 1 and 2

4. When critical magnetic field is applied along the axis of a cylindrical cavity magnetron, then the electrons will _____.
 - a. traverse a straight-line path from cathode to anode
 - b. traverse a slightly curved path terminating on anode
 - c. traverse a curved path just grazing on anode surface and terminates back on the cathode
 - d. traverse a curved path terminating on cathode, without touching the anode surface

5. Match the antennas with their applications and select the correct option.

A-Yagi antenna, B-Parabolic reflector, C-Helical antenna, D-Microstrip Patch antenna

1-Satellite tracking, 2-TV reception, 3-Mobile Phones, 4-Directional transmission

- a. A2, B3, C1, D4
 - b. A4, B2, C3, D1
 - c. A2, B4, C1, D3
 - d. A2, B1, C3, D4
6. A lossless transmission line having a characteristic impedance of 40 ohm is terminated in an 80 ohm load. The line is excited by a 15 MHz source, having an internal resistance of 40 ohm. If it is known that the maximum power is being delivered to the load, find the length of the transmission line.
- a. 2.5 m
 - b. 5.5 m
 - c. 1.25 m
 - d. 10 m
7. A lightning conductor on top of a building is made into a pointed spike because ____.
- a. charge per unit area becomes very high for lightning to discharge
 - b. to prevent flow of charge from the lightning conductor
 - c. to prevent accumulation of charged particles
 - d. all of the above
8. Following components are used to measure the output power of a travelling wave amplifier
- 1. A low-pass/high-pass filter.
 - 2. A low power attenuator.
 - 3. A directional coupler with matched load.
 - 4. Power meter.
- Identify the correct sequence of the connection of these components.
- a. 1,3,4,2
 - b. 2,1,4,3
 - c. 1,3,2,4
 - d. 2,3,1,4

9. A 2 m long wire carrying a current of 10 A is placed at an angle of 60° with magnetic field $B = 4 \text{ Wb/m}^2$. The magnitude and direction of force acting on it are ____.
- a. $40 \sqrt{3} \text{ N}$ perpendicular to wire and B
 - b. 40 N perpendicular to wire and B
 - c. $40 \sqrt{3} \text{ N}$ perpendicular to wire and 150° to B
 - d. 40 N perpendicular to wire and 180° to B

Aspiring Minds

Sample Questions

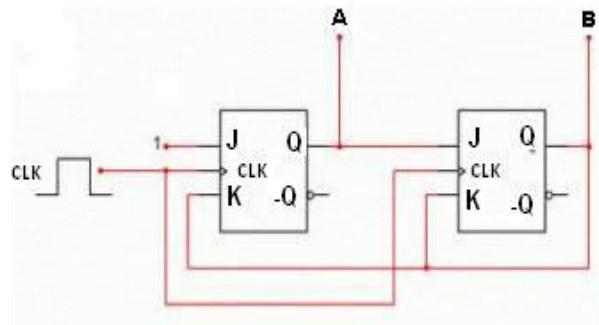
Instrumentation

1. On which of the following principles does pneumatic load cell work?
 - a. Force counter balance
 - b. Force balance principle
 - c. Magneto-elastic principle
 - d. Electromechanical principle

2. In which of the following registers does the microcontroller automatically set the TFX bit, when a timer overflows from its highest value back to 0?
 - a. TH0
 - b. TL0
 - c. TCON
 - d. TH1

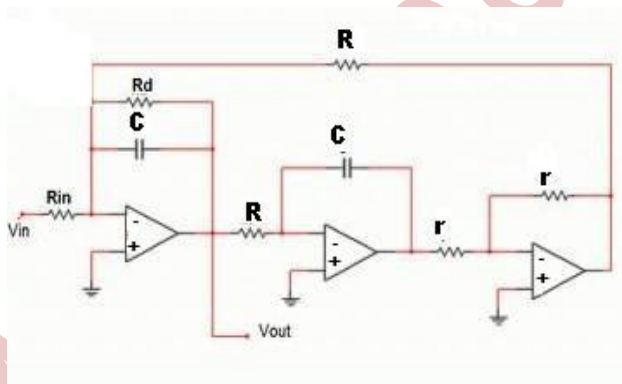
3. The output transform of the first-order systems for unit-impulse response is
 - a. $Y(s) = 1 / \{s^2 (sT+1)\}$
 - b. $Y(s) = 1 / \{s (sT+1)\}$
 - c. $Y(s) = 1 / (sT + 1)$
 - d. $Y(s) = 1 / (sT)$

4. Find out the duty cycle of output B in the given circuit.



- a. 25%
- b. 33.33%
- c. 50%
- d. 6.66%

5. What kind of filter does the given Op-amp-RC circuit realize?



- a. LPF
- b. BPF
- c. HPF
- d. Notch filter
- e. All pass filter

6. For the Assertion (A) and Reason (R) given below, choose the correct alternative from the following

- A. Both 'A' and 'R' are true and R is the correct explanation of A.
- B. Both 'A' and 'R' are true and 'R' is not the correct explanation of A.
- C. 'A' is true but 'R' is false.
- D. 'A' is false but 'R' is true.
- E. Both are false.

Assertion: Karl Fisher method is based on the reaction: $2\text{H}_2\text{O} + \text{SO}_2 + \text{I}_2 = \text{H}_2\text{SO}_4 + 2\text{HI}$

Reason: This reaction is used because there is a measurable change in color when water reacts with the added chemical agents.

- a. A
- b. B
- c. C
- d. D
- e. E

7. For the Assertion (A) and Reason (R) given below, choose the correct alternative from the following

- A. Both 'A' and 'R' are true and R is the correct explanation of A.
- B. Both 'A' and 'R' are true and 'R' is not the correct explanation of A.
- C. 'A' is true but 'R' is false.
- D. 'A' is false but 'R' is true.
- E. Both are false.

Assertion: Piezoelectric transducers are well suited for static or dc applications.

Reason: The electrical charge produced in piezoelectric transducers decays with time due to the internal impedance of the transducer and the input impedance of the signal conditioning circuits.

- a. A
- b. B
- c. C
- d. D
- e. E

8. Butterworth filter falls in the category of _____.

- a. Infinite impulse response filters
- b. Finite impulse response filters
- c. Non-recursive digital filters
- d. None of these

9. Z parameters of a two port network are $Z_{11} = 10\Omega$, $Z_{22} = 20\Omega$ and $Z_{12} = Z_{21} = 5\Omega$. What are the corresponding ABCD parameters?

- a. $A=2$ $B=30\Omega$ $C=1.2\text{V}$ $D=4$
- b. $A=12$ $B=30\Omega$ $C=0.2\text{V}$ $D=5$
- c. $A=12$ $B=35\Omega$ $C=1.2\text{V}$ $D=5$
- d. $A=2$ $B=35\Omega$ $C=0.2\text{V}$ $D=4$