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# HPCL Engineer (Instrumentation) 04 Nov 2022

# HPCL-01st & 04th Nov 22

| | |
|---|---|
| Participant ID | |
| Participant Name | |
| Test Center Name | |
| Test Date | 04/11/2022 |
| Test Time | 9:00 AM - 11:30 AM |
| Subject | INSTRUMENTATION ENGINEER |

Section : **English Language**

**Q.1** **Select the most appropriate option to fill in the blank.**

**The dog easily jumps over the wall that separates their compound _____ ours.**

**Ans**
✔ 1. from
✘ 2. by
✘ 3. at
✘ 4. with

Question ID : **8401605322**
Status : **Answered**
Chosen Option : **1**

**Q.2** **Select the most appropriate ANTONYM of the given word.**

**Dubious**

**Ans**
✘ 1. Hesitant
✘ 2. Arguable
✘ 3. Suspect
✔ 4. Certain

Question ID : **8401605307**
Status : **Answered**
Chosen Option : **4**

**Q.3** **Select the most appropriate option to fill in the blank.**

**She _____ at Aurobindo College for the last seven years.**

**Ans**
✘ 1. taught
✔ 2. has been teaching
✘ 3. had taught
✘ 4. teaches

Question ID : **8401605321**
Status : **Answered**
Chosen Option : **2**

**Q.4** **Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the correct order to form a meaningful and coherent paragraph.**

**A. There have been many attempts over the centuries to find this 'hidden library,' but so far the searchers have come up empty-handed.**
**B. The Library of the Moscow Tsars supposedly contained a vast collection of ancient Greek texts, as well as texts written in a variety of other languages.**
**C. It is said that Ivan IV, better known as Ivan the Terrible, who lived from 1530 to 1584, somehow hid the library's texts.**
**D. The rulers of the Grand Duchy of Moscow supposedly had built the library by 1518.**

**Ans**
✔ 1. BDCA
✘ 2. ADBC
✘ 3. BACD
✘ 4. CDAB

Question ID : **8401605316**
Status : **Answered**
Chosen Option : **1**

**Q.5** **Select the most appropriate meaning of the given idiom.**

**Nutty as a fruitcake**

**Ans**
✘ 1. Careful
✘ 2. Composed
✔ 3. Crazy
✘ 4. Contented

Question ID : **8401605313**
Status : **Answered**
Chosen Option : **3**

**Q.6** **Select the most appropriate option to fill in the blank.**

**The children _____ cricket in the park when their mother came to pick them up.**

**Ans**
✘ 1. played
✘ 2. had played
✘ 3. play
✔ 4. had been playing

Question ID : **8401605320**
Status : **Answered**
Chosen Option : **4**

**Q.7** **Select the most appropriate synonym of the given word.**

**Periphery**

**Ans**
✔ 1. Margin
✘ 2. Core
✘ 3. Heart
✘ 4. Centre

Question ID : **8401605310**
Status : **Answered**
Chosen Option : **1**

**Q.8** **Select the option that is NOT an antonym of another word by way of adding the prefix 'mis-'.**

**Ans**
✔ 1. Miserable
✘ 2. Misapprehend
✘ 3. Misbehave
✘ 4. Misappropriate

Question ID : **8401605308**
Status : **Answered**
Chosen Option : **4**

**Q.9** **Select the most appropriate synonym of the given word.**

**Profligate**

**Ans**
✔ 1. Extravagant
✘ 2. Prudent
✘ 3. Stingy
✘ 4. Judicious

Question ID : **8401605311**
Status : **Answered**
Chosen Option : **3**

**Q.10** **Select the correctly spelt word to fill in the blank.**

**The young crowd went into _____ around a popular film-star.**

**Ans**
✘ 1. hystitria
✔ 2. hysteria
✘ 3. histerya
✘ 4. histyria

Question ID : **8401605314**
Status : **Answered**
Chosen Option : **2**

**Q.11** **Select the most appropriate option to fill in the blank.**

**You _____ a new bicycle very soon.**

**Ans**
✘ 1. were having
✘ 2. are having
✘ 3. have
✔ 4. will have

Question ID : **8401605319**
Status : **Answered**
Chosen Option : **4**

**Q.12** **Select the most appropriate option to fill in the blanks.**

**After the Somnath temple was _____ by Mahmud Gazni in 1025, it was _____ by the Parmara King Bhoja of Malwa between 1026 and 1042.**

**Ans**
✗ 1. destroyed, rebuilding
✓ 2. destroyed, rebuilt
✗ 3. destroying, rebuild
✗ 4. destroy, rebuilt

Question ID : **8401605318**
Status : **Answered**
Chosen Option : **2**

**Q.13** **Select the most appropriate option to fill in the blanks.**

**How and when the yellow 137-carat Florentine Diamond _____ to Europe is a _____ of debate.**

**Ans**
✗ 1. land, element
✓ 2. got, matter
✗ 3. arrived, material
✗ 4. reached, thing

Question ID : **8401605317**
Status : **Answered**
Chosen Option : **2**

**Q.14** **Select the most appropriate option to fill in the blank.**

**I have given you a _____ account of my travels in Eastern Europe.**

**Ans**
✗ 1. more complete
✗ 2. very complete
✓ 3. complete
✗ 4. most complete

Question ID : **8401605323**
Status : **Answered**
Chosen Option : **3**

**Q.15** **The following sentence has been divided into parts. One of them may contain an error. Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.**

**The Education Minister called for collaborative efforts / by different countries to address common chellanges / at the G-20 education ministers' meeting.**

**Ans**
✓ 1. by different countries to address common chellanges
✗ 2. The Education Minister called for collaborative efforts
✗ 3. at the G-20 education ministers' meeting.
✗ 4. No error

Question ID : **8401605315**
Status : **Answered**
Chosen Option : **2**

**Q.16** **Select the most appropriate synonym of the given word.**

**Sultry**

**Ans**
✗ 1. Freezing
✗ 2. Cold
✗ 3. Dry
✓ 4. Humid

Question ID : **8401605309**
Status : **Answered**
Chosen Option : **3**

**Q.17** **Select the most appropriate option to fill in the blank and complete the given proverb correctly.**

**A cat has _____.**

**Ans**
✗ 1. nine homes
✗ 2. seven places
✓ 3. nine lives
✗ 4. seven kittens

Question ID : **8401605312**
Status : **Answered**
Chosen Option : **1**

Section : **Quantitative Aptitude**

**Q.1** **A mixture contains milk and water in the ratio of 4:1. By adding 15 litres of water to the mixture, the ratio becomes 2:1. Find the amount of milk in the mixture.**

**Ans**
✗ 1. 45 litres
✗ 2. 15 litres
✗ 3. 30 litres
✓ 4. 60 litres

Question ID : **8401605335**
Status : **Answered**
Chosen Option : **3**

**Q.2** **A shopkeeper bought 12 dozen eggs at the rate of ₹4 per egg. During transit, 18 eggs were broken. He sold the remaining eggs at the rate of ₹5 per egg. Find his profit (in ₹).**

**Ans**
✗ 1. 135
✓ 2. 126
✗ 3. 130
✗ 4. 127

Question ID : **8401605331**
Status : **Answered**
Chosen Option : **1**

**Q.3** **A and B undertake to do a piece of work for ₹984. A alone can do it in 8 days, while B can do it in 6 days. With the help of C, both of them can finish the work in 3 days. How much of the money for the work should be paid to C?**

**Ans**
✗ 1. 492
✗ 2. 234
✓ 3. 123
✗ 4. 369

Question ID : **8401605342**
Status : **Answered**
Chosen Option : **2**

**Q.4** **If three coins are tossed, then the probability of getting at least two heads is:**

**Ans**
✗ 1. $\frac{1}{3}$
✓ 2. $\frac{1}{2}$
✗ 3. $\frac{1}{4}$
✗ 4. $\frac{1}{8}$

Question ID : **8401605350**
Status : **Answered**
Chosen Option : **4**

**Q.5** **A thief was noticed by a policeman. The thief started running at 9 km/h and the policeman chases him at 11 km/h. If the distance between them is 200 m, how much time will the policeman take to catch the thief?**

**Ans**
✗ 1. 5 min
✗ 2. 7 min
✗ 3. 4 min
✓ 4. 6 min

Question ID : **8401605340**
Status : **Answered**
Chosen Option : **1**

**Q.6** If $\sqrt{4+3\sqrt{2}} \times 4\sqrt{34-24\sqrt{24}} = k$, then the value of k lies between:

**Ans**
✗ 1. 1.5 and 2
✗ 2. 2 and 2.5
✓ 3. 1 and 1.5
✗ 4. 2.5 and 3

Question ID : **8401605356**
Status : **Answered**
Chosen Option : **4**

**Q.7** The common tangent of the two touching circles $x^2 + y^2 + 6x - 2y + 7 = 0$ and $x^2 + y^2 - 4x + 7y - 9 = 0$ is:

**Ans**

✗ 1. $10x - 9y - 16 = 0$

✗ 2. $10x + 9y + 16 = 0$

✗ 3. $10x + 9y - 16 = 0$

✓ 4. $10x - 9y + 16 = 0$

Question ID : **8401605355**
Status : **Answered**
Chosen Option : **4**

**Q.8** **In an election, winning candidate got 70% of valid votes. If 15% of votes are invalid and 20% of 3,12,000 voters did not cast their votes, then the number of votes received by the losing candidate is:**

**Ans**

✗ 1. 212160

✗ 2. 148512

✓ 3. 63648

✗ 4. 26520

Question ID : **8401605330**
Status : **Answered**
Chosen Option : **3**

**Q.9** For what values of $z$ will the following equation have equal roots?

$$(z+4)x^2 + (z+1)x + 1 = 0$$

**Ans**

✗ 1. –2, 5

✗ 2. 3, 5

✓ 3. –3, 5

✗ 4. 2, 5

Question ID : **8401605351**
Status : **Answered**
Chosen Option : **3**

**Q.10** **A software engineer travels to his office at a speed of 72 km/h and returns at a speed of 36 km/h. The average speed of his whole journey is:**

**Ans**

✗ 1. 46 km/h

✗ 2. 59 km/h

✓ 3. 48 km/h

✗ 4. 54 km/h

Question ID : **8401605327**
Status : **Answered**
Chosen Option : **4**

**Q.11** One-third of the first number is equal to two-fifth of the second number. If 32 is added to the first number, it becomes six times the second number. Find the first number.

**Ans**
- ✔ 1. 8
- ✘ 2. 6
- ✘ 3. 5
- ✘ 4. 7

Question ID : **8401605324**
Status : **Answered**
Chosen Option : **1**

**Q.12** A and B invested ₹10,000 and ₹12,000 in a bank that offers 5% compound interest. The difference of interest earned by them after two years is:

**Ans**
- ✘ 1. 125
- ✘ 2. 215
- ✘ 3. 230
- ✔ 4. 205

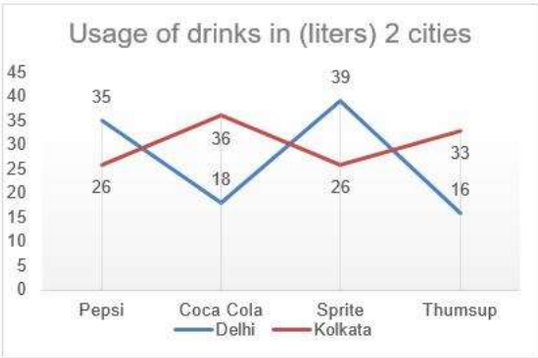
Question ID : **8401605337**
Status : **Answered**
Chosen Option : **4**

**Q.13** The ratio of the time taken by a boat to cover 63 km upstream to the time taken by it to cover 144 km downstream is 7 : 8. If the speed of the stream is 4.5 km/h, then in how much time can the boat cover 81 km in still water?

**Ans**
- ✘ 1. 7 hrs
- ✘ 2. 4 hrs
- ✔ 3. 6 hrs
- ✘ 4. 8 hrs

Question ID : **8401605341**
Status : **Answered**
Chosen Option : **1**

**Q.14** Study the given line graph and answer the question that follows.




Compared to Kolkata, what is the percentage increase of consumption of Sprite in Delhi?

**Ans**
✗ 1. 25%
✓ 2. 50%
✗ 3. 30%
✗ 4. 35%

Question ID : **8401605345**
Status : **Answered**
Chosen Option : **2**

**Q.15** The average of $2, 5, 7, 9$ and $x$ is 9 and the average of $3, 6, 8, 9$ and $y$ is 8. Then the value of $x + y$ is:

**Ans**
✗ 1. 22
✓ 2. 36
✗ 3. 14
✗ 4. 28

Question ID : **8401605339**
Status : **Answered**
Chosen Option : **2**

**Q.16 A business man deposited an amount of ₹10,00,000 at 10% interest compounded half-yearly. After one year, he wishes to withdraw the amount. The interest earned is:**

**Ans**
✗ 1. ₹1,02,050
✗ 2. ₹1,05,200
✓ 3. ₹1,02,500
✗ 4. ₹1,05,020

Question ID : **8401605338**
Status : **Answered**
Chosen Option : **3**

**Q.17** The total surface area of a right circular cone of slant height 17 cm is 138 $\pi$ $cm^2$. Find the height (in cm).

**Ans**
✗ 1. 16.4
✓ 2. 15.9
✗ 3. 16.8
✗ 4. 17.5

Question ID : **8401605353**
Status : **Answered**
Chosen Option : **1**

**Q.18** **A company sells laptops at a price 10% higher than the original price. As there is demand, it raises the cost again by 20%. The percentage of profit is:**

**Ans**
✗ 1. 25%
✗ 2. 30%
✗ 3. 35%
✓ 4. 32%

Question ID : **8401605329**
Status : **Answered**
Chosen Option : **4**

**Q.19** **In a class of 24 students, the average weight of 18 boys is 28 and the average weight of boys and girls is 29. The average weight of the girls is:**

**Ans**
✗ 1. 28
✗ 2. 34
✓ 3. 32
✗ 4. 36

Question ID : **8401605326**
Status : **Answered**
Chosen Option : **3**

**Q.20** **If the ratio of two numbers is 4:5 and their LCM is 220, then the second number is:**

**Ans**
✗ 1. 60
✗ 2. 40
✗ 3. 50
✓ 4. 55

Question ID : **8401605334**
Status : **Answered**
Chosen Option : **1**

**Q.21** If the numerator of a fraction is increased by 15% and the denominator is decreased by 7%, then the value of the original fraction becomes $\frac{5}{3}$. The original fraction is:

**Ans**

✔ 1. $\frac{31}{23}$

✘ 2. $\frac{23}{31}$

✘ 3. $\frac{30}{23}$

✘ 4. $\frac{27}{23}$

Question ID : **8401605328**
Status : **Answered**
Chosen Option : **2**

**Q.22** **Two boxes have chocolates in the ratio 7 : 5. If the difference in the number of chocolates is 28, then the number of chocolates in the bigger box is:**

**Ans**

✔ 1. 98

✘ 2. 68

✘ 3. 78

✘ 4. 56

Question ID : **8401605348**
Status : **Answered**
Chosen Option : **1**

**Q.23** **A, B and C can do a piece of work in 20, 30 and 60 days, respectively. In how many days can A do the work if he is assisted by B and C on every third day?**

**Ans**

✘ 1. 14

✘ 2. 13

✔ 3. 15

✘ 4. 12

Question ID : **8401605343**
Status : **Answered**
Chosen Option : **4**

**Q.24** **The cost of two tables and three chairs is ₹540 while that of two tables and one chair is ₹470. What is the cost of five chairs?**

**Ans**

✘ 1. ₹195

✔ 2. ₹175

✘ 3. ₹185

✘ 4. ₹165

Question ID : **8401605349**
Status : **Answered**
Chosen Option : **2**

**Q.25** The difference between the outside and inside surface of a 15 cm long cylindrical metallic pipe is 330 $\pi$ $cm^2$. If the pipe is made of 7260 $cm^3$ of metal, find the outer radius of the pipe (in cm).

**Ans**
✗ 1. 13.5
✓ 2. 12.5
✗ 3. 12
✗ 4. 13

Question ID : **8401605354**
Status : **Answered**
Chosen Option : **1**

**Q.26** **In how many different ways can the letters of the word ABSENTEE be arranged?**

**Ans**
✗ 1. 6270
✗ 2. 7260
✓ 3. 6720
✗ 4. 7620

Question ID : **8401605346**
Status : **Answered**
Chosen Option : **4**

**Q.27** **A man deposited a certain amount in the bank for 10 years, after which the amount is doubled. The rate of interest is:**

**Ans**
✗ 1. 15%
✓ 2. 10%
✗ 3. 5%
✗ 4. 20%

Question ID : **8401605336**
Status : **Answered**
Chosen Option : **1**

**Q.28** **Four bells ring together and then ring at intervals of 3 seconds, 4 seconds, 6 seconds and 7 seconds, respectively. After what interval (in seconds) will the bells again ring together?**

**Ans**
✗ 1. 126
✓ 2. 84
✗ 3. 63
✗ 4. 42

Question ID : **8401605325**
Status : **Answered**
Chosen Option : **2**

**Q.29** **A manufacturer marked the selling price of certain products at 20% above the cost price. At the time of selling, he allows a certain discount and incurs 1% loss. What is the percentage of discount allowed?**

**Ans**
✗ 1. 17%
✗ 2. 16%
✗ 3. 16.5%
✓ 4. 17.5%

Question ID : **8401605333**
Status : **Answered**
Chosen Option : **3**

**Q.30** Find the roots of $\frac{6}{x} - \frac{2}{x-1} - \frac{1}{x-2} = 0$.

**Ans**
✓ 1. 3, 4/3
✗ 2. 4, 4/3
✗ 3. 4, 3/4
✗ 4. 3, 3/4

Question ID : **8401605352**
Status : **Answered**
Chosen Option : **1**

**Q.31** **A 326 m long train is running at a speed of 64 km/h. In how much time (in seconds) will it cross a 274 m long train moving at a speed of 80 km/h in the opposite direction?**

**Ans**
✗ 1. 10
✗ 2. 12
✗ 3. 18
✓ 4. 15

Question ID : **8401605357**
Status : **Answered**
Chosen Option : **3**

**Q.32** **A shopkeeper weighs 900 g instead of 1 kg. By selling 5 kg sugar at the cost of ₹18 per kg, his profit earned is:**

**Ans**
✗ 1. 7
✓ 2. 9
✗ 3. 5
✗ 4. 6

Question ID : **8401605332**
Status : **Answered**
Chosen Option : **2**

**Q.33** **In how many different ways can the letters of the word POLICE be arranged so that the vowels always come together?**

**Ans**
✗ 1. 184
✗ 2. 88
✗ 3. 96
✓ 4. 144

Question ID : **8401605347**
Status : **Answered**
Chosen Option : **3**

**Q.34** Find the ratio of average marks obtained by Ramesh and Mahesh from the given table.

| Student Name | English | Maths | Science |
|---|---|---|---|
| Ramesh | 63 | 65 | 55 |
| Suresh | 45 | 66 | 58 |
| Mahesh | 62 | 54 | 67 |
| Ganesh | 49 | 98 | 73 |

**Ans**
✗ 1. 1 : 2
✓ 2. 1 : 1
✗ 3. 3 : 2
✗ 4. 2 : 1

Question ID : **8401605344**
Status : **Answered**
Chosen Option : **2**

Section : **Intellectual Potential Test**

**Q.1** **Six friends Nimit, Kaira, Ishir, Adya, Tashi and Ramona are sitting in a park. Adya is not younger than Kaira. Ishir is not older than Tashi. Ramona is older than Adya. Kaira and Tashi are of same age. Nimit is not younger than Ishir. Study the above information and choose the option that is definitely incorrect.**

**Ans**
✗ 1. Ramona is older than Kaira
✗ 2. Adya is not younger than Kaira
✗ 3. Nimit is not older than Tashi
✓ 4. Kaira is younger than Ishir

Question ID : **8401605368**
Status : **Answered**
Chosen Option : **4**

**Q.2** **Three of the four group of letters are alike in a certain way, except one. Choose the odd one out.**

**Ans**
- ✔ 1. TPXJ
- ✘ 2. ZVEP
- ✘ 3. SOXI
- ✘ 4. UQZK

Question ID : **8401605374**
Status : **Answered**
Chosen Option : **1**

**Q.3** **Which number will come next in the series?**

**149, 294, 580, 1148, 2280, ?**

**Ans**
- ✔ 1. 4540
- ✘ 2. 4683
- ✘ 3. 4437
- ✘ 4. 4295

Question ID : **8401605386**
Status : **Answered**
Chosen Option : **1**

**Q.4** **In a certain code 'LOVED' is coded as 'FSPIX' then how will 'SHADE' be coded in that language?**

**Ans**
- ✘ 1. MNUJY
- ✘ 2. ONWJA
- ✘ 3. OLWHA
- ✔ 4. MLUHY

Question ID : **8401605375**
Status : **Answered**
Chosen Option : **4**

**Q.5** **Choose the pair which is odd from the following options.**

**Ans**
- ✘ 1. Minuscule : Astronomical
- ✘ 2. Crucial : Trivial
- ✔ 3. Clever : Apathetic
- ✘ 4. Imminent : Remote

Question ID : **8401605384**
Status : **Answered**
Chosen Option : **3**

**Q.6** **Three people Abhimanyu, Mrinal and Vivran are standing at three different points. The distance between Mrinal and Abhimanyu is two-third of distance between Vivran and Mrinal. Mrinal lives ninety-five m away from Vivran. What is the approximate distance (rounded up to two decimal places) between Mrinal and Abhimanyu?**

**Ans**
✗ 1. 35.57 m
✓ 2. 63.33 m
✗ 3. 31.66 m
✗ 4. 65.14 m

Question ID : **8401605387**
Status : **Answered**
Chosen Option : **3**

**Q.7** **Select the option that will come in the place of question mark in the following word cluster series.**

**XCT, QKP, JSL, CAH, VID, ?**

**Ans**
✗ 1. NQZ
✗ 2. OPY
✗ 3. NPY
✓ 4. OQZ

Question ID : **8401605370**
Status : **Answered**
Chosen Option : **2**

**Q.8** **Two friends Daniel and Noah started walking from the same point. Noah started walking towards east and after 25m turns right and walks 10m. He then again turns right and walks 5m. Next he turns left and walks 10 m. Meanwhile Daniel started walking towards north and after 10m he turns left and walks 6m. He now turns left again, walks another 5m and then turns right and walks 4m. Now he turns left and walks 11m. At last he again turns left and walks 4m. What is the direction of Daniel and Noah with respect to the starting point respectively?**

**Ans**
✓ 1. South-west, South-east
✗ 2. North-west, North-east
✗ 3. North-east, North-west
✗ 4. South-east, South-west

Question ID : **8401605379**
Status : **Answered**
Chosen Option : **1**

**Q.9** **Khyati is Prachi's daughter. Rudra is Saksham's son-in-law. Akshara is Mukta's mother and Prachi is married to Saksham. Rudra is Namit's father and Khyati is Abir's sister. Saksham is Mukta's paternal grandfather. If Prachi has only 2 children, then how is Mukta related to Namit?**

**Ans**
✗ 1. Mother
✗ 2. Paternal aunt
✗ 3. Maternal aunt
✓ 4. Cousin

Question ID : **8401605381**
Status : **Answered**
Chosen Option : **4**

**Q.10** **If the positions of digit '1' is interchanged with the positions of digit '3', the positions of sign '÷' is interchanged with the positions of sign '+' and the positions of digit '7' is interchanged with the positions of digit '2' then what is the value of the given expression?**

**75 x 1 ÷ 625 + 9 – 367 ÷ 29**

**Ans**
✗ 1. 91
✓ 2. 67
✗ 3. 127
✗ 4. 73

Question ID : **8401605389**
Status : **Answered**
Chosen Option : **3**

**Q.11** **Six friends Tarun, Vibhor, Avneet, Prabha, Rohan and Diya are sitting in a row facing towards North. Tarun is towards left of Vibhor. Prabha is second to the left of Diya. Diya is sitting between Tarun and Vibhor. Avneet is not at the right end. Rohan is sitting at immediate right of Vibhor. Which of the following is sitting to the left of Prabha?**

**Ans**
✓ 1. Avneet
✗ 2. Vibhor
✗ 3. Tarun
✗ 4. Diya

Question ID : **8401605358**
Status : **Answered**
Chosen Option : **1**

**Q.12** **If letters in the word 'EXPERIENCE' are rearranged in the alphabetical order, then how many letters are there which are in the same place as in the original sequence of the word?**

**Ans**
✗ 1. 3
✗ 2. 1
✓ 3. 2
✗ 4. 4

Question ID : **8401605372**
Status : **Answered**
Chosen Option : **2**

**Q.13** **Six friends Anay, Izaan, Shray, Divit, Ryan and Prisha sat for a test. Ryan scored more than Izaan who didn't scored less than Anay. Divit scored less than Prisha. Shray scored more than Anay. Prisha didn't score more than Ryan. Study the above information and choose the option that is definitely incorrect.**

**Ans**
✓ 1. Divit didn't score less than Ryan.
✗ 2. Ryan scored more than Anay.
✗ 3. Ryan didn't score less than Prisha.
✗ 4. Shray scored more than Izaan.

Question ID : **8401605367**
Status : **Answered**
Chosen Option : **4**

**Q.14** Study the following arrangement of letters and answer the question that follows:

M L A E X Z A O Y U K N W E I Q G U

How many vowels are there in these arrangements which are placed before a consonant?

Ans
- ✗ 1. 5
- ✗ 2. 6
- ✓ 3. 4
- ✗ 4. 3

Question ID : **8401605373**
Status : **Answered**
Chosen Option : **4**

**Q.15** Select the option that is related to the third alphanumeric cluster in the same way as the second alphanumeric cluster is related to the first alphanumeric cluster.

RV7 : VO28 :: FK13 : ?

Ans
- ✗ 1. ID65
- ✗ 2. IC65
- ✗ 3. JC52
- ✓ 4. JD52

Question ID : **8401605383**
Status : **Answered**
Chosen Option : **1**

**Q.16** Eight person Ava, Jade, Jacob, Stella, Elias, Sofia, Austin and Luke live on eight different floors in a building. The floors are numbered from bottom as first, second and so on till eighth. Only Ava lives onthe floor between Luke and Sofia. Austin lives exactly two floors below Elias. No one lives above Jacob who lives five floors above Jade. Stella lives on the floor immediately below Austin. Sofia lives on some floor above Luke. Who lives two floors above Jade?

Ans
- ✗ 1. Stella
- ✓ 2. Luke
- ✗ 3. Elias
- ✗ 4. Austin

Question ID : **8401605363**
Status : **Answered**
Chosen Option : **4**

**Q.17** Tarani is mother of Niyati. Lekha is maternal grandmother of Vihaan. Vamika is wife of Arnav. Ishir is son-in-law of Lekha. Niyati is sister of Vihaan. Arnav is father-in-law of Tarani. If Lekha has only one child how is Vihaan related to Vamika?

Ans
- ✗ 1. Nephew
- ✗ 2. Maternal grandson
- ✓ 3. Paternal grandson
- ✗ 4. Son

Question ID : **8401605380**
Status : **Answered**
Chosen Option : **2**

**Q.18** **Select the option that will come in the place of question mark in the following word cluster series.**

**VMF, SIO, PEX, MAG, JWP, ?**

**Ans**
✗ 1. FTY
✗ 2. GTX
✓ 3. GSY
✗ 4. FSX

Question ID : **8401605371**
Status : **Answered**
Chosen Option : **3**

**Q.19** **In a certain code 1, 5, 3, 7, 8, 4 and 6 are coded as K, W, Z, O, D, X and L respectively.**

**If the last two digits of the number cluster are odd, then the first and last letter to be coded as G.**

**If the first two digits of the number cluster are even, then the first and last letter to be coded as B.**

**How will '654137' be coded in that language?**

**Ans**
✗ 1. LZDKWO
✗ 2. LWXKZO
✓ 3. GWXKZG
✗ 4. BWDKZB

Question ID : **8401605377**
Status : **Answered**
Chosen Option : **3**

**Q.20** Study the following table and answer the questions.

| Students Name | Marks | | |
|---|---|---|---|
| | Sem I | Sem II | Sem III |
| Aria | 88 | 87 | 77 |
| Lyla | 70 | 93 | 89 |
| Esme | 86 | 59 | 67 |
| Ohana | 85 | 82 | 73 |

By what percentage (rounded up to two decimal places) the total marks in the three semesters of Aria are more than the total marks of Esme?

**Ans**
✓ 1. 18.87%
✗ 2. 11.50%
✗ 3. 15.60%
✗ 4. 10.62%

Question ID : **8401605391**
Status : **Answered**
Chosen Option : **2**

**Q.21** **Six people Namya, Aria, Samidha, Shay, Piya and Yara are standing in a line. Aria is taller than Shay who is not taller than Namya. Yara is shorter than Samidha. Piya is shorter than Aria. Yara is of same height as Namya. Study the above information and choose the option that is definitely incorrect.**

**Ans**
✗ 1. Yara is not shorter than Shay
✗ 2. Aria is taller than Piya.
✗ 3. Samidha is taller than Namya.
✓ 4. Shay is taller than Samidha.

Question ID : **8401605366**
Status : **Answered**
Chosen Option : **3**

**Q.22** **Select the option that will come in the place of question mark in the following series.**

**W 57, U 62, R 72, N 87, I 107 ,?**

**Ans**
✓ 1. C 132
✗ 2. B 127
✗ 3. C 127
✗ 4. B 132

Question ID : **8401605369**
Status : **Answered**
Chosen Option : **1**

**Q.23** **Read the given statements and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statements.**

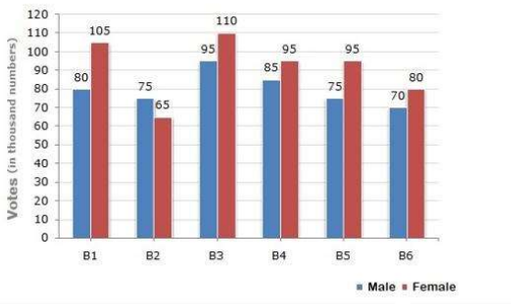
**Statements:**
**1. All boots are loafers.**
**2. Some boots are heels.**

**Conclusions:**
**I- Some loafers are heels.**
**II- All heels are loafers.**

**Ans**
✗ 1. Both conclusions I and II follows
✗ 2. Only conclusion II follows
✗ 3. Neither of the conclusions follows
✓ 4. Only conclusion I follows

Question ID : **8401605364**
Status : **Answered**
Chosen Option : **1**

**Q.24** The number of male and female who voted in different booths namely B1, B2, B3, B4, B5 and B6 is shown in the following graph. Study the graph and answer the question.




What percent of total male voters voted in booth 4 (rounded up to two decimal places) and what is the ratio of number of female voters who voted in booth 2 and booth 5 respectively?

**Ans**
✗ 1. 15.62 %, 13 : 16
✗ 2. 17.71 %, 19 : 13
✗ 3. 15.62 %, 19 : 16
✓ 4. 17.71 %, 13 : 19

Question ID : **8401605390**
Status : **Answered**
Chosen Option : **3**

**Q.25** **If 17th of a month falls on Friday, then what will be the day, 2 days after 2nd of the month?**

**Ans**
✗ 1. Thursday
✗ 2. Friday
✓ 3. Saturday
✗ 4. Tuesday

Question ID : **8401605360**
Status : **Answered**
Chosen Option : **4**

**Q.26** **Adhir started walking 17 m towards the West, then turned left and walks 20 m. He again turned left to walk 17 m. He yet again turns left and walks 15 m then turns right and walks 5 m. In which direction is he standing with respect to the starting point?**

**Ans**
✓ 1. South- east
✗ 2. North-west
✗ 3. South-west
✗ 4. North- east

Question ID : **8401605378**
Status : **Answered**
Chosen Option : **1**

**Q.27** **Which number will come next in the series?**

**523, 532, 544, 565, 613, ?**

**Ans**
✗ 1. 717
✓ 2. 742
✗ 3. 673
✗ 4. 695

Question ID : **8401605385**
Status : **Answered**
Chosen Option : **3**

**Q.28** **If the digits given below are arranged in ascending order, then what is the sum of the number fourth from the right and third from the left?**

**45, 92, 37, 81, 55, 29, 13, 68, 74, 56**

**Ans**
✗ 1. 111
✗ 2. 103
✗ 3. 101
✓ 4. 105

Question ID : **8401605388**
Status : **Answered**
Chosen Option : **2**

**Q.29** **Eight friends Zoya, Jivin, Liya, Shyla, Manav, Parv, Shaanu and Navi are sitting around a circular table facing the centre, not necessarily in the same order. Liya is not immediate neighbour of Shaanu. Jivin is third to the left of Manav. Shaanu is second to the left of Parv. Zoya is not an immediate neighbour of either Manav or Jivin. Shaanu is to the immediate left of Zoya. Navi is third to the right of Zoya. Who is sitting second to the left of Navi?**

**Ans**
✗ 1. Manav
✓ 2. Parv
✗ 3. Jivin
✗ 4. Shyl

Question ID : **8401605359**
Status : **Answered**
Chosen Option : **1**

**Q.30** **Six boxes Box C, Box Q, Box P, Box M, Box T and Box L are kept one over the other not necessarily in the same order. Box P is two places above of Box T. There are two boxes between Box Q and Box C. No Box is above Box L. Box Q is third from the top. Which box is two places above Box M?**

**Ans**
✗ 1. Box M
✗ 2. Box C
✗ 3. Box T
✓ 4. Box Q

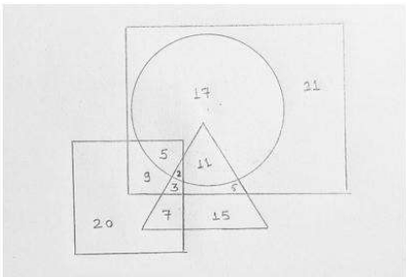
Question ID : **8401605362**
Status : **Answered**
Chosen Option : **3**

**Q.31** **Bhavin is ranked 7th from the top and Saira is ranked 6th from the bottom in an exam. In the next exam their position got exchanged and Saira was ranked 15th from the bottom. How many students in total gave the exams?**

**Ans**
- ✔ 1. 21 students
- ✘ 2. 23 students
- ✘ 3. 20 students
- ✘ 4. 22 students

Question ID : **8401605361**
Status : **Answered**
Chosen Option : **1**

**Q.32** In the following Venn diagram rectangle represents top wear, circle represents items with woollen clothes, triangle represents plaid design and square represents grey coloured items. Select the option which represents the number of grey woollen top wears.




**Ans**
- ✔ 1. 5
- ✘ 2. 9
- ✘ 3. 2
- ✘ 4. 3

Question ID : **8401605365**
Status : **Answered**
Chosen Option : **3**

**Q.33** **Which number will come next in the series?**

**217, 223, 235, 253, 277, ?**

**Ans**
- ✘ 1. 303
- ✘ 2. 298
- ✔ 3. 307
- ✘ 4. 294

Question ID : **8401605382**
Status : **Answered**
Chosen Option : **3**

**Q.34** **In a certain code 'WIDEN' is coded as 'BBIXS' then how will 'PAGER' be coded in that language?**

**Ans**
✗ 1. VSMWX
✗ 2. VTMXX
✓ 3. UTLXW
✗ 4. USLWW

Question ID : **8401605376**
Status : **Answered**
Chosen Option : **3**

Section : **Domain Knowledge**

**Q.1** **What will be the RMS value of output voltage in a single-phase half bridge and full bridge inverters with resistance load, if DC voltage of 10V is applied as input?**

**Ans**
✓ 1. 5V and 10V, respectively
✗ 2. 5V and 7.07V, respectively
✗ 3. 7.07V and 10V, respectively
✗ 4. 7.07V and 14.142V, respectively

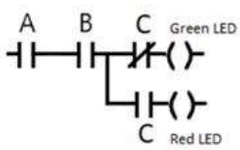
Question ID : **8401605607**
Status : **Answered**
Chosen Option : **3**

**Q.2** **Which of the following statement is FALSE with respect to flipflops?**

**Ans**
✓ 1. In MS-JK flip-flop, the master and slave are triggered by the same state of clock pulse.
✗ 2. Flipflops are the basic building blocks of memory.
✗ 3. D flip-flops are used in registers.
✗ 4. T flip-flop can be realised by using JK flip-flop.

Question ID : **8401605575**
Status : **Answered**
Chosen Option : **4**

**Q.3** With respect to the following Ladder diagram, which of the following statement is true?




**Ans**
✗ 1. If A, C are pressed, then the red LED goes ON;
If B is presses and C is not Presses, then the Green LED
✗ 2. If A, B are pressed, the red LED goes ON;
If A, B and C are pressed, the green LED goes ON.
✓ 3. If A, B, and C are pressed, then the red LED goes ON;
If A and B are pressed, then the green LED goes ON.
✗ 4. If C is pressed then the red LED goes ON;
If A and B are pressed, then the green LED goes ON.

Question ID : **8401605612**
Status : **Answered**
Chosen Option : **3**

**Q.4** **With respect to LVDT, which of the following statement is NOT true?**

**Ans**
✗ 1. The change in output voltage is stepless.
✗ 2. It has low hysteresis.
✗ 3. It has no sliding contact.
✓ 4. It Possesses low sensitivity.

Question ID : **8401605580**
Status : **Answered**
Chosen Option : **1**

**Q.5** **With respect to reliability of the system, the ratio of total number of operational hours to total number of assets in use is called _____.**

**Ans**
✗ 1. MTTA (Mean Time to Acknowledge)
✗ 2. MTBF (Mean Time Between Failure)
✗ 3. MTTR (Mean Time to Recovery, Repair, Respond, or Resolve)
✓ 4. MTTF (Mean Time to Failure)

Question ID : **8401605620**
Status : **Answered**
Chosen Option : **1**

**Q.6** **Identify whether the given statements with reference to PID Controller advantages are true or false.**

**X: In PID Controller, Quicker response time because of the P-only control**
**Y: In PID Controller, Offset was removed by using the I-control.**

**Ans**
✗ 1. X is true and Y is false
✓ 2. Both X and Y are true
✗ 3. Both X and Y are false
✗ 4. X is false and Y is true

Question ID : **8401605588**
Status : **Answered**
Chosen Option : **2**

**Q.7** **Which level of SCADA architecture contains different types of programming devices such as PLC(Programmable Logic Controller) and RTU(Remote Terminal Unit)?**

**Ans**
✗ 1. Level-0
✓ 2. Level-1
✗ 3. Level-2
✗ 4. Level-3

Question ID : **8401605613**
Status : **Answered**
Chosen Option : **4**

**Q.8** **In microprocessors, all subroutines will end with _____ instruction.**

**Ans**
- ✗ 1. END
- ✓ 2. RET
- ✗ 3. JMP
- ✗ 4. CALL

Question ID : **8401605597**
Status : **Answered**
Chosen Option : **1**

**Q.9** **Pneumatic systems are composed of:**

**Ans**
- ✗ 1. transmitters, receiver, valves and actuators
- ✓ 2. compressor, receiver, valves and actuators
- ✗ 3. receiver, valves, transmitters and amplifiers
- ✗ 4. cylinders, receiver, valves and amplifiers

Question ID : **8401605596**
Status : **Answered**
Chosen Option : **2**

**Q.10** **The output of LVDT is connected to a 5V voltmeter through an amplifier whose amplification factor is 200. If an output of 2mV across the terminals of LVDT is obtained when the core moves through a distance of 0.4mm, then the sensitivity of LVDT and sensitivity of instrument will be _____ and _____, respectively.**

**Ans**
- ✗ 1. 1V/mm, 4mV/mm
- ✗ 2. 5mV/mm, 5V/mm
- ✓ 3. 5mV/mm, 1V/mm
- ✗ 4. 0.8V/mm, 4mV/mm

Question ID : **8401605582**
Status : **Answered**
Chosen Option : **4**

**Q.11** **Hydraulic and pneumatic devices can be used to measure:**

**Ans**
- ✗ 1. strain
- ✗ 2. light
- ✗ 3. temperature
- ✓ 4. pressure

Question ID : **8401605591**
Status : **Answered**
Chosen Option : **4**

**Q.12** **In a PLC ladder diagram, if two normally closed sets are in series, then the equivalent gate is:**

**Ans**
- ✗ 1. OR
- ✗ 2. NAND
- ✗ 3. AND
- ✓ 4. NOR

Question ID : **8401605610**
Status : **Answered**
Chosen Option : **3**

**Q.13** **With respect to 8253/8254 timer operational modes, Mode-3 and Mode-5 operations are _____ and _____ respectively.**

**Ans**
- ✗ 1. rate generator, software triggering
- ✗ 2. hardware triggering, programmable one shot
- ✓ 3. square wave generator, hardware triggering
- ✗ 4. rate generator, hardware triggering

Question ID : **8401605602**
Status : **Answered**
Chosen Option : **3**

**Q.14** **Which of the following is NOT a pressure measuring device?**

**Ans**
- ✓ 1. Tachometer
- ✗ 2. Diaphragm
- ✗ 3. Manometer
- ✗ 4. Barometer

Question ID : **8401605579**
Status : **Answered**
Chosen Option : **1**

**Q.15** **The main objectives of project management are:**

**Ans**
- ✗ 1. scope, risk, time and cost
- ✗ 2. aim, leader, durability and reliability
- ✗ 3. scope, performance, specificity and risk
- ✓ 4. scope, performance, time and cost

Question ID : **8401605639**
Status : **Answered**
Chosen Option : **4**

**Q.16 With respect to signal generators BFO stands for:**

**Ans**
✗ 1. Beam Frequency Oscillator
✓ 2. Beat Frequency Oscillator
✗ 3. Band Frequency Oscillator
✗ 4. Best Frequency Oscillator

Question ID : **8401605565**
Status : **Answered**
Chosen Option : **3**

**Q.17 The topmost layer of IoT architecture is:**

**Ans**
✗ 1. sensor connectivity layer
✗ 2. gateway and network layer
✓ 3. application layer
✗ 4. data processing layer

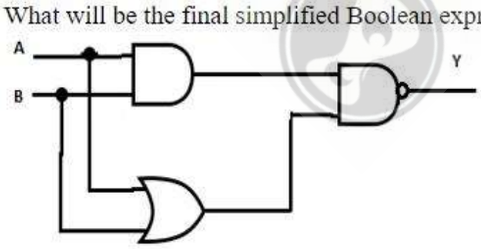
Question ID : **8401605640**
Status : **Answered**
Chosen Option : **3**

**Q.18 During context switching, the main program information will be saved in _____.**

**Ans**
✗ 1. code memory segment
✗ 2. data memory segment
✗ 3. extra memory segment
✓ 4. stack memory segment

Question ID : **8401605598**
Status : **Answered**
Chosen Option : **4**

**Q.19** What will be the final simplified Boolean expression for the following logic circuit?




**Ans**
✗ 1. A+B
✗ 2. AB
✗ 3. A'B'
✓ 4. A'+B'

Question ID : **8401605576**
Status : **Answered**
Chosen Option : **4**

**Q.20** **In a step-up chopper, if an input voltage of 10V is applied to the chopper, which is operating in equal intervals for on and off, then the average output voltage will be _____.**

**Ans**
✗ 1. 10.5V
✗ 2. 20.5V
✓ 3. 20V
✗ 4. 15V

Question ID : **8401605571**
Status : **Answered**
Chosen Option : **3**

**Q.21** **A consumer uses an 8 KW geyser and five 100W bulbs for 2hours. How many units of electrical energy were used?**

**Ans**
✗ 1. 18 KWh
✗ 2. 26 KWh
✓ 3. 17 KWh
✗ 4. 16.2 KWh

Question ID : **8401605566**
Status : **Answered**
Chosen Option : **1**

**Q.22** The simplified product of sum for the following Boolean expression: f(A, B, C) = π(0,2,5,7) is:

**Ans**
✗ 1. (A+B)(A'+B')
✗ 2. (A'+C)(A+C')
✓ 3. (A+C)(A'+C')
✗ 4. (A'+B)(A+B')

Question ID : **8401605573**
Status : **Answered**
Chosen Option : **3**

**Q.23** **In IOT, Message Queue Telemetry Transport (MQTT) is a/an:**

**Ans**
✗ 1. advanced message queuing protocol
✗ 2. open standard messaging protocol
✓ 3. light weight publish/subscribe-based messaging protocol
✗ 4. extensible messaging and presence protocol

Question ID : **8401605642**
Status : **Answered**
Chosen Option : **3**

**Q.24** **Which of the following option is FALSE with respect to the advantages of multilayer PCB?**

**Ans**
✗ 1. Reduced board size and weight
✗ 2. Capability to implement multiple functions
✗ 3. High level of density and flexibility
✓ 4. Easy in testing

Question ID : **8401605621**
Status : **Answered**
Chosen Option : **3**

**Q.25** **Which of the following statement is NOT true with respect to Distributed Control System (DCS) and PLC?**

**Ans**
✗ 1. Scalability is higher in DCS than PLC.
✗ 2. DCS is the better when the process is complex.
✓ 3. PLCs are better when the process requires frequent adjustments.
✗ 4. The response time of PLC is faster than that of DCS.

Question ID : **8401605636**
Status : **Answered**
Chosen Option : **1**

**Q.26** **With respect to process control, sequential control is:**

**Ans**
✗ 1. a stochastic process
✗ 2. a continuous monitoring process
✓ 3. an event-based process
✗ 4. open loop process

Question ID : **8401605628**
Status : **Answered**
Chosen Option : **1**

**Q.27** **Identify whether the given statements are true or false, if the process controller is set to the automatic control of an output variable.**

**P: It senses the amplitude of the output parameter from the process and compares it to the desired or set level.**
**Q: It feeds an error signal back to control an input signal.**

**Ans**
✓ 1. P and Q are true
✗ 2. P is true and Q is false
✗ 3. P is false and Q is true
✗ 4. P and Q are false

Question ID : **8401605592**
Status : **Answered**
Chosen Option : **1**

**Q.28 The standard analog signal for industrial process instruments is:**

**Ans**
✗ 1. 0 to 10 volts
✗ 2. 0 to 5A AC
✗ 3. 0 to 50 mA DC
✓ 4. 4 to 20 mA DC

Question ID : **8401605590**
Status : **Answered**
Chosen Option : **4**

**Q.29** In turbine flow meter, if $T_k$ is the time constant in minutes, f is the frequency in Hz and Q is the volumetric flow rate in gpm (gallon per minute) then pulses per volume unit K will be given by:

**Ans**
✗ 1. $K = T_k f Q$
✗ 2. $K = (Q f)/ T_k$
✓ 3. $K = (T_k f)/ Q$
✗ 4. $K = (T_k Q)/ f$

Question ID : **8401605578**
Status : **Answered**
Chosen Option : **1**

**Q.30 The wavelength range of UV Spectroscopy is _____.**

**Ans**
✓ 1. 200nm-400nm
✗ 2. $2 - 20\ \mu m$
✗ 3. 700nm-1000nm
✗ 4. 400nm-700nm

Question ID : **8401605614**
Status : **Answered**
Chosen Option : **1**

**Q.31 The elapse time between, the instant an error occurs and when the corrective action first occurs is called:**

**Ans**
✗ 1. set point
✗ 2. error
✗ 3. dead band
✓ 4. dead time

Question ID : **8401605629**
Status : **Answered**
Chosen Option : **4**

**Q.32** **In machine learning performance measurement, which of the following statement is true with respect to the given model data, TP=70, TN=40, FP=6 and FN=4?**

**Ans**

✗ 1. In total 120 test cases, the above model classifies “Yes” 70 times and “No” 50 times.

✗ 2. In total 120 test cases, the above model classifies “Yes” 80 times and “No” 40 times.

✗ 3. In total 120 test cases, the above model classifies “Yes” 74 times and “No” 46 times.

✓ 4. In total 120 test cases, the above model classifies “Yes” 76 times and “No” 44 times.

Question ID : **8401605646**
Status : **Answered**
Chosen Option : **1**

**Q.33** **In dual slope digital voltmeter, the analog input voltage is connected to the _____ block.**

**Ans**

✓ 1. integrator

✗ 2. comparator

✗ 3. zero detector

✗ 4. ramp generator

Question ID : **8401605562**
Status : **Answered**
Chosen Option : **2**

**Q.34** **Mass-Sensitive Sensors work on the principle of _____.**

**Ans**

✗ 1. photoelectric effect

✓ 2. Piezoelectric effect

✗ 3. Hall effect

✗ 4. Seebeck effect

Question ID : **8401605617**
Status : **Answered**
Chosen Option : **2**

**Q.35** **_____ is a device which converts mechanical energy from a prime mover (electric) into hydraulic (pressure) energy**

**Ans**

✗ 1. Actuator

✗ 2. Pipe

✓ 3. Hydraulic pump

✗ 4. Accumulator

Question ID : **8401605594**
Status : **Answered**
Chosen Option : **3**

**Q.36 Which of the following circuit is an example of a DC-to-DC converter?**

**Ans**
✗ 1. Cycloconverter
✗ 2. Rectifier
✓ 3. Chopper
✗ 4. Inverter

Question ID : **8401605568**
Status : **Answered**
Chosen Option : **2**

**Q.37 The minimum current flowing through the SCR at the time of turn on is called _____.**

**Ans**
✓ 1. latching current
✗ 2. holding current
✗ 3. reverse leakage current
✗ 4. forward leakage current

Question ID : **8401605603**
Status : **Answered**
Chosen Option : **1**

**Q.38 With respect to the advantages of electromagnetic flow meter, which of the following statement is NOT true?**

**Ans**
✓ 1. The output voltage is non linearly rated to the input (flow rate).
✗ 2. There is no obstruction to the flow, that may cause pressure drop.
✗ 3. These meters may be manufactured to measure flow in pipes of any size provided a powerful magnetic field can be produced.
✗ 4. The output is unaffected by changes in characteristics of liquid such as viscosity, pressure and temperature.

Question ID : **8401605581**
Status : **Answered**
Chosen Option : **4**

**Q.39 Identify whether the given statements with respect to chemical sensors are true or false.**

**P: Coulometric sensors are the thermometric sensors.**
**Q: Taguchi sensors are gas sensors.**

**Ans**
✗ 1. P and Q are false
✓ 2. P is false and Q is true
✗ 3. P and Q are true
✗ 4. P is true and Q is false

Question ID : **8401605618**
Status : **Answered**
Chosen Option : **2**

**Q.40** **With reference to advantages of logic families which of the following option is true?**

**Ans**
✔ 1. CMOS: Low power consumption
ECL: Fastest

✘ 2. CMOS: Low power consumption
TTL: Fastest

✘ 3. ECL: Low power consumption
TTL: Fastest

✘ 4. ECL: Low power consumption
CMOS: Fastest

Question ID : **8401605574**
Status : **Answered**
Chosen Option : **2**

**Q.41** **With respect to Distribution Control System, Level-2 operation belongs to _____.**

**Ans**
✔ 1. plant supervisory

✘ 2. direct control

✘ 3. production control

✘ 4. field level

Question ID : **8401605608**
Status : **Answered**
Chosen Option : **3**

**Q.42** **A system could have been operational for 100 hours over the course of the month. That system failed 4 times during the course. It takes 10min for repairing the system each time to bring the system to operational condition. The value of mean time between the failure and failure rate is _____and _____, respectively.**

**Ans**
✘ 1. 10 and 0.04

✘ 2. 10 and 0.1

✘ 3. 25 and 0.1

✔ 4. 25 and 0.04

Question ID : **8401605622**
Status : **Answered**
Chosen Option : **4**

**Q.43** **A pressure gauge measures a tire pressure of 30.0 psi. The local atmospheric pressure is 15.0 psi. What is the absolute pressure of the air in the tire?**

**Ans**
✘ 1. 450 psi

✔ 2. 45 psi

✘ 3. 15 psi

✘ 4. 2.0 psi

Question ID : **8401605593**
Status : **Answered**
Chosen Option : **2**

**Q.44** **In a process control loop, which of the following parameter can be used as a desired value as reference?**

**Ans**
✔ 1. Set point
✘ 2. Process variable
✘ 3. Measured variable
✘ 4. Manipulated variable

Question ID : **8401605631**
Status : **Answered**
Chosen Option : **4**

**Q.45** **In 8086 microprocessor, which of the following interrupts has the highest priority?**

**Ans**
✘ 1. Overflow
✘ 2. Divide by zero
✘ 3. Breakpoint
✔ 4. NMI

Question ID : **8401605601**
Status : **Answered**
Chosen Option : **4**

**Q.46** **Out of the seven layer OSI (Open Systems Interconnection) model, HART protocol uses only three layers. The three layers are:**

**Ans**
✘ 1. physical layer, session layer and presentation layer
✘ 2. data link layer, presentation layer and application layer
✔ 3. physical layer, data link layer and application layer
✘ 4. physical layer, transport layer and application layer

Question ID : **8401605634**
Status : **Answered**
Chosen Option : **3**

**Q.47** **Identify whether the given statements with respect to optimisation is true or false.**

**P: Optimisation is the technique, it maximizes or minimises the value of an objective function by systematically choosing values of inputs from a feasible range.**
**Q: Optimisation process allows comparison of the different choices for determining which might be the 'best'.**

**Ans**
✘ 1. P and Q are false
✘ 2. P is false and Q is true
✘ 3. P is true and Q is false
✔ 4. P and Q are true

Question ID : **8401605624**
Status : **Answered**
Chosen Option : **3**

**Q.48 Which of the following device is equivalent to a gas filled triode?**

**Ans**
✔ 1. SCR
✘ 2. UJT
✘ 3. BJT
✘ 4. DIAC

Question ID : **8401605567**
Status : **Answered**
Chosen Option : **4**

**Q.49 What will be the minimum input and regulated output voltage in IC7912?**

**Ans**
✘ 1. −17.7V and −12V
✔ 2. −14.6V and −12V
✘ 3. 17.7V and 12V
✘ 4. 14.6V and 12V

Question ID : **8401605570**
Status : **Answered**
Chosen Option : **3**

**Q.50 Identify whether the given statements with respect to positive and negative feedback are true or false.**

**P: The negative feedback is also called degenerative feedback.**
**Q: Positive feedback provides in phase relationship between input and output.**
**R: Negative feedback overall gain is greater than that of open loop gain.**
**S: Positive feedback provides high sensitivity and stability.**

**Ans**
✘ 1. P, Q, R and S are true
✘ 2. P, Q and S are true, but R is false
✔ 3. P and Q are true, but R and S are false
✘ 4. P is true but Q, R and S are false

Question ID : **8401605589**
Status : **Answered**
Chosen Option : **1**

**Q.51 With respect to advantages of hydraulic systems which of the following statement is FALSE?**

**Ans**
✘ 1. The hydraulic system uses incompressible fluid which results in higher efficiency.
✘ 2. The hydraulic system delivers consistent power output.
✔ 3. The actuator in a hydraulic system can be driven only at the same speed.
✘ 4. The pressure relief valve in a hydraulic system protects the system from overload damage.

Question ID : **8401605595**
Status : **Answered**
Chosen Option : **1**

**Q.52 With respect to engineering and management, ISA is an acronym for:**

**Ans**
✗ 1. International Society for Administration
✗ 2. Indian Standard Association
✗ 3. Indian Society of Auditing
✓ 4. International Society of Automation

Question ID : **8401605637**
Status : **Answered**
Chosen Option : **4**

**Q.53 In Programmable Logic Controllers, PLC cycle time is:**

**Ans**
✗ 1. time to read the interrupt
✗ 2. time to execute the single instruction
✗ 3. time to execute the interrupt
✓ 4. time to run the cyclic code start to finish with interrupt

Question ID : **8401605609**
Status : **Answered**
Chosen Option : **3**

**Q.54 In genetic algorithm, _____ is the value provided to the gene within a particular chromosome.**

**Ans**
✗ 1. population
✗ 2. fitness function
✓ 3. allele
✗ 4. genetic operator

Question ID : **8401605644**
Status : **Answered**
Chosen Option : **3**

**Q.55 HART Protocol makes use of _____ Standard and communicates at a speed of _____.**

**Ans**
✗ 1. FSK, 31.25Kbps
✓ 2. FSK, 1200bps
✗ 3. PSK, 31.25Kbps
✗ 4. PSK, 1200bps

Question ID : **8401605633**
Status : **Answered**
Chosen Option : **2**

**Q.56 With respect to a project life cycle, choose the correct sequence of the operation phases of project.**

**Ans**

✗ 1. Clean up phase, execution phase, concept phase, project document

✗ 2. Idea generation, project planning, project feasibility, project charter

✓ 3. Idea generation, project planning, implementation, termination

✗ 4. Project feasibility, project charter, implementation, termination

Question ID : **8401605638**
Status : **Answered**
Chosen Option : **3**

**Q.57 With respect to microprocessor architectures, EPIC stands for:**

**Ans**

✓ 1. Explicitly Parallel Instruction Computing

✗ 2. Embedded Parallel Instruction Computing

✗ 3. Enhanced Parallel Instruction Computing

✗ 4. Enabling Parallel Instruction Computing

Question ID : **8401605599**
Status : **Answered**
Chosen Option : **1**

**Q.58 With respect to chromatography, HPLC stands for:**

**Ans**

✗ 1. Highly Processed Liquid Chromatography

✗ 2. Hydro Power Liquid Chromatography

✗ 3. High Paramagnetic Liquid Chromatography

✓ 4. High Performance Liquid Chromatography

Question ID : **8401605615**
Status : **Answered**
Chosen Option : **4**

**Q.59 With respect to IOT Protocols Which of the following option is True:**

**P: LoRa is designed for wide-area IoT applications with a base station covering hundreds of square kilometres.**
**Q: XMPP-IoT is a protocol for streaming XML. It provides security, authentication, and information about network availability used for IOT**

**Ans**

✗ 1. P is true and Q is false

✗ 2. P is false and Q is true

✓ 3. P and Q both are true

✗ 4. P and Q both are False

Question ID : **8401605643**
Status : **Answered**
Chosen Option : **3**

**Q.60** The value of poles and zeros of the following transfer function is:

$T= (s-8)/(s(s-2)(s^2+7s+12))$

**Ans**

✗ 1. Poles = –8
Zeros =0,2,–3,–4

✓ 2. Poles = 0,2,–3,–4
Zeros =8

✗ 3. Poles = 8
Zeros =2,3,4

✗ 4. Poles = 2,3,4
Zeros = 8

Question ID : **8401605587**
Status : **Answered**
Chosen Option : **2**

**Q.61** **If G is the open loop gain and H is the gain of feedback path, then the transfer function of positive feedback control system is given by:**

**Ans**

✗ 1. $T=G/GH$

✗ 2. $T=G/(1+GH)$

✗ 3. $T=GH$

✓ 4. $T=G/(1-GH)$

Question ID : **8401605584**
Status : **Answered**
Chosen Option : **4**

**Q.62** **Choose the correct parameters for the output characteristics of Power MOSFET.**

**Ans**

✓ 1. Vary the $V_{DS}$ and measure the $I_D$ under constant $V_{GS}$

✗ 2. Vary the $V_{GS}$ and measure the $I_G$ under constant $I_D$

✗ 3. Vary the $V_{DS}$ and measure the $I_G$ under constant $V_{GS}$

✗ 4. Vary the $V_{GS}$ and measure the $I_D$ under constant $V_{DS}$

Question ID : **8401605569**
Status : **Answered**
Chosen Option : **3**

**Q.63** **Which of the following is an electro chemical sensor?**

**Ans**

✗ 1. BAW sensor

✓ 2. Amperometric sensor

✗ 3. SAW sensor

✗ 4. Pyroelectric sensor

Question ID : **8401605616**
Status : **Answered**
Chosen Option : **2**

**Q.64** **The Laplace transform of parabolic function ($At^2/2$) is:**

**Ans**

✗ 1. $A/S^4$

✓ 2. $A/S^3$

✗ 3. $A/S^2$

✗ 4. $A/S$

Question ID : **8401605586**
Status : **Answered**
Chosen Option : **2**

**Q.65** **Correlation method belongs to which of the following feature extraction method?**

**Ans**

✗ 1. Wrapper method

✗ 2. Embedded method

✓ 3. Filter method

✗ 4. Backward elimination method

Question ID : **8401605635**
Status : **Answered**
Chosen Option : **4**

**Q.66** **In the SCR half wave rectifier with R load, if α is the delay angle then average output voltage is given by:**

**Ans**

✗ 1. $V_{av}=(Vm/\pi)\,(1+\cos\alpha)$

✗ 2. $V_{av}=(Vm/\pi)\,(1-\cos\alpha)$

✓ 3. $V_{av}=(Vm/2\pi)\,(1+\cos\alpha)$

✗ 4. $V_{av}=(Vm/2\pi)\,(1-\cos\alpha)$

Question ID : **8401605605**
Status : **Answered**
Chosen Option : **1**

**Q.67** **_____ is an optimisation algorithm used for minimising the cost function in various machine learning algorithms.**

**Ans**

✗ 1. Navy base algorithm

✗ 2. SVM algorithm

✓ 3. Gradient descent algorithm

✗ 4. KNN algorithm

Question ID : **8401605645**
Status : **Answered**
Chosen Option : **4**

**Q.68** **Feedforward control uses the measurement of an _____ to the plant as additional information for enhancing single-loop PID control performance.**

**Ans**
✔ 1. input disturbance
✘ 2. intermediate variable
✘ 3. output
✘ 4. output disturbance

Question ID : **8401605627**
Status : **Answered**
Chosen Option : **1**

**Q.69** **Which of the following method is the safest method to turn on the SCR?**

**Ans**
✔ 1. By using gate pulses
✘ 2. Applying the input anode to cathode voltage that is greater than forward break over voltage
✘ 3. By using light
✘ 4. By using dv/dt rating method

Question ID : **8401605604**
Status : **Answered**
Chosen Option : **1**

**Q.70** **In an OSI model, which of the following layer ensures that the data is in a usable format and is where data encryption occurs?**

**Ans**
✘ 1. Data Link Layer
✘ 2. Physical Layer
✘ 3. Network Layer
✔ 4. Presentation Layer

Question ID : **8401605611**
Status : **Answered**
Chosen Option : **3**

**Q.71** If R and ΔR are resistance and change in resistance, L and ΔL are length and change in length of the given material, respectively, then the gauge factor is defined by:

**Ans**
✘ 1. $(\Delta L/\Delta R)$
✘ 2. $(\Delta L/\Delta R)/(R/L)$
✔ 3. $(\Delta R/R)/(\Delta L/L)$
✘ 4. $(\Delta L/L)/(\Delta R/R)$

Question ID : **8401605577**
Status : **Answered**
Chosen Option : **3**

**Q.72** **Identify whether the given statements with respect to the performance of a control loop is true or false.**

**P: The performance of a control loop depends on system design.**
**Q: The performance of a control loop depends on loop implementation and setup of the control functions.**

**Ans**
✔ 1. Both P and Q are true
✘ 2. Both P and Q are false
✘ 3. P is true and Q is false
✘ 4. P is false and Q is true

Question ID : **8401605630**
Status : **Answered**
Chosen Option : **1**

**Q.73** **Identify whether the given statements with respect to optimal problems are true or false.**

**P: Z-transform will be used in discrete optimal problem.**
**Q: All poles should be located on the outside of the unit circle for the causal system to be stable for discrete optimal control systems.**

**Ans**
✘ 1. P is false and Q is true
✘ 2. P and Q are true
✘ 3. P and Q are false
✔ 4. P is true and Q is false

Question ID : **8401605625**
Status : **Answered**
Chosen Option : **4**

**Q.74** **In Distributed Control System, which level consists of the industrialised Input/Output (I/O) modules and their associated distributed electronic processors?**

**Ans**
✘ 1. Field level
✘ 2. Production scheduling level
✔ 3. Direct control level
✘ 4. Production control level

Question ID : **8401605632**
Status : **Answered**
Chosen Option : **1**

**Q.75** **The ratio control can be considered as cascade control when the set-point value Si is numerically equal to:**

**Ans**
✘ 1. 1.5
✘ 2. 10
✘ 3. 1
✔ 4. 0

Question ID : **8401605626**
Status : **Answered**
Chosen Option : **3**

**Q.76 The term IOT was coined by:**

**Ans**
✗ 1. Charles Babbage
✓ 2. Kevin Ashton
✗ 3. Guido van Rossum
✗ 4. John McCarthy

Question ID : **8401605641**
Status : **Answered**
Chosen Option : **2**

**Q.77 Single-phase to single-phase full bridge cyclo-converters consist of:**

**Ans**
✗ 1. 1 positive and 1 negative bridge with 8 SCR's each
✓ 2. 1 positive and 1 negative bridge with 4 SCR's each
✗ 3. 2 positive bridges with 4 SCR's each
✗ 4. 2 negative bridges with 8 SCR's

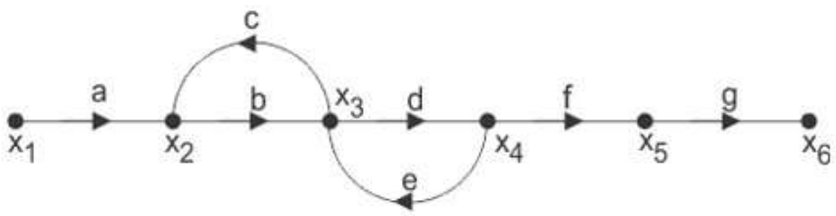
Question ID : **8401605606**
Status : **Answered**
Chosen Option : **1**

**Q.78 In piezo electric oscillator, a crystal has a coupling coefficient of 0.5. How much electrical energy must be applied to produce an output of 7 J of mechanical energy?**

**Ans**
✗ 1. 3.5 J
✓ 2. 14 J
✗ 3. 7.5 J
✗ 4. 6.5 J

Question ID : **8401605583**
Status : **Answered**
Chosen Option : **1**

**Q.79** With respect to the following diagram what will be the value of $X_2$ and $X_3$




**Ans**

✔ 1. $X_2 = aX_1 + CX_3$
$X_3 = bX_2 + eX_4$

✘ 2. $X_2 = aX_1 - CX_3 + bX_3$
$X_3 = bX_2 - eX_4 + f X_4$

✘ 3. $X_2 = aX_1 + CX_3 - bX_3$
$X_3 = bX_2 + eX_4 - f X_4$

✘ 4. $X_2 = aX_1 - CX_3$
$X_3 = bX_2 - eX_4$

Question ID : **8401605585**
Status : **Answered**
Chosen Option : **1**

**Q.80** **_____is a chemical analysis technique for determining how molecules deal with electromagnetic radiation.**

**Ans**

✔ 1. Spectroscopy analysis

✘ 2. Volumetric analysis

✘ 3. Colorimetric analysis

✘ 4. Gravimetric analysis

Question ID : **8401605619**
Status : **Answered**
Chosen Option : **1**

**Q.81** **With respect to materials for metal enclosures, which of the following metal costs the most, is strongest and has the highest corrosion resistance?**

**Ans**

✘ 1. Carbon steel

✔ 2. Stainless steel

✘ 3. Aluminum

✘ 4. Galvanneal

Question ID : **8401605623**
Status : **Answered**
Chosen Option : **2**

**Q.82 Calculate the value of multiplier resistance required for the 10V range DC voltmeter that uses a 2mA meter movement with an internal resistance of 100Ω.**

Ans
✗ 1. 5.1 KΩ
✗ 2. 2.5 KΩ
✓ 3. 4.9KΩ
✗ 4. 25 KΩ

Question ID : **8401605564**
Status : **Answered**
Chosen Option : **2**

**Q.83 Which of the following instrument is used to measure the AC voltage by using heating effect?**

Ans
✗ 1. Rectifier type voltmeter
✓ 2. True RMS voltmeter
✗ 3. Dual slope voltmeter
✗ 4. Peak responding voltmeter

Question ID : **8401605563**
Status : **Answered**
Chosen Option : **4**

**Q.84 Which of the following circuit is NOT a combinational circuit?**

Ans
✗ 1. Decoder
✗ 2. Full adder
✗ 3. De multiplexer
✓ 4. Shift register

Question ID : **8401605572**
Status : **Answered**
Chosen Option : **4**

**Q.85 Which of the following statement is INCORRECT with respect to advantages of RISC architecture when compared to CISC?**

Ans
✓ 1. Less number of registers are available.
✗ 2. Operations are performed on Register to Register only, and the only memory operations are Load and Store.
✗ 3. The programmer needs to write more code for the task.
✗ 4. It has less instructions, and instruction set is orthogonal.

Question ID : **8401605600**
Status : **Answered**
Chosen Option : **1**