# AAI ATC Junior Executive

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# भारतीय विमानपत्तन प्राधिकरण

(मिनी रत्न - श्रेणी - 1 सार्वजनिक क्षेत्र का उद्यम)

# AIRPORTS AUTHORITY OF INDIA

(Schedule – 'A' Mini Ratna – Category – 1 Public Sector Enterprise)

| | |
|---|---|
| Participant ID | |
| Participant Name | |
| Test Center Name | |
| Test Date | 25/03/2021 |
| Test Time | 4:00 PM - 6:00 PM |
| Subject | Jr. Executive (ATC) |

Section : General Knowledge

**Q.1 Who was known as the 'Frontier Gandhi/Sarhadi Gandhi' due to his ideologies?**

Ans
- ✗ A. Jawahar Lal Nehru
- ✗ B. Muhammad Ali Jinnah
- ✓ C. Khan Abdul Ghaffar Khan
- ✗ D. Lal Bahadur Shastri

Question ID : **9767557967**
Status : **Answered**
Chosen Option : **3**

**.2 India is considered to be which of the following types of economy?**

ns
- ✗ A. Pure Command Economy
- ✓ B. Mixed Economy
- ✗ C. Traditional Economy
- ✗ D. Pure Market Economy

Question ID : **9767557960**
Status : **Answered**
Chosen Option : **2**

**.3 Which of the following is a non-metal required by the human body?**

ns
- ✗ A. Iron
- ✗ B. Gold
- ✗ C. Zinc
- ✓ D. Iodine

Question ID : **9767557961**
Status : **Answered**
Chosen Option : **4**

Q.4 Every year, in which Indian state does monsoon set in first?

Ans
✗ A. Tamil Nadu
✗ B. Maharashtra
✓ C. Kerala
✗ D. Karnataka

Question ID : **9767557962**
Status : **Answered**
Chosen Option : **3**

Q.5 What is the full form of BRO?

Ans
✗ A. Border Road Office
✗ B. Broad Road Organisation
✓ C. Border Roads Organisation
✗ D. Border River Organisation

Question ID : **9767557964**
Status : **Answered**
Chosen Option : **3**

Q.6 Which Indian author penned 'Godaan' ('The Gift of Cow')?

Ans
✓ A. Munshi Premchand
✗ B. Mahadevi Verma
✗ C. Ramdhari Singh Dinkar
✗ D. Vishnu Prabhakar

Question ID : **9767557959**
Status : **Answered**
Chosen Option : **1**

Q.7 Which significant event took place in 1757?

Ans
✗ A. The Sepoy Mutiny
✓ B. Battle of Plassey
✗ C. Formation of East India Company
✗ D. First Census in India

Question ID : **9767557966**
Status : **Answered**
Chosen Option : **2**

Q.8 How many union territories are there in India as of January 2021?

Ans
✗ A. Six
✗ B. Seven
✓ C. Eight
✗ D. Nine

Question ID : **9767557963**
Status : **Answered**
Chosen Option : **3**

Q.9 In whose honour has 29th August been designated as India's National Sports day?

Ans
✗ A. Sachin Tendulkar
✓ B. Major Dhyan Chand
✗ C. Mithali Raj
✗ D. Milkha Singh

Question ID : **9767557968**
Status : **Answered**
Chosen Option : **2**

Q.10 Who was the last Mughal emperor of India?

Ans
✓ A. Bahadur Shah Zafar
✗ B. Humayun
✗ C. Akbar
✗ D. Shah Jahan

Question ID : **9767557965**
Status : **Answered**
Chosen Option : **1**

Section : **General Intelligence**

Q.1 Select the alphanumeric-cluster from among the given options that can replace the question mark (?) in the following series.
Y11, S7, M5, G3, ?

Ans
✗ A. B2
✓ B. A2
✗ C. A1
✗ D. Z2

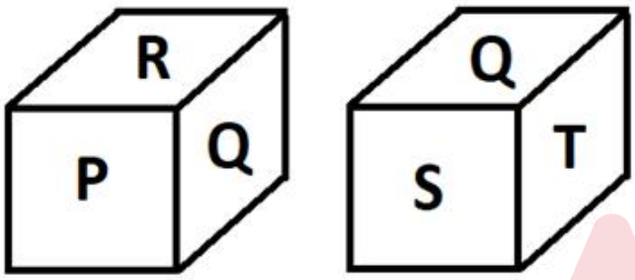
Question ID : **9767557970**
Status : **Answered**
Chosen Option : **3**

Q.2 Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
OA, LG, IM, FS, ?

Ans
✔ A. CY
✘ B. DY
✘ C. CX
✘ D. CZ

Question ID : **9767557969**
Status : **Answered**
Chosen Option : **1**

Q.3 Two different positions of the same dice are shown. Select the letter that will be on the face opposite to the face having the letter T?




Ans
✘ A. U
✔ B. P
✘ C. Q
✘ D. R

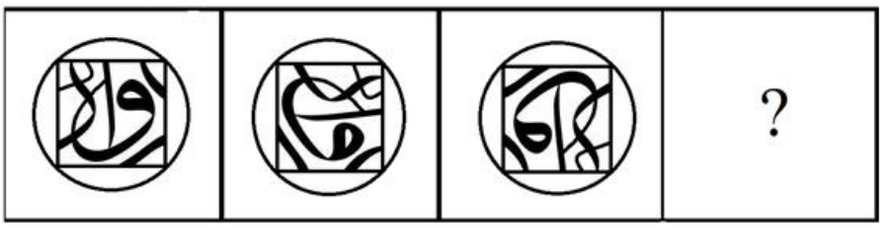
Question ID : **9767557982**
Status : **Answered**
Chosen Option : **2**

Q.4 Select the option in which the numbers are related in the same way as are the numbers of the following set.
(18, 6, 36)

Ans
✘ A. (30, 15, 60)
✔ B. (24, 8, 48)
✘ C. (40, 10, 80)
✘ D. (25, 5, 50)

Question ID : **9767557979**
Status : **Answered**
Chosen Option : **2**

Q.5 Select the figure from among the given options that can replace the question mark (?) in the following series.




Ans

✗ A.

✗ B.

✓ C.

✗ D.

Question ID : **9767557980**
Status : **Answered**
Chosen Option : **3**

Q.6 Select the option in which the letter-clusters share the same relationship as that shared by the given pair of letter-clusters.
GI : VC

Ans
✗ A. AC : OW
✗ B. CY : DB
✗ C. GL : VB
✓ D. HY : WS

Question ID : **9767557971**
Status : **Answered**
Chosen Option : **4**

Q.7 Select the option that is related to the third number in the same way as the second number is related to the first number.
15 : 5 :: 26 : ?

Ans
✓ A. 6
✗ B. 8
✗ C. 4
✗ D. 9

Question ID : **9767557977**
Status : **Answered**
Chosen Option : **1**

Q.8 Select the number from among the given options that can replace the question mark (?) in the following series.
100, 120, 145, 180, 235, ?

Ans
✗ A. 335
✗ B. 325
✓ C. 330
✗ D. 315

Question ID : **9767557976**
Status : **Answered**
Chosen Option : **3**

Q.9 A question is given, followed by two arguments. Decide which of the arguments is/are valid with respect to the question.
Question:
Should school-going children have internet access at home?
Arguments:
(I): Yes, because through the internet students can have access to educational videos on YouTube, articles addressing current events that impact their lives, and online tests or quizzes required in their coursework.
(II): No, it's a waste of time.

Ans
✓ A. Only argument (I) is valid
✗ B. Only argument (II) is valid
✗ C. Neither argument (I) nor argument (II) is valid
✗ D. Both arguments (I) and (II) are valid

Question ID : **9767557974**
Status : **Answered**
Chosen Option : **1**

Q.10 Select the correct water image of the given figure.

Ans

✔ A.

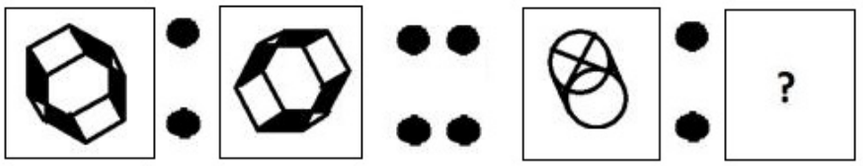
✘ B.

✘ C.

✘ D.

Question ID : **9767557983**
Status : **Answered**
Chosen Option : **1**

Q.11 Select the option that is related to the third figure in the same way as the second figure is related to the first figure.




Ans

✗ A. 

✓ B. 

✗ C. 

✗ D. 

Question ID : **9767557981**
Status : **Answered**
Chosen Option : **2**

Q.12 Select the number-pair in which the two numbers share a different relationship from that shared by the two numbers in the rest of the number-pairs.

Ans

✓ A. 42 – 82

✗ B. 66 – 84

✗ C. 35 – 62

✗ D. 85 – 94

Question ID : **9767557978**
Status : **Answered**
Chosen Option : **1**

Q.13 **Select the correct option that indicates the arrangements of the given words in a logical and meaningful order.**
**1. Nucleus**
**2. Molecule**
**3. Atom**
**4. Proton**
**5. Compound**

Ans
✗ A. 4, 1, 3, 5, 2
✗ B. 5, 3, 2, 4, 1
✗ C. 5, 2, 3, 4, 1
✓ D. 4, 1, 3, 2, 5

Question ID : **9767557975**
Status : **Answered**
Chosen Option : **3**

Q.14 **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 pins are bins.**
**2. All bins are not papers.**
**Conclusions:**
**I. Some papers are pins.**
**II. All pins are not papers.**

Ans
✗ A. Only conclusion I follows
✗ B. Neither conclusion I nor II follows
✓ C. Only conclusion II follows
✗ D. Both conclusions I and II follow

Question ID : **9767557973**
Status : **Answered**
Chosen Option : **3**

Q.15 **In a certain code language, 'Tudo Bem' is written as 'All Fine', 'Como Esta' is written as 'How You', and 'Bem Como' is written as 'Fine You'. How will 'Tudo Esta' be written as in the same language?**

Ans
✗ A. How Fine
✗ B. All Fine
✗ C. All You
✓ D. All How

Question ID : **9767557972**
Status : **Answered**
Chosen Option : **4**

Section : **General Aptitude**

Q.1 Aman purchased 4 pens, 5 pencils and 8 scales for Rs. 120. Had Aman purchased 7 pens, 8 pencils and 11 scales, he would have to pay Rs. 192. Pankaj demanded 2 pens, 2 pencils and 2 scales. If Aman purchased only what was demanded by Pankaj, then how much would he have paid?

Ans
✗ A. Rs. 32
✓ B. Rs. 48
✗ C. Rs. 42
✗ D. Rs. 38

Question ID : **9767557997**
Status : **Answered**
Chosen Option : **2**

Q.2 There is 30 percent increase in an amount in 3 years at x percent rate of simple interest. Find the compound interest on Rs. 30,000 after 4 years at the same rate.

Ans
✗ A. Rs. 11,980
✗ B. Rs. 9,930
✓ C. Rs. 13,923
✗ D. Rs. 13,293

Question ID : **9767557995**
Status : **Answered**
Chosen Option : **3**

Q.3 Raj and Rajat can finish a piece of work in 30 days and 40 days respectively. Raj started the work alone. After how many days should Rajat join him so that the work is finished in 24 days?

Ans
✗ A. 12 days
✗ B. 14 days
✓ C. 16 days
✗ D. 10 days

Question ID : **9767557992**
Status : **Answered**
Chosen Option : **3**

Q.4 A certain number of men can finish a piece of work in 40 days. If there were 4 men less, it would take 4 days more for the same work to be finished. How many men were there initially?

Ans
✗ A. 42
✗ B. 38
✗ C. 36
✓ D. 44

Question ID : **9767557991**
Status : **Answered**
Chosen Option : **4**

Q.5 What is the HCF of $\frac{8}{7}$, $\frac{9}{11}$, and $\frac{25}{13}$?

Ans
- ✗ A. $\frac{1}{1800}$
- ✓ B. $\frac{1}{1001}$
- ✗ C. $\frac{1009}{1825}$
- ✗ D. $\frac{1800}{1001}$

Question ID : **9767557985**
Status : **Answered**
Chosen Option : **2**

Q.6 The savings of A and B are in the ratio of 2: 5. If each of them increases their saving by Rs. 500, the new ratio of savings becomes $\frac{5}{11}$. How much amount did A used to save initially?

Ans
- ✓ A. Rs. 2,000
- ✗ B. Rs. 1,000
- ✗ C. Rs. 5,000
- ✗ D. Rs. 3,500

Question ID : **9767557989**
Status : **Answered**
Chosen Option : **1**

Q.7 **What is the product of the smallest 8 whole numbers?**

Ans
- ✗ A. 5040
- ✗ B. 40320
- ✓ C. 0
- ✗ D. 1

Question ID : **9767557984**
Status : **Answered**
Chosen Option : **2**

Q.8 **In an arithmetic progression (AP), the 9th term is 5 times the 2nd term and the 8th term is 1 more than 10 times the first term. What is the 4th term of the geometric progression (GP) whose first term is the second term of AP and whose common ratio is equal to the common difference of AP?**

Ans
- ✓ A. 448
- ✗ B. 192
- ✗ C. 576
- ✗ D. 1792

Question ID : **9767557998**
Status : **Answered**
Chosen Option : **1**

Q.9 $[0.\overline{07} \times 7.\overline{5}] = ?$

Ans

✗ A. $\frac{576}{891}$

✗ B. $\frac{276}{891}$

✗ C. $\frac{376}{891}$

✓ D. $\frac{476}{891}$

Question ID : **9767557988**
Status : **Answered**
Chosen Option : **4**

Q.10 $\frac{25}{19}\left(6\frac{3}{5} \times 2\frac{1}{15} + 3\frac{1}{3}\right) = ?$

Ans

✓ A. $\frac{67}{3}$

✗ B. $\frac{38}{75}$

✗ C. $\frac{75}{38}$

✗ D. $\frac{3}{67}$

Question ID : **9767557986**
Status : **Answered**
Chosen Option : **1**

Q.11 **The average rate of three stationery items A, B and C is Rs. 80. If the average price of A and B is Rs. 77.5 and that of B and C Rs. 87.5, then the price of B is:**

Ans

✗ A. Rs.65

✗ B. Rs. 85

✗ C. Rs. 75

✓ D. Rs. 90

Question ID : **9767557994**
Status : **Answered**
Chosen Option : **4**

Q.12 By selling a fan for Rs 3,540, a shopkeeper gains 18 percent. Find the selling price when the profit is reduced to 12 percent.

Ans
✔ A. Rs. 3,360
✘ B. Rs. 3,000
✘ C. Rs. 2,640
✘ D. Rs. 2,900

Question ID : **9767557993**
Status : **Answered**
Chosen Option : **1**

Q.13 If the cost of 30 articles is Rs. 4,500, then find out the cost of 12 articles.

Ans
✘ A. Rs. 1,600
✘ B. Rs. 1,500
✔ C. Rs. 1,800
✘ D. Rs. 2,000

Question ID : **9767557990**
Status : **Answered**
Chosen Option : **3**

Q.14 $\left(\frac{35}{19} - \frac{19}{35}\right) \div \frac{432}{133} = ?$

Ans
✘ A. $\frac{3}{5}$
✘ B. $\frac{9}{5}$
✔ C. $\frac{2}{5}$
✘ D. $\frac{6}{5}$

Question ID : **9767557987**
Status : **Answered**
Chosen Option : **3**

Q.15 The outer and inner radius of a hemispherical bowl are 40 cm and 35 cm respectively. Find the total surface area of the bowl.

Ans
✔ A. 6025 π
✘ B. 5255 π
✘ C. 6125 π
✘ D. 5055 π

Question ID : **9767557996**
Status : **Answered**
Chosen Option : **3**

Section : **General English**

Q.1 **Select the option that expresses the given sentence in reported speech.**
**Addressing the nation, the President said, "There are some days when we need a hand. There are other days when we are called to lend a hand. That's how we help each other and move on."**

Ans
✗ A. Talking to his countrymen, the President commented that there are some days when we need a hand and there are other days when we are called to lend a hand. He added that that is how help each other and move on.

✓ B. Addressing the nation, the President said that there are some days when we need a hand and there are other days when we are called to lend a hand. He added that that is how we help each other and move on.

✗ C. Addressing the nation, the President says to his countrymen there were some days when we needed a hand.There were other days when we were called to lend a hand. He further said that that's how we helped each other and moved on.

✗ D. Addressing the nation, the President warned the people that there are some days when they will need a hand and there are other days when they will be called to lend their hand.He counselled them that this is how people help each other and move on.

Question ID : **9767558007**
Status : **Answered**
Chosen Option : **2**

Q.2 **Select the most appropriate option expressed in indirect speech.**

Ans
✗ A. It's raining hard. I don't think we can go out today.

✗ B. You made this cake, didn't you?

✓ C. He wanted to know what I wanted to do when I grew up.

✗ D. Dad has planned to take us all to Europe this summer vacation.

Question ID : **9767558008**
Status : **Answered**
Chosen Option : **3**

Q.3 **Select the most appropriate option that can substitute the underlined words in the given sentence.**
**The art of growing plants in water without using soil is getting popular worldwide as it can be highly productive, profitable and in less space without any soil.**

Ans
✗ A. hydrophonically

✗ B. Hydrophilia

✗ C. Hydromonics

✓ D. Hydroponics

Question ID : **9767558014**
Status : **Answered**
Chosen Option : **1**

Q.4 **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.**
**Dr. Trehan says / he felt an overwhelming sense of helplessness / when he is watching many of his patients / die of heart disease.**

Ans
✗ A. Dr.Trehan says
✗ B. die of heart disease
✓ C. when he is watching much of his patients
✗ D. he felt an overwhelming sense of helplessness

Question ID : **9767558004**
Status : **Answered**
Chosen Option : **3**

Q.5 **Select the most appropriate ANTONYM of the given word.**

**DETERMINED**

Ans
✓ A. Suspicious
✗ B. Firm
✗ C. Resolute
✗ D. Stubborn

Question ID : **9767557999**
Status : **Answered**
Chosen Option : **1**

Q.6 **The following sentences describe the process of baking a cake in a microwave. Identify the step which is NOT expressed in passive voice.**

Ans
✗ A. The cooking time may have to be adjusted to suit the type of machine you have.
✗ B. To make a cake some butter, sugar, eggs, milk and flour is taken in a mixing bowl and blended till soft and creamy.
✓ C. Place the mixture in the microwave oven for a few minutes till the cake is bouncy.
✗ D. This mixture is then transferred into a pre- greased baking dish.

Question ID : **9767558009**
Status : **Answered**
Chosen Option : **1**

Q.7 **Select the most appropriate option to fill in the blanks.**
**The Statue of Unity is the world's _____ statue and an iconic landmark of new India.**

Ans
✓ A. tallest
✗ B. tall
✗ C. taller
✗ D. most tallest

Question ID : **9767558002**
Status : **Answered**
Chosen Option : **1**

Q.8 **Sentences of a paragraph are given below in jumbled order. Arrange the sentences in the right order to form a meaningful and coherent paragraph.**
**A: Its people thrived on agriculture and enjoyed a happy community life.**
**B: The Sumerian civilization is the oldest civilization known to mankind.**
**C: The term Sumer is today used to designate southern Mesopotamia.**
**D: Sumer used to be a flourishing urban civilization till 3000 BC.**

Ans
✗ A. B, C, A, D
✓ B. B, C, D, A
✗ C. D, A, C, B
✗ D. A, C, D, B

Question ID : **9767558012**
Status : **Answered**
Chosen Option : **1**

Q.9 **Select the most appropriate ANTONYM of the given word.**
**GREGARIOUS**

Ans
✗ A. Sociable
✗ B. Affable
✗ C. Talkative
✓ D. Reserved

Question ID : **9767558000**
Status : **Answered**
Chosen Option : **4**

Q.10 **Select the option that is NOT expressed in active voice.**

Ans
✗ A. Aruna and her friends were planning to spend a weekend in Goa.
✓ B. She was informed by the Manager that there were no rooms available for that weekend.
✗ C. Aruna and her friends started enquiring from other hotels if they had rooms available for that weekend.
✗ D. She called the Manager of Sunshine Resort to book two rooms overlooking the sea.

Question ID : **9767558010**
Status : **Answered**
Chosen Option : **2**

Q.11 **Select the option that expresses the given sentence in direct speech.**
**He told me that he had a tough time locating my house.**

Ans
✗ A. He says, "I have a tough time locating my house."
✓ B. He said, "I had a tough time locating your house."
✗ C. He tells me, "I had a tough time locating your house."
✗ D. He said to me, "I will have a tough time locating your house."

Question ID : **9767558006**
Status : **Answered**
Chosen Option : **2**

Q.12 **Select the most appropriate option to fill in the blanks.**
**There was a time when Hyderabad was the only city _____ badminton players, but now we can see a huge talent _____ pan India.**

Ans
✔ A. producing; cropping up

✘ B. produce; crop up

✘ C. to produce; cropping in

✘ D. produced; cropping from

Question ID : **9767558001**
Status : **Answered**
Chosen Option : **4**

Q.13 **Select the most appropriate option expressed in direct speech.**

Ans
✘ A. Most TV channels gave a live coverage to the swearing-in ceremony of the newly elected US President.

✘ B. The teacher told the students that she will give them detailed guidelines for the project.

✘ C. Most of the Bollywood stars expressed their jubilance after the Indian cricket team secured a historic test series win against Australia.

✔ D. Could you please introduce yourself?

Question ID : **9767558005**
Status : **Answered**
Chosen Option : **4**

Q.14 **Sentences of a paragraph are given below. While the first and the last sentences are in the correct order, the sentences in between are jumbled up. Arrange the sentences A, B, C and D in the correct order to form a meaningful and coherent paragraph.**
**S 1: Oceans cover three-quarters of the Earth's surface.**
**S 2:_____**
**S3:_____**
**S 4:_____**
**S 5:_____**
**S 6: Nations trying to tap ocean resources must adhere to the United Nation's Sustainable Development Goal of using resources for sustainable development.**
**Options:**
**A: However, this potential needs to be harnessed in a balanced manner, where the preservation and health of oceans are given their due importance.**
**B: Oceans are said to be the last frontiers of growth and development.**
**C: But, the immense potential that the oceans present remains to be tapped fully.**
**D: They contain 97% of the Earth's water and represent 99% of the living area on the planet.**

Ans
✘ A. B, C, D, A

✔ B. D, B, C, A

✘ C. A, C, B, D

✘ D. B, A, C, D

Question ID : **9767558011**
Status : **Answered**
Chosen Option : **2**

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.**
**In the recently concluded Paris Climate Agreement, / India will agree to reduce / its carbon emission intensity / by one-third from the 2005 levels.**

Ans
✗ A. In the recently concluded Paris Climate Agreement
✗ B. by one-third from the 2005 levels
✓ C. India will agree to reduce
✗ D. its carbon emission intensity

Question ID : **9767558003**
Status : **Answered**
Chosen Option : **3**

Q.16 **Parts of a sentence are given below in jumbled order. Arrange the parts in the right order to form a meaningful sentence.**

**A. to lift 8 million people**
**B. Odisha is the only state**
**C. in the shortest possible time**
**D. out of poverty**

Ans
✓ A. B, A, D, C
✗ B. D, A, B, C
✗ C. A, C, D, B
✗ D. C, D, A, B

Question ID : **9767558013**
Status : **Answered**
Chosen Option : **1**

**Comprehension:**

Read the given passage and answer the following questions.
It's hard to imagine urban India without its metro trains, the giant aluminium snakes sliding above and below the grounds of bustling metropolises, carrying in its bellies India's teeming millions. Delhi has the largest network, 389 kilometres and 285 stations. Mumbai, which will build 235 km by 2025, is close on its heels. Ten other Indian cities have metros, 15 more have it in various stages of completion. And it's clear why. An Indian city feels it has arrived only when it has a metro rail, the fastest, most economical and non-polluting mass rapid transport solution. Most of the credit for this urban engineering marvel being replicated across India goes to one engineer, E Sreedharan, popularly known as 'Metro Man'.
Sreedharan's first brush with fame was repairing the Pamban bridge in 1963, parts of which had been washed away in a cyclone. The railways estimated it would take six months to repair the sole link between mainland India and Rameshwaram. Sreedharan did it in just 46 days. A legend was born. But significant as it was, even this wasn't a turning point in his life. "I had a very ordinary, uneventful career in the Indian Railways from December 1954 to June 1990. No doubt, restoration of the Pamban bridge gave me an excellent opportunity to demonstrate my technical and organisational competence. But it wasn't a turning point in my career".
What was it then? Sreedharan says it was a stirring article in Reader's Digest, which highlighted the need for 'out-of-the-box' thinking when faced with a major challenge. He was then Member (Engineering) on the Railway Board in 1990. It so happened that the senior railway engineer, in what seemed like the last phase of his career, was facing what appeared to be an insurmountable challenge. Railways minister George Fernandes had mentioned his dream project, a Mumbai to Mangalore railway line that would complete India's last great missing rail link.
Based on your reading of the passage answer the following questions by choosing the best option.

**SubQuestion No : 17**

**Q.17 A turning point in one's life is a:**

**Ans**

✗ A. developmental stage in one's life

✗ B. moment of celebration when one gets recognition

✓ C. a time at which a decisive change in a situation occurs

✗ D. time when luck knocks at one's door

Question ID : **9767558017**
Status : **Answered**
Chosen Option : **3**

**Comprehension:**

Read the given passage and answer the following questions.
It's hard to imagine urban India without its metro trains, the giant aluminium snakes sliding above and below the grounds of bustling metropolises, carrying in its bellies India's teeming millions. Delhi has the largest network, 389 kilometres and 285 stations. Mumbai, which will build 235 km by 2025, is close on its heels. Ten other Indian cities have metros, 15 more have it in various stages of completion. And it's clear why. An Indian city feels it has arrived only when it has a metro rail, the fastest, most economical and non-polluting mass rapid transport solution. Most of the credit for this urban engineering marvel being replicated across India goes to one engineer, E Sreedharan, popularly known as 'Metro Man'.
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Based on your reading of the passage answer the following questions by choosing the best option.

**SubQuestion No : 18**

**Q.18 Sreedharan became famous as the Metro Man of India after:**

**Ans**

✗ A. the replication of Delhi metro model in other cities of India

✗ B. the restoration of the damaged Pamban bridge in record time

✗ C. the completion of the Mumbai Mangalore railway line

✓ D. the construction of the Metro railway network in Delhi.

Question ID : **9767558019**
Status : **Answered**
Chosen Option : **4**

**Comprehension:**

Read the given passage and answer the following questions.
It's hard to imagine urban India without its metro trains, the giant aluminium snakes sliding above and below the grounds of bustling metropolises, carrying in its bellies India's teeming millions. Delhi has the largest network, 389 kilometres and 285 stations. Mumbai, which will build 235 km by 2025, is close on its heels. Ten other Indian cities have metros, 15 more have it in various stages of completion. And it's clear why. An Indian city feels it has arrived only when it has a metro rail, the fastest, most economical and non-polluting mass rapid transport solution. Most of the credit for this urban engineering marvel being replicated across India goes to one engineer, E Sreedharan, popularly known as 'Metro Man'.
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Based on your reading of the passage answer the following questions by choosing the best option.

**SubQuestion No : 19**

**Q.19 As per Sreedharan, he had an uneventful life in Indian Railways from _____ to _____.**

**Ans**

✗ A. December 1955; June 1990

✗ B. June 1990 ; December 1954

✓ C. December 1954; June 1990

✗ D. June 1954; December 1990

Question ID : **9767558016**
Status : **Answered**
Chosen Option : **3**

**Comprehension:**

Read the given passage and answer the following questions.
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Based on your reading of the passage answer the following questions by choosing the best option.

**SubQuestion No : 20**

**Q.20 The greatest learning from Sreedharan's life would be:**

**Ans**

✗ A. to work hard to make a name for himself

✗ B. perfection and excellence should be one's hallmark

✗ C. to complete all projects in time

✓ D. 'out of the box' thinking helps to solve critical problems

Question ID : **9767558018**
Status : **Answered**
Chosen Option : **4**

Section : **Domain Questions**

**Q.1** Evaluate $\frac{\sin 5x-2\sin 3x+\sin x}{\cos 5x-\cos x}$ and figure out the correct answer from below options?

**Ans**

✗ A. $\csc x$

✗ B. $\cot x$

✗ C. $\sec x$

✓ D. $\tan x$

Question ID : **9767558046**
Status : **Answered**
Chosen Option : **4**

Q.2 Which of the following is NOT correct if we have $\vec{a}$ and $\vec{b}$ as two collinear vectors?

Ans
✗ A. Elements of both vectors are not proportional

✓ B. Both vectors have different magnitudes but same direction

✗ C. $\vec{b} = \vec{a}$

✗ D. $\vec{a} = \pm \vec{b}$

Question ID : **9767558021**
Status : **Answered**
Chosen Option : **1**

Q.3 **Find the distance between the points P (2, -1, 3) and Q (-5, 2, 1)?**

Ans
✗ A. $3\sqrt{7}$

✓ B. $7\sqrt{13}$

✗ C. 8

✗ D. $\sqrt{63}$

Question ID : **9767558042**
Status : **Answered**
Chosen Option : **1**

Q.4 **Determine the probability that when a hand of 7 cards is drawn from a box of 52 cards, it consists atleast 3 kings?**

Ans
✓ A. $\frac{46}{7735}$

✗ B. $\frac{9}{7735}$

✗ C. $\frac{9}{1547}$

✗ D. $\frac{1}{7735}$

Question ID : **9767558033**
Status : **Answered**
Chosen Option : **4**

Q.5 **Two trains travelling in the same direction at 80 and 44 kmph completely pass off another in 1 minute. If the length of the first train is 375 m, what is the length of the second train?**

Ans
✓ A. 225 m

✗ B. 215 m

✗ C. 205 m

✗ D. 2325 m

Question ID : **9767558027**
Status : **Answered**
Chosen Option : **2**

**Q.6** One summer peter visits 4 villages (A, B, C and D) in a random order. Find the probability that he visits (i) A before B (ii) A before B and B before C respectively?

**Ans**

✗ A. $\frac{1}{3}, \frac{1}{4}$

✗ B. $\frac{1}{6}, \frac{1}{2}$

✓ C. $\frac{1}{2}, \frac{1}{6}$

✗ D. $\frac{1}{2}, \frac{1}{4}$

Question ID : **9767558034**
Status : **Answered**
Chosen Option : **2**

**Q.7** Figure-out the distance of a point (2, 5, -3) from the plane $\vec{r} \cdot (6\hat{\imath} - 3\hat{\jmath} + 2\hat{k}) = 6$

**Ans**

✗ A. $\frac{13}{7}$

✓ B. $\frac{15}{7}$

✗ C. $\frac{11}{7}$

✗ D. $\frac{17}{7}$

Question ID : **9767558038**
Status : **Answered**
Chosen Option : **2**

**Q.8** Determine the angle between the two planes 2x + y - 2z = 3 and 3x – 6y – 2z = 9 using vector method?

**Ans**

✗ A. $\text{Cos}^{-1}(\frac{16}{21})$

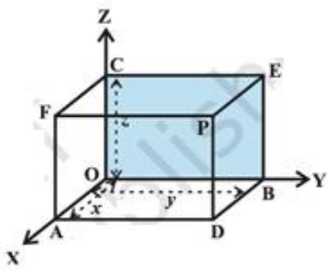
✓ B. $\text{Cos}^{-1}(\frac{4}{21})$

✗ C. $\text{Cos}^{-1}(\frac{4}{7})$

✗ D. $\text{Cos}^{-1}(\frac{8}{21})$

Question ID : **9767558039**
Status : **Answered**
Chosen Option : **2**

Q.9




In above figure if P is (3, 1, 7), find the co-ordinates of F?

Ans

✗ A. 9, 1, 49

✗ B. 3, 1, 0

✓ C. 3, 0, 7

✗ D. 0, 1, 49

Question ID : **9767558043**
Status : **Answered**
Chosen Option : **3**

Q.10 Find out the quantity of four-digit numbers that can be created by utilizing the digits from 1 to 9 if repetition of digits are to be allowed?

Ans

✗ A. 1680

✗ B. 336

✗ C. 3036

✓ D. 3024

Question ID : **9767558031**
Status : **Answered**
Chosen Option : **4**

Q.11 A badminton team of two players is picked from two boys and two girls. Find the probability that the team will have (i) no boy (ii) one boy (iii) two boys?

Ans

✗ A. $\frac{5}{6}, \frac{2}{3}, \frac{1}{2}$ respectively

✗ B. $\frac{5}{6}, \frac{1}{3}, \frac{1}{2}$ respectively

✓ C. $\frac{1}{6}, \frac{2}{3}, \frac{1}{6}$ respectively

✗ D. $\frac{1}{6}, \frac{1}{3}, \frac{1}{6}$ respectively

Question ID : **9767558035**
Status : **Answered**
Chosen Option : **2**

**Q.12** If P(A) = 0.7, P(B) = 0.5 and P (B/A) = 0.3, find (i) P(A/B) (ii) P(A∪B)?

**Ans**

✗ A. 0.21, 0.98 respectively

✗ B. 0.14, 0.99 respectively

✗ C. 0.14, 0.98 respectively

✓ D. 0.21, 0.99 respectively

Question ID : **9767558037**
Status : **Answered**
Chosen Option : **2**

**Q.13** Determine the vector $\vec{a}$ which is perpendicular to both $\vec{a}$ and $\vec{b}$, also given $\vec{c} \cdot \vec{d} = 15$. Assume $\vec{a} = \hat{i} + 4\hat{j} + 2\hat{k}$, $\vec{b} = 3\hat{i} - 2\hat{j} + 7\hat{k}$ and $\vec{c} = 2\hat{i} - \hat{j} + 4\hat{k}$ ?

**Ans**

✗ A. $\frac{1}{3}(60\hat{i} - 50\hat{j} - 70\hat{k})$

✗ B. $\frac{1}{3}(6\hat{i} - 50\hat{j} - 70\hat{k})$

✓ C. $\frac{1}{3}(160\hat{i} - 5\hat{j} - 70\hat{k})$

✗ D. $\frac{1}{3}(160\hat{i} - 5\hat{j} - 7\hat{k})$

Question ID : **9767558024**
Status : **Answered**
Chosen Option : **2**

**Q.14** Determine the equation of set of points P such that $PA^2 + PB^2 = 2n^2$, where A and B are the points (3, 4, 5) and (-1, 3, -7), respectively?

**Ans**

✗ A. $x^2 + 2y^2 + 4z^2 - 4x - 14y + 4z = 2n^2 - 109$

✓ B. $2x^2 + 2y^2 + 2z^2 - 4x - 14y + 4z = 2n^2 - 109$

✗ C. $2x^2 + y^2 + z^2 - 4x - 14y + 4z = 2n^2 - 109$

✗ D. $2x^2 + y^2 + 2z^2 - 4x - 14y + 2z = 2n^2 - 109$

Question ID : **9767558044**
Status : **Answered**
Chosen Option : **2**

**Q.15** **Find the quantity of arrangements of the letters of the word INDEPENDENCE if all the vowels always occur together?**

**Ans**

✗ A. 138600

✗ B. 12600

✓ C. 16800

✗ D. 16400

Question ID : **9767558030**
Status : **Answered**
Chosen Option : **3**

**Q.16** **A train, which is moving at the rate of 60 miles per hour, is brought to rest in 3 minutes with a uniform retardation, find this retardation, and also the distance that the train travels before coming to rest?**

**Ans**

✔ A. $-\frac{22}{45}$ ft/sec, 7920 feet

✘ B. $-\frac{44}{90}$ ft/sec, 7920 feet

✘ C. $-\frac{22}{45}$ ft/sec, 3960 feet

✘ D. $-\frac{44}{90}$ ft/sec, 3960 feet

Question ID : **9767558025**
Status : **Answered**
Chosen Option : **2**

**Q.17** If $\sin x = \frac{4}{5}$, $\cos y = -\frac{12}{13}$, where $x$ and $y$ both lie in second quadrant, find the value of $\sin(x+y)$ ?

**Ans**

✘ A. $\frac{56}{65}$

✘ B. $\frac{63}{65}$

✔ C. $-\frac{63}{65}$

✘ D. $-\frac{56}{65}$

Question ID : **9767558045**
Status : **Answered**
Chosen Option : **2**

**Q.18** If $\vec{a} = \hat{i} + \hat{j} + \hat{k}$, $\vec{b} = 2\hat{i} - \hat{j} + 3\hat{k}$ and $\vec{c} = \hat{i} - 2\hat{j} + \hat{k}$, find a unit vector parallel to the vector $2\vec{a} - \vec{b} + 3\vec{c}$ ?

**Ans**

✘ A. $\frac{9}{\sqrt{22}}\hat{i} - \frac{3}{\sqrt{22}}\hat{j} + \frac{1}{\sqrt{22}}\hat{k}$

✘ B. $\frac{2}{\sqrt{22}}\hat{i} - \frac{3}{\sqrt{22}}\hat{j} + \frac{2}{\sqrt{22}}\hat{k}$

✘ C. $\frac{3}{\sqrt{22}}\hat{i} - \frac{3}{\sqrt{22}}\hat{j} + \frac{3}{\sqrt{22}}\hat{k}$

✔ D. $\frac{3}{\sqrt{22}}\hat{i} - \frac{3}{\sqrt{22}}\hat{j} + \frac{2}{\sqrt{22}}\hat{k}$

Question ID : **9767558022**
Status : **Answered**
Chosen Option : **2**

Q.19 **Find the quantity of methods of picking 4 cards from a set of 52 playing cards if four cards are of the same unit?**

Ans
- ✗ A. 11440
- ✓ B. 2860
- ✗ C. 715
- ✗ D. 5720

Question ID : **9767558028**
Status : **Answered**
Chosen Option : **2**

Q.20 Find the value of the given magnitude of the vector, $\vec{a} = \frac{1}{\sqrt{3}}\hat{i} + \frac{1}{\sqrt{3}}\hat{j} + \frac{1}{\sqrt{3}}\hat{k}$ ?

Ans
- ✗ A. $\sqrt{3}$
- ✗ B. $\frac{1}{\sqrt{3}}$
- ✗ C. 1.5
- ✓ D. 1

Question ID : **9767558023**
Status : **Answered**
Chosen Option : **4**

Q.21 **A stone is thrown vertically with the velocity which would just carry it to height of 100 feet. Two seconds later another stone is projected vertically from the same place with the same velocity, find when and where will they meet?**

Ans
- ✗ A. $3\frac{1}{2}$ seconds, 476 feet
- ✗ B. $3\frac{1}{3}$ seconds, 476 feet
- ✓ C. $3\frac{1}{2}$ seconds, 84 feet
- ✗ D. $3\frac{1}{3}$ seconds, 84 feet

Question ID : **9767558026**
Status : **Answered**
Chosen Option : **2**

**Q.22** **Two dancers Seema and Reema appeared in audition of a dance competition. The probability that seema will be selected in this dance competition is 0.05 and that reema will be selected is 0.10. The probability that both will get selected is 0.02. Determine the probability that:**

**(i) Both seema and reema will not get selected in the competition.**
**(ii) Atleast one of them will not be selected in the competition**
**(iii) Only one of them will be selected in the competition**

**Ans**

✗ A. 0.11, 0.05, 0.95 respectively

✓ B. 0.87, 0.98, 0.11 respectively

✗ C. 0.95, 0.98,0.13 respectively

✗ D. 0.13, 0.02, 0.11 respectively

Question ID : **9767558036**
Status : **Answered**
Chosen Option : **2**

**Q.23** **Which of the following is TRUE for "complementary event or 'not event'"?**

**Ans**

✗ A. The set A-B

✗ B. The set $A \cap B$

✓ C. The set A' or S-A

✗ D. The set $A \cup B$

Question ID : **9767558032**
Status : **Answered**
Chosen Option : **2**

**Q.24** Evaluate $3\sin\frac{\pi}{6}\sec\frac{\pi}{3} - 4\sin\frac{5\pi}{6}\cot\frac{\pi}{4}$ and figure out the correct answer from below options?

**Ans**

✗ A. $\frac{1}{2}$

✗ B. 0

✗ C. $\frac{1}{\sqrt{3}}$

✓ D. 1

Question ID : **9767558048**
Status : **Answered**
Chosen Option : **4**

**Q.25** Evaluate $3\sin x - 4\sin^3 x$ and figure out the correct answer from below options?

**Ans**

✗ A. $2\sin 3x$

✓ B. $\sin 3x$

✗ C. $\cos 2x \cos x$

✗ D. $\sin x$

Question ID : **9767558047**
Status : **Answered**
Chosen Option : **2**

Q.26 Determine the co-ordinates of the point where the line through the points A (2, 3, 2) and B (5, 1, 6) crosses the XY- plane?

Ans

✗ A. $\frac{7}{2}, 4, \frac{1}{2}$

✗ B. $\frac{3}{2}, 4, 2$

✗ C. $\frac{7}{2}, 2, 0$

✓ D. $\frac{1}{2}, 4, 0$

Question ID : **9767558041**
Status : **Answered**
Chosen Option : **2**

Q.27 Which of the following is NOT a known factor to uniquely determine a plane?

Ans

✗ A. The normal to the plane and its distance from the origin is given

✗ B. It passes through three given non collinear points

✗ C. It passes through a point and is perpendicular to a given direction.

✓ D. The equation of a plane lying in extraordinary form

Question ID : **9767558040**
Status : **Answered**
Chosen Option : **2**

Q.28 The minute hand of a watch is 2 cm long. How far does its tip move in 45 minutes? (use π = 3.14)

Ans

✗ A. 3.14

✗ B. 12.56

✗ C. 6.28

✓ D. 9.42

Question ID : **9767558049**
Status : **Answered**
Chosen Option : **4**

Q.29 Determine the value of p for which $p(\hat{i} + \hat{j} + \hat{k})$ is a unit vector?

Ans

✓ A. $\pm\frac{1}{\sqrt{3}}$

✗ B. $\pm\frac{2}{\sqrt{3}}$

✗ C. $\pm\frac{1}{3}$

✗ D. $\sqrt{3}$

Question ID : **9767558020**
Status : **Answered**
Chosen Option : **1**

**Q.30** **What will be the number of permutations of n different things, taken r at a time, where repeatition is allowed?**

**Ans**

✗ A. $\frac{n}{r(n-1)}$

✗ B. $n^{rn}$

✓ C. $n^r$

✗ D. $(n-1)^r$

Question ID : **9767558029**
Status : **Answered**
Chosen Option : **3**

**Q.31** **A stream of water flowing horizontally with a speed of 20 m/s pushes out of a tube of cross-sectional area $10^{-1}m^2$ and hits at a vertical wall nearby. Find the force exerted on the wall by the impact of water, assuming that it does not rebound?**

**Ans**

✗ A. 40000 N

✓ B. 400 N

✗ C. 2250 N

✗ D. 4000 N

Question ID : **9767558061**
Status : **Answered**
Chosen Option : **2**

**Q.32** 'Two spherical soap bubbles of radii r1 and r2 coalesce to form a bubble of radius R. If surface tension of soap solution is T, atmospheric pressure is P, change in volume of the air enclosed is V and the change in surface area is A'.

Complete the expression using above statement, 3PV + ___ = 0

**Ans**

✗ A. 8TP

✗ B. 4TP

✗ C. 2TA

✓ D. 4TA

Question ID : **9767558071**
Status : **Answered**
Chosen Option : **2**

**Q.33** Which of the following electromagnetic waves are used for detection like Geiger tubes?

**Ans**

✓ A. X- rays

✗ B. Microwave

✗ C. Light rays

✗ D. Ultraviolet

Question ID : **9767558050**
Status : **Answered**
Chosen Option : **2**

**Q.34** Which of the following statement is true for a wavelength of 1000 nm. A p-n photodiode is fabricated from a semiconductor with band gap of 1.9 eV.

**Ans**

✗ A. The photodiode can detect signal once the energy of signal is increased.

✗ B. The energy of a signal of given wavelength is more than the specified band gap

✗ C. The photodiode can easily detect signal

✓ D. The photodiode cannot detect signal

Question ID : **9767558067**
Status : **Answered**
Chosen Option : **2**

**Q.35** A pulse of light duration $10^{-5}$ s is absorbed fully by a little object initially at rest. If the power of this pulse is $45 \times 10^{-3}$ W, compute the final momentum of the object?

**Ans**

✓ A. $15 \times 10^{-16} \text{Kg ms}^{-1}$

✗ B. $45 \times 10^{-16} \text{Kg ms}^{-1}$

✗ C. $15 \times 10^{-8} \text{Kg ms}^{-1}$

✗ D. $45 \times 10^{-8} \text{Kg ms}^{-1}$

Question ID : **9767558054**
Status : **Answered**
Chosen Option : **4**

**Q.36** Light from a point source in air falls on a spherical glass surface (n =1.5 c and radius of curvature = 10 cm). The distance of the light source from the glass surface is 50 cm. At what position the image is formed?

**Ans**

✗ A. The image is formed at a distance of 100 cm from the glass surface, opposite to the direction of incident light.

✓ B. The image is formed at a distance of 50 cm from the glass surface, in the direction of incident light.

✗ C. The image is formed at a distance of 100 cm from the glass surface, in the direction of incident light.

✗ D. The image is formed at a distance of 50 cm from the glass surface, opposite to the direction of incident light.

Question ID : **9767558058**
Status : **Answered**
Chosen Option : **2**

**Q.37** A stone of mass 0.3 kg tied to the end of a string is whirled round in a circle of radius 1.2 m with a speed of 20 rev./min in a horizontal plane. What is the tension in the string? What is the maximum speed with which the stone can be whirled around if the string can withstand a maximum tension of 100 N?

**Ans**

✗ A. 0.75 N, 20 m/s

✗ B. 6.57 N, 34.6 m/s

✗ C. 6.57 N, 39.6 m/s

✓ D. 1.57 N, 20 m/s

Question ID : **9767558063**
Status : **Answered**
Chosen Option : **2**

**Q.38** Let the electric field part of an electromagnetic wave is $E = \{(2.3\ N/C)\cos[(1.2\ rad/m)\gamma + (2.4 \times 10^8\ rad/s)t]\}\hat{i}$.
Compute the value of wavelength, frequency and the amplitude of the magnetic field part of the wave' respectively ?

**Ans**

✗ A. $5.23, 2.82 \times 10^7$ and $1.76 \times 10^{-8}$

✗ B. $3.23, 2.82 \times 10^7$ and $0.76 \times 10^{-8}$

✓ C. $5.23, 3.82 \times 10^7$ and $0.76 \times 10^{-8}$

✗ D. $3.23, 3.82 \times 10^7$ and $1.76 \times 10^{-6}$

Question ID : **9767558052**
Status : **Answered**
Chosen Option : **2**

**Q.39** Figure-out the case from the following in which the rope will break if an animal of mass 30 kg climbs on a rope, which can stand a maximum tension of 560 N. Assume g=10 $m/s^2$

**Ans**

✗ A. 8 $m/s^2$

✓ B. 9 $m/s^2$

✗ C. 8.5 $m/s^2$

✗ D. 7 $m/s^2$

Question ID : **9767558059**
Status : **Answered**
Chosen Option : **2**

**Q.40** Water flows in a horizontal pipe of non-uniform area of cross-section at a pressure difference of 1.6 cm of mercury. If the velocity of water at the larger cross-section of pipe is 50 cm/s, find the velocity of water at the other end?

**Ans**

✗ A. $\sqrt{4.09}$

✗ B. $\sqrt{2.88}$

✓ C. $\sqrt{4.51}$

✗ D. $\sqrt{2.38}$

Question ID : **9767558072**
Status : **Answered**
Chosen Option : **2**

**Q.41** The radii of curvature of the faces of a double convex lens are 20 cm and 30 cm. If focal length of the lens is 36 cm, find the refractive index of the material of the lens?

**Ans**

✗ A. 1.33 cm

✗ B. 1.2 cm

✓ C. 1.5 cm

✗ D. 1.7 cm

Question ID : **9767558057**
Status : **Answered**
Chosen Option : **1**

**Q.42** In a plane electromagnetic wave, the electric field oscillates sinusoidally at a frequency of $3 \times 10^8$ Hz and amplitude 36 V/m. Find the amplitude of the oscillating magnetic field?

**Ans**

✗ A. $0.5 \times 10^{-7}$ T

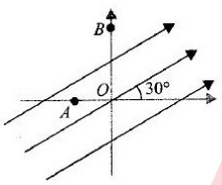
✗ B. $1.8 \times 10^{-7}$ T

✗ C. $1.6 \times 10^{-7}$ T

✓ D. $1.2 \times 10^{-7}$ T

Question ID : **9767558053**
Status : **Answered**
Chosen Option : **2**

**Q.43** A uniform electric field of 50 $Vm^{-1}$ is directed at 30 ° with the positive $x$-axis as shown in given figure. Also OA = 6m and OB = 8m. Find the potential difference (a) $V_B$-$V_A$ (b) $V_0$-$V_A$?




**Ans**

✓ A. (a) - 50 $(3\sqrt{3}+4)$ V, (b) -150 $\sqrt{3}$ V

✗ B. (a) - 50 $(3\sqrt{3}+4)$ V, (b) -50 $\sqrt{3}$ V

✗ C. (a) 50 $(3\sqrt{3}+4)$ V, (b) 150 $\sqrt{3}$ V

✗ D. (a) 50 $(3\sqrt{3}+4)$ V, (b) 50 $\sqrt{3}$ V

Question ID : **9767558064**
Status : **Answered**
Chosen Option : **2**

**Q.44** A train runs along an unbanked circular track of radius of 10 m at speed of 36 km/h. The mass of the train is $10^6$ kg. What is the angle of banking required to prevent wearing out of the rail? Assume g = 10 m/s$^2$

**Ans**

✔ A. 45°

✘ B. 37°

✘ C. 27°

✘ D. 60°

Question ID : **9767558060**
Status : **Answered**
Chosen Option : **2**

**Q.45** **A galvanometer coil has a resistance of 14 Ω and the metre shows full scale deflection for a current of 4 mA. How will you convert the metre into a voltmeter of range 0 to 16 V?**

**Ans**

✘ A.
A resistor of resistance 5988 Ω is to be connected is series with the galvanometer

✘ B.
A resistor of resistance 5988 Ω is to be connected is series with the galvanometer

✔ C.
A resistor of resistance 3986 Ω is to be connected is series with the galvanometer

✘ D.
A resistor of resistance 3986 Ω is to be connected is parallel with the galvanometer

Question ID : **9767558074**
Status : **Answered**
Chosen Option : **2**

**Q.46** The below figure shows a ball of mass 0.6 kg rebounding between two walls separated by a distance of 2 cm. The ball rebounds between the walls every 2 seconds with a uniform velocity. Find the magnitude of each impulse?


**Ans**

✔ A. $12 \times 10^{-4}$ kgm/s

✘ B. $8 \times 10^{-4}$ kgm/s

✘ C. $12 \times 10^{-2}$ kgm/s

✘ D. $8 \times 10^{-2}$ kgm/s

Question ID : **9767558062**
Status : **Answered**
Chosen Option : **2**

**Q.47** A brass boiler has a base area of 0.2 $m^2$ and thickness 1.0 cm, It boils water at the rate of 6.0 kg/min when placed on a gas stove. Calculate the temperature of the part of the flame in contact with the boiler. Also the temperature at which water boils is 100 ° C Thermal conductivity of brass = 109 $Js^{-1}$ $m^{-1}K^{-1}$, heat of vaporization of water = 2256 × $10^3$ J $Kg^{-1}$ ?

**Ans**

✗ A. 283.45 °C

✗ B. 238.43 °C

✗ C. 263.49 °C

✓ D. 203.48 °C

Question ID : **9767558077**
Status : **Answered**
Chosen Option : **2**

**Q.48** The coefficient of volume expansion of glycerine is $49 \times 10^{-5} K^{-1}$. Find the fractional change in its density for a 20 ° C rise in temperature?

**Ans**

✗ A. $2.45 \times 10^{-2}$

✗ B. $98 \times 10^{-2}$

✗ C. $0.49 \times 10^{-2}$

✓ D. $0.98 \times 10^{-2}$

Question ID : **9767558078**
Status : **Answered**
Chosen Option : **2**

**Q.49** Which of the following statement is INCORRECT regarding the comparison between biot-savart law for the magnetic field and coulomb's law for the electrostatic field?

**Ans**

✗ A.
Both are long range, since both depend inversely on the square of distance from the source to the point of interest.

✗ B.
The electrostatic field is produced by a scalar source, namely, the electric charge. The magnetic field is produced by a vector source.

✓ C.
There is no angle dependence in biot-savart law which is present in the electrostatic case. The magnetic field at any point is zero

✗ D.
The electrostatic field is along displacement vector joining the source and the field point. The magnetic field is perpendicular to the plane containing the displacement vector and current element.

Question ID : **9767558076**
Status : **Answered**
Chosen Option : **2**

**Q.50** For CE-transistor amplifier, the audio signal voltage across the collected resistance of 3 kΩ is 3V. Assume the current amplification factor of the transistor is 50, find the input signal voltage and base current, if the base resistance is 1 kΩ?

**Ans**

✗ A. 0.01V, 20μA

✓ B. 0.02V, 20μA

✗ C. 0.01V, 10μA

✗ D. 0.02V, 10μA

Question ID : **9767558066**
Status : **Answered**
Chosen Option : **2**

**Q.51** **Assume a parallel plate capacitor which is maintained at potential of 100 V. If the partition distance between the plates of the capacitor and area of the plates are 5 mm and 25 $cm^2$ respectively. Compute the displacement current for the time in μs?**

**Ans**

✗ A. 0.13 mA

✓ B. 0.44 mA

✗ C. 3.5 mA

✗ D. 2.5 mA

Question ID : **9767558051**
Status : **Answered**
Chosen Option : **2**

**Q.52** A ray of light passing through an equilateral triangular glass prism from air undergoes minimum deviation when angle of incidence is 75% of the angle of prism. Compute the speed of light in the prism?

**Ans**

✗ A. $2.62 \times 10^8 m/s$

✓ B. $2.12 \times 10^8 m/s$

✗ C. $1.52 \times 10^8 m/s$

✗ D. $1.92 \times 10^8 m/s$

Question ID : **9767558056**
Status : **Answered**
Chosen Option : **2**

**Q.53** The diameter of a capillary is 4mm. If Reynolds's number of the tube is 1000 and the co-efficient of viscosity for the water is 0.02 poise, determine the maximum speed of water for the stream line flow in the tube?

**Ans**

✗ A. 200 cm/s

✗ B. 50 cm/s

✓ C. 100 cm/s

✗ D. 1000 cm/s

Question ID : **9767558073**
Status : **Answered**
Chosen Option : **2**

**Q.54** Two amplifiers are connected one after the other in series (cascaded). The first amplifier has a voltage gain of 12 and the second has a voltage gain of 15. Find the output ac signal if the input signal is 0.05 volt?

**Ans**

✗ A. 90 V

✓ B. 9 V

✗ C. 180 V

✗ D. 1.8 V

Question ID : **9767558068**
Status : **Answered**
Chosen Option : **2**

**Q.55** **A copper block of mass 3 kg is heated in a furnace to a temperature of 450 °C and then placed on a large ice block. Find the maximum amount of ice that can melt? (specific heat of copper = 0.39 $Jg^{-1}K^{-1}$ , heat of fusion of water = 335 $Jg^{-1}K^{-1}$)**

**Ans**

✗ A. 1.68 kg

✓ B. 1.57 kg

✗ C. 1.75 kg

✗ D. 1.45 kg

Question ID : **9767558079**
Status : **Answered**
Chosen Option : **2**

**Q.56** A toroid has a core (non-ferromagnetic) of inner radius 23 cm and outer radius 28 cm, around which 4000 turns of a wire are wound. If the current in the wire is 9 A, find the magnetic field (a) inside the core of the toroid (b) outside the toroid?

**Ans**

✓ A. (a) 2.82.0 × $10^{-2}$ T (b) 0

✗ B. (a)3.0 x $10^{-2}$ T (b) 0.5

✗ C. (a) 28.2 T (b) 0

✗ D. (a)0.82.0 x $10^{-3}$ T (b) 0.5

Question ID : **9767558075**
Status : **Answered**
Chosen Option : **2**

**Q.57** How does the angle of minimum deviation of a glass prism of refractive index 1.5 change, if it is immersed in a liquid of refractive index 1.25?

**Ans**

✗ A. Angle of deviation is constant

✗ B. Angle of deviation is increased

✓ C. Angle of deviation is decreased

✗ D. Angle of deviation is zero

Question ID : **9767558055**
Status : **Not Answered**
Chosen Option : **--**

Q.58

| Inputs | | Outputs |
|---|---|---|
| A | B | Y |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

The above truth table belongs to:

Ans

✗ A. AND gate

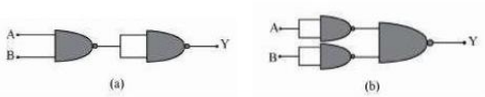
✗ B. NOT gate

✓ C. OR gate

✗ D. NAND gate

Question ID : **9767558065**
Status : **Not Answered**
Chosen Option : **--**

Q.59




Above are the circuits that consists of NAND gates. Determine the logic operation carried out by these circuits?

Ans

✓ A. (a)AND gate (b) OR gate

✗ B. (a)NAND gate (b) OR gate

✗ C. (a) OR gate (b) AND gate

✗ D. (a)NAND gate (b) NOR gate

Question ID : **9767558070**
Status : **Not Answered**
Chosen Option : **--**

Q.60 In order to use the transistor as an amplifier, it has to operate in the _____ region.

Ans

✗ A. Switched region

✗ B. Cutoff region

✓ C. Active region

✗ D. Saturation region

Question ID : **9767558069**
Status : **Not Answered**
Chosen Option : **--**