



भारतीय विमानपत्तन प्राधिकरण
(मिनी रत्न - श्रेणी - 1 सार्वजनिक क्षेत्र का उद्गम)
AIRPORTS AUTHORITY OF INDIA
(Schedule - 'A' Mini Ratna - Category - 1 Public Sector Enterprise)

Participant ID	
Participant Name	incomopedia.com
Test Center Name	
Test Date	25/03/2021
Test Time	12:00 PM - 2:00 PM
Subject	Jr. Executive (ATC)

Section : General Knowledge

Q.1 Which piece of jewellery frames the face and often connects a few other pieces of jewellery together?

- Ans
- A. Kalgi
 - B. Phuli
 - C. Tikka
 - D. Shringar patti

Question ID : 9767558201
Status : Marked For Review
Chosen Option : 4

Q.2 When do we observe National Sports day in India?

- Ans
- A. 19th April
 - B. 29th December
 - C. 29th August
 - D. 19th October

Question ID : 9767558210
Status : Marked For Review
Chosen Option : 4

Q.3 Which state leads coffee production in India as of December 2020?

- Ans
- A. Assam
 - B. Tamil Nadu
 - C. Karnataka
 - D. Kerala

Question ID : 9767558207
Status : Answered
Chosen Option : 1

Q.4 To ensure that no bank is over lending, _____ is a certain percentage of deposits that every bank must keep as reserves.

- Ans A. Cash Reserve Ratio (CRR)
 B. Reserve Cash Ratio (RCR)
 C. Cash Refund Ratio (CRR)
 D. Reserve Related Ratio (RRR)

Question ID : 9767558203
Status : Answered
Chosen Option : 1

Q.5 Which hormone regulates blood sugar level?

- Ans A. Prolactin
 B. Adrenaline
 C. Testosterone
 D. Insulin

Question ID : 9767558205
Status : Answered
Chosen Option : 4

Q.6 India is the world's _____ most populous nation as of 2020.

- Ans A. first
 B. second
 C. third
 D. fourth

Question ID : 9767558206
Status : Answered
Chosen Option : 2

Q.7 Who was the 'Pal' of the trio 'Lal, Bal and Pal' in the Swadeshi movement?

- Ans A. Rupchand Pal
 B. Niranjana Pal
 C. Bipin Chandra Pal
 D. Lal Bahadur Shastri

Question ID : 9767558208
Status : Answered
Chosen Option : 3

Q.8 In which language were most Ashokan scripts written?

- Ans A. Pali
 B. Prakrit
 C. Sanskrit
 D. Hindi

Question ID : 9767558202
Status : Answered
Chosen Option : 1

Q.9 Which was the first ever Indian newspaper to be printed in English?

- Ans A. Deccan Herald
 B. The Times of India
 C. Pioneer
 D. The Bengal Gazette

Question ID : 9767558209
Status : Answered
Chosen Option : 4

Q.10 _____ is the value of GDP at the current market prices.

- Ans A. Net GDP
 B. Natural GDP
 C. Nominal GDP
 D. Real GDP

Question ID : 9767558204
Status : Answered
Chosen Option : 3

Section : General Intelligence

Q.1 उस सही विकल्प का चयन करें जो नीचे दिये गये शब्दों की सबसे उचित क्रम में व्यवस्था दर्शाता है।

1. गाय
2. तोता
3. मकखी
4. बकरी
5. बिल्ली

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

Question ID : 9767558219
Status : Answered
Chosen Option : 1

Q.2 Select the number from among the given options that can replace the question mark

(?) in the following series.
5, 6, 10, 19, 35, 60, ?

- Ans A. 75
 B. 96
 C. 72
 D. 86

Question ID : 9767558220
Status : Answered
Chosen Option : 2

Q.3 In a certain code language, ABOUT is written as YYRDB, and ACUTE is written as JXXEB. How will ANGLE be written as in that language?

- Ans
- A. BPJPJ
 - B. JPJBP
 - C. JPJPB
 - D. JPJPC

Question ID : 9767558215
Status : Answered
Chosen Option : 3

Q.4 Select the option in which the letter-clusters share the same relationship as that shared by the given pair of letter-clusters.
GW : WR

- Ans
- A. UT : JO
 - B. PU : ZX
 - C. EF : DG
 - D. DA : TV

Question ID : 9767558214
Status : Answered
Chosen Option : 4

Q.5 Select the alphanumeric-cluster from among the given options that can replace the question mark (?) in the following series.
F5, J8, R14, D23, ?

- Ans
- A. S35
 - B. U35
 - C. T38
 - D. T35

Question ID : 9767558212
Status : Answered
Chosen Option : 4

Q.6 Seven contestants, H, I, J, K, L, M and N, have their entry on stage at the Miss World contest in a certain sequence. I enters exactly before M. J enters exactly after N. Exactly one contestant enters on stage after M and before H in the same order. L enters third. H enters last. Based on the given information, which of the following options is true?

- Ans
- A. J enters fourth in number
 - B. I enters fifth in number
 - C. L enters after M
 - D. N enters first in number

Question ID : 9767558218
Status : Answered
Chosen Option : 4

Q.7 उस विकल्प का चयन करें जो तीसरे शब्द से ठीक उसी तरह संबंधित है जिस प्रकार दूसरा शब्द पहले शब्द से संबंधित है।

उल्लू : खलिहान :: सुअर : ?

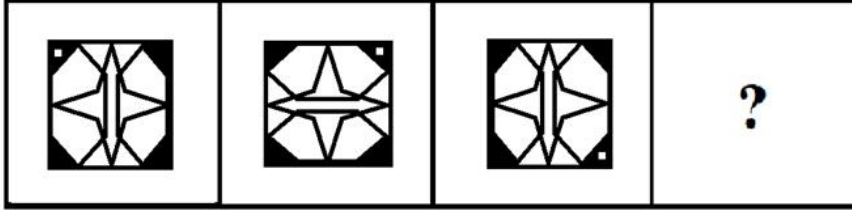
- Ans
- A. मांद
 - B. सुअर-बाड़ा
 - C. बिल
 - D. अस्तबल

Question ID : 9767558213

Status : Answered

Chosen Option : 2

Q.8 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 : 9767558221

Status : Answered

Chosen Option : 2

Q.9 How many letters are there in the following series that are not vowels and are immediately preceded by an even number?
D 22 A G 3 B 62 O 2 N 7 M 12 L Q K 10 E 43 T 23 F 5

- Ans
- A. 3
 - B. 2
 - C. 5
 - D. 4

Question ID : 9767558225
Status : Answered
Chosen Option : 2

Q.10 Select the letter-cluster from among the given options that can replace the question mark (?) in the following series.
XY, RT, LO, FJ, ?

- Ans
- A. YE
 - B. ZE
 - C. AE
 - D. ZF

Question ID : 9767558211
Status : Answered
Chosen Option : 2

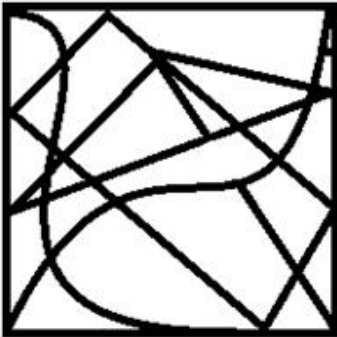


Q.11 Select the option in which the given figure is embedded (rotation is NOT allowed).

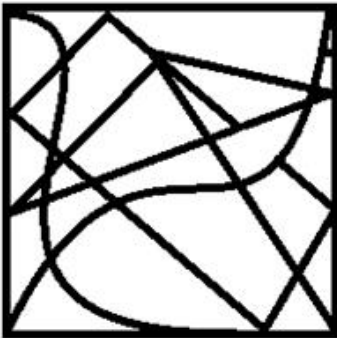


Ans

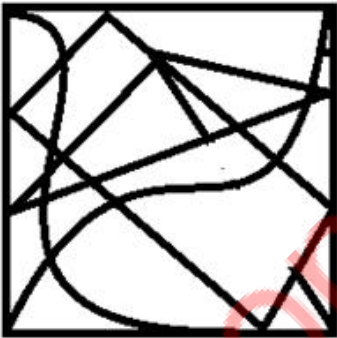
A.



B.



C.



D.



Question ID : 9767558224
Status : Answered
Chosen Option : 4

Q.12 Arjun travels a distance of 10 km from a cafeteria towards the north. He turns left and walks 6 km. Then he turns right and walks 4 km. Finally he turns right and walks 6 km to reach the railway station. What is the distance between the cafeteria and railway station?

- Ans
- A. 20 km
 - B. 14 km
 - C. 16 km
 - D. 26 km

Question ID : 9767558222
Status : Answered
Chosen Option : 2

Q.13 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. Some parrots are sparrows.
- 2. Some crows are parrots.

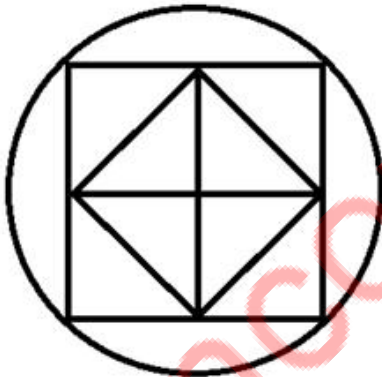
Conclusions:

- I. Some sparrows are parrots.
- II. Some crows are sparrows.

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

Question ID : 9767558217
Status : Answered
Chosen Option : 2

Q.14 What is the maximum number of triangles in the given figure?



- Ans
- A. 8
 - B. 4
 - C. 12
 - D. 24

Question ID : 9767558223
Status : Answered
Chosen Option : 3

Q.15 'P ÷ Q' means 'P is the son of Q',
'P - Q' means 'P is the husband of Q',
'P × Q' means 'P is the brother of Q' and
'P + Q' means 'P is the wife of Q'.
If 'J ÷ H + M ÷ S - F', then how is F related to J?

- Ans
- A. Grandfather
 - B. Grandmother
 - C. Mother
 - D. Grandson

Question ID : 9767558216
Status : Answered
Chosen Option : 2

Section : General Aptitude

Q.1 If the cost of 16 bananas is Rs. 80, then find out the cost of 5 dozen bananas.

- Ans
- A. Rs. 300
 - B. Rs. 260
 - C. Rs. 240
 - D. Rs. 320

Question ID : 9767558232
Status : Answered
Chosen Option : 1

Q.2 A labour gets Rs. 4800 for 16 days' work. How many days should he work to get Rs. 8400?

- Ans
- A. 25 days
 - B. 28 days
 - C. 30 days
 - D. 32 days

Question ID : 9767558233
Status : Answered
Chosen Option : 2

Q.3 The greatest number of four digits that is divisible by 30, 36, 45 and 75 is:

- Ans
- A. 9936
 - B. 9990
 - C. 9900
 - D. 9930

Question ID : 9767558227
Status : Answered
Chosen Option : 3

Q.4 The perimeter of one square is 52 metre and that of another is 20 metre. What is the perimeter of the square whose area is equal to the difference of the areas of the two squares?

- Ans A. 48 m
 B. 52 m
 C. 40 m
 D. 44 m

Question ID : 9767558238
Status : Answered
Chosen Option : 1

Q.5 A batsman makes a score of 79 runs in the 18th inning and thus increases his average by 2. Find his average after 18th inning.

- Ans A. 39
 B. 45
 C. 42
 D. 48

Question ID : 9767558236
Status : Answered
Chosen Option : 2

Q.6 A tank 8 ft. x 5 ft. x 3 ft. has a supply pipe pouring in 480 in³ of water in a minute and an exhaust pipe emptying it in 4 hours. If the tank is full and both pipes are open, how many hours will it take to empty it?

- Ans A. 9 hrs
 B. 7 hrs
 C. 6 hrs
 D. 8 hrs

Question ID : 9767558235
Status : Marked For Review
Chosen Option : 3

Q.7 If x and y are the two digits of the number 3212xy such that this number is divisible by 90, then (x + y) is equal to:

- Ans A. 0
 B. 3
 C. 2
 D. 1

Question ID : 9767558226
Status : Answered
Chosen Option : 4

Q.8 The compound interest and the simple interest for two years on a certain sum at a certain rate of interest are Rs. 1,230 and Rs. 1,200 respectively. Find principal.

- Ans
- A. Rs. 12,600
 - B. Rs. 10,000
 - C. Rs. 12,000
 - D. Rs. 10,600

Question ID : 9767558237
 Status : Answered
 Chosen Option : 3

Q.9 Naveen spends 80.5% of his income. His income increases by 40% and expenditure increases by 60%. Find his percentage decrease in savings.

- Ans
- A. $\frac{1660}{41}$
 - B. $\frac{1680}{41}$
 - C. $\frac{1660}{39}$
 - D. $\frac{1680}{39}$

Question ID : 9767558234
 Status : Answered
 Chosen Option : 3

Q.10 $\frac{6}{73} \left(5\frac{2}{3} \times 3\frac{1}{6} + 2\frac{1}{3} \right)$
 Evaluate above equation.

- Ans
- A. $\frac{10}{9}$
 - B. $\frac{3}{5}$
 - C. $\frac{9}{10}$
 - D. $\frac{5}{3}$

Question ID : 9767558228
 Status : Answered
 Chosen Option : 4

Q.11 $\frac{17}{60} = \underline{\hspace{2cm}}$.

Ans

A. $3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{4}}}$

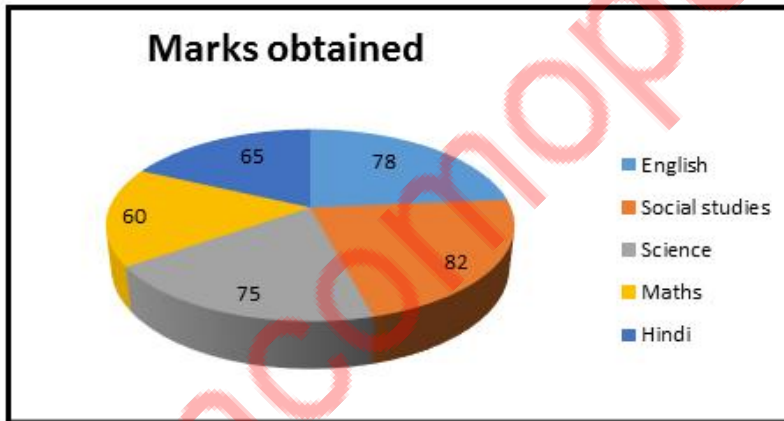
B. $3 + \frac{1}{1 + \frac{1}{16}}$

C. $3 + \frac{1}{1 + \frac{1}{1 + \frac{1}{8}}}$

D. $2 + \frac{1}{1 + \frac{1}{8}}$

Question ID : 9767558230
 Status : Answered
 Chosen Option : 3

Q.12



Marks obtained by a student in various subjects are shown in the given pie diagram, figures being given in terms of the angles formed by the sectors at the centre of the circle.

If the total marks obtained were 1440, then the student's marks in science would be:

- Ans A. 328
 B. 300
 C. 320
 D. 312

Question ID : 9767558240
 Status : Answered
 Chosen Option : 2

Q.13 $\left(\frac{27}{64} - \frac{8}{27}\right) \div \left(\frac{9}{16} + \frac{1}{2} + \frac{4}{9}\right)$

Evaluate the above equation.

- Ans
- A. $\frac{1}{12}$
 - B. $\frac{5}{12}$
 - C. $\frac{1}{16}$
 - D. $\frac{5}{16}$

Question ID : 9767558229
 Status : Answered
 Chosen Option : 1

Q.14 If a : b = c : d = e : f = 2 : 3, then (xa + yc + ze) : (xb + yd + zf) = _____.

- Ans
- A. 6 : 5
 - B. 2 : 3
 - C. 3 : 2
 - D. 5 : 6

Question ID : 9767558231
 Status : Answered
 Chosen Option : 2

Q.15 A student was asked to divide a number by 4 and add 28 to the quotient. He, however, first added 28 to the number and then divided it by 4, getting 227 as the answer. The correct answer, as per original ask, should have been:

- Ans
- A. 250
 - B. 246
 - C. 242
 - D. 248

Question ID : 9767558239
 Status : Answered
 Chosen Option : 4

Section : General English

Q.1 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.
 Nature have its own way / of teaching us through different life experiences / that may seem unwelcome / but eventually cure us of our arrogance and vanity.

- Ans
- A. of teaching us through different life experiences
 - B. Nature have its own way
 - C. but eventually cure us of our arrogance and vanity
 - D. that may seem unwelcome

Question ID : 9767558247
 Status : Answered
 Chosen Option : 2

Q.2 Select the most appropriate option that can substitute the underlined words in the given sentence.
Two volcanoes on the most populous island, Java, are throwing out large quantities of ash into the air, with hundreds of people evacuated from the slopes of Mount Merapi in recent weeks.

- Ans
- A. exhausting
 - B. belching
 - C. expelling
 - D. spewing

Question ID : 9767558255
Status : Answered
Chosen Option : 3

Q.3 Select the most appropriate ANTONYM of the given word.
GROTESQUE

- Ans
- A. Hideous
 - B. Bizarre
 - C. Normal
 - D. Deformed

Question ID : 9767558241
Status : Marked For Review
Chosen Option : 3

Q.4 Select the most appropriate ANTONYM of the given word.
DETONATE

- Ans
- A. Dismantle
 - B. Discharge
 - C. Burst
 - D. Explode

Question ID : 9767558242
Status : Marked For Review
Chosen Option : 2

Q.5 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.
The King tried his best to groom his foolish son / to prepare him for his future role, / but the young prince only go / from bad to worse.

- Ans
- A. The King tried his best to groom his foolish son
 - B. to prepare him for his future role
 - C. from bad to worse
 - D. but the young prince only go

Question ID : 9767558248
Status : Answered
Chosen Option : 4

Q.6 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. It was decided to ride from 4 in the morning to 11 a.m each day and then log on to work from any roadside dhaba or tea shop to finish their office work.
- B Alan, a young digital marketing executive and an adventure buff found work from home get terribly boring during the Covid-19 lockdown.
- C. Alan discussed his idea of riding down 2000 km across three states with two of his close friends who became equally excited.
- D. He was wondering how to combine work with adventure and then one day a bright idea came to his mind.

- Ans
- A. A, C, D, B
 - B. B, A, D, C
 - C. B, D, C, A
 - D. C, D, B, A

Question ID : 9767558253
Status : Answered
Chosen Option : 3

Q.7 Select the most appropriate phrase to fill in the blank.
Anil wanted to make up with Shikha after the argument so at the party in the evening he tried desperately _____ but she chose to ignore him.

- Ans
- A. keep an eye on her
 - B. to catch her eye
 - C. set eyes on her
 - D. cast an eye upon her

Question ID : 9767558244
Status : Answered
Chosen Option : 2

Q.8 Select the option that expresses the given sentence in indirect speech.
The newly elected Chief Minister said, "I plan to create more jobs for the youth of my state."

- Ans
- A. The newly elected Chief Minister said that he planned to create more jobs for the youth of his state.
 - B. The newly elected Chief Minister announced that he was going to create more jobs for the youth in his state.
 - C. The newly elected Chief Minister told us that he had planned to create more jobs for the youth of my state.
 - D. The newly elected Chief Minister said that he would plan to create more jobs for the youth of his state.

Question ID : 9767558249
Status : Answered
Chosen Option : 1

Q.9 Identify the sentence which is not written in passive voice.

- Ans
- A. The midnight silence was broken by a sudden blaring of sirens.
 - B. The taxi arrived sharp at 8 am.
 - C. No foreign dignitary has been invited as Chief guest for Republic Day parade this year.
 - D. Mr Babbar was rushed to the nearest hospital by a passer by who saw him fainting on the road.

Question ID : 9767558252
Status : Answered
Chosen Option : 2

Q.10 Select the most appropriate idiom to fill in the blank.
As soon as the decision to raise the price of petrol and diesel was announced _____ in the Parliament.

- Ans
- A. all hell will have broken loose
 - B. all hell is going to break loose
 - C. all hell will be let loose
 - D. all hell broke loose

Question ID : 9767558243
Status : Answered
Chosen Option : 2

Q.11 Identify the most appropriate transformation of the following sentence in direct speech.

The doctor advised his patient to take complete bed rest for a week.

- Ans
- A. The doctor advised his patient, "You had to take complete bed rest for a week."
 - B. The doctor told to his patient, "don't rest for a week."
 - C. The doctor said to his patient, " You need to take complete bed rest for a week."
 - D. The doctor said, "I think you need complete bed rest for a week."

Question ID : 9767558250
Status : Answered
Chosen Option : 3

Q.12 Select the most appropriate option to fill in the blank.
Hydroponics is a type of horticulture and a subset of hydroculture, _____ usually crops, without soil by using mineral nutrient solutions in an aqueous solvent.

- Ans
- A. that has a method of growing plants
 - B. which method has been used for growing plants
 - C. which is a method of growing plants
 - D. this is a method of growing plants

Question ID : 9767558256
Status : Answered
Chosen Option : 1

Q.13 Select the most appropriate option to fill in the blanks.
If you are a foodie, then nothing like visiting Singapore where every street is _____ with restaurants and eatery joints serving a _____ of international cuisines.

- Ans
- A. bursting; platter
 - B. bustling; variety
 - C. crowded; mouth watering
 - D. roaring; variation

Question ID : 9767558245
Status : Answered
Chosen Option : 2

Q.14 Parts of a sentence are given below in jumbled order. Arrange the parts in the right order to form a meaningful sentence.

- (A) to prepare them for practical exams
- (B) several states and cities have decided to resume classes
- (C) as coronavirus cases have seen a dip in the last few weeks
- (D) for students appearing for their board exam this year

Ans A. C, B, D, A

B. C, D, A, B

C. A, C, B, D

D. B, D, C, A

Question ID : 9767558254

Status : Answered

Chosen Option : 1

Q.15 Select the option that expresses the given sentence in passive voice.
Lata saw the missing earring under the bed next day.

Ans A. The missing earring was seen by Lata under the bed the next day.

B. The missing earring was saw under the bed the next day.

C. The missing earring was found by Lata.

D. The missing earring was found under the bed the next day.

Question ID : 9767558251

Status : Answered

Chosen Option : 1

Q.16 Select the most appropriate option to fill in the blanks.

Kindness _____ as the ability to be _____ everyone including one's enemies.

Ans A. will be defined; considerate to

B. can be defined; considerate towards

C. has been defined; considerate with

D. is defined; consideration towards

Question ID : 9767558246

Status : Answered

Chosen Option : 2

Comprehension:

Read the given passage and answer the following questions.

Dr. Snow, father of epidemiology, was an obstetrician with an interest in many aspects of medical science. He had long believed that water contaminated by sewage was the cause of cholera. Snow published an article in 1849 outlining his theory, but doctors and scientists thought he was on the wrong track and stuck with the established belief that cholera was caused by breathing vapours or a 'miasma in the atmosphere'.

The first cases of cholera in England were reported in 1831. Between 1831 and 1854 thousands of people in England died of cholera. Dr. Snow who was then experimenting with a new technique, called anaesthesia, now became curious to find out how cholera was spread. Dr. Snow believed sewage dumped into the river or into cesspools near town wells could contaminate the water supply, leading to a rapid spread of the disease.

In 1854, Soho, a suburb of London, where Snow lived was struck by a terrible outbreak of cholera. Snow immediately set out to prove his theory that contaminated water was the cause of the outbreak.

He found that nearly 500 deaths had taken place in a span of ten days in the vicinity of a spot where Cambridge Street joined Broad Street. As soon as he realised the extent of this eruption, he suspected contamination of water from the much-frequented street-pump in Broad Street.

Dr. Snow then gathered information from hospital and public records on when the outbreak began and whether the victims drank water from the Broad Street pump. His investigations gave him positive proof.

Taking his findings with him, Snow approached the town officials and convinced them to remove the handle of the pump. As soon as this was done the outbreak trickled to a stop. Then, Reverend Henry Whitehead, a minister, who believed that the outbreak was due to divine intervention and not contamination of water, interviewed a woman whose child had contracted cholera from another source. During his talks he discovered that the mother used to wash the baby's diapers in water which was dumped into a leaky cesspool just three feet from the Broad Street pump.

This information upheld and also supplemented Dr Snow's findings.

On the basis of your reading of the passage answer the following questions by choosing the best option.

SubQuestion No : 17

Q.17 Two words used in the passage which are synonymous with each other are:

- Ans**
- A. cholera and miasma
 - B. eruption and outbreak
 - C. contamination and cesspool
 - D. epidemiology and obstetrician

Question ID : 9767558258

Status : Answered

Chosen Option : 2

Comprehension:

Read the given passage and answer the following questions.

Dr. Snow, father of epidemiology, was an obstetrician with an interest in many aspects of medical science. He had long believed that water contaminated by sewage was the cause of cholera. Snow published an article in 1849 outlining his theory, but doctors and scientists thought he was on the wrong track and stuck with the established belief that cholera was caused by breathing vapours or a 'miasma in the atmosphere'.

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This information upheld and also supplemented Dr Snow's findings.

On the basis of your reading of the passage answer the following questions by choosing the best option.

SubQuestion No : 18

Q.18 Which trait of Snow is NOT very relevant to the findings of cholera outbreak?

- Ans**
- A. He was a critical thinker and a keen observer.
 - B. He had a scientific approach.
 - C. He took great interest in other fields of medicine.
 - D. He was determined to get to the root of the problem.

Question ID : 9767558261

Status : Answered

Chosen Option : 3

Comprehension:

Read the given passage and answer the following questions.

Dr. Snow, father of epidemiology, was an obstetrician with an interest in many aspects of medical science. He had long believed that water contaminated by sewage was the cause of cholera. Snow published an article in 1849 outlining his theory, but doctors and scientists thought he was on the wrong track and stuck with the established belief that cholera was caused by breathing vapours or a 'miasma in the atmosphere'.

The first cases of cholera in England were reported in 1831. Between 1831 and 1854 thousands of people in England died of cholera. Dr. Snow who was then experimenting with a new technique, called anaesthesia, now became curious to find out how cholera was spread. Dr. Snow believed sewage dumped into the river or into cesspools near town wells could contaminate the water supply, leading to a rapid spread of the disease.

In 1854, Soho, a suburb of London, where Snow lived was struck by a terrible outbreak of cholera. Snow immediately set out to prove his theory that contaminated water was the cause of the outbreak.

He found that nearly 500 deaths had taken place in a span of ten days in the vicinity of a spot where Cambridge Street joined Broad Street. As soon as he realised the extent of this eruption, he suspected contamination of water from the much-frequented street-pump in Broad Street.

Dr. Snow then gathered information from hospital and public records on when the outbreak began and whether the victims drank water from the Broad Street pump. His investigations gave him positive proof.

Taking his findings with him, Snow approached the town officials and convinced them to remove the handle of the pump. As soon as this was done the outbreak trickled to a stop. Then, Reverend Henry Whitehead, a minister, who believed that the outbreak was due to divine intervention and not contamination of water, interviewed a woman whose child had contracted cholera from another source. During his talks he discovered that the mother used to wash the baby's diapers in water which was dumped into a leaky cesspool just three feet from the Broad Street pump.

This information upheld and also supplemented Dr Snow's findings.

On the basis of your reading of the passage answer the following questions by choosing the best option.

SubQuestion No : 19

Q.19 Read the sentences below. Choose the option that best traces the sequence of events in the correct order.

- A: Suspects contamination of drinking water.**
- B: Tries to convince local authorities to seal hand pump**
- C:Collects data and plots location of the patients**
- D:Snow sets out to find the cause of cholera outbreak**
- E: Observes that maximum deaths occurred in a particular area**
- F: Instant drop in cholera cases ----Snow is convinced of his findings**

- Ans**
- A. D, E, A, C, B, F**
 - B. D, A, E, F, C, B**
 - C. F, D, A, C, B, E**
 - D. E, A, C, D, F, B**

Question ID : **9767558259**
 Status : **Answered**
 Chosen Option : **1**

Comprehension:

Read the given passage and answer the following questions.
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 He found that nearly 500 deaths had taken place in a span of ten days in the vicinity of a spot where Cambridge Street joined Broad Street. As soon as he realised the extent of this eruption, he suspected contamination of water from the much-frequented street-pump in Broad Street.
 Dr. Snow then gathered information from hospital and public records on when the outbreak began and whether the victims drank water from the Broad Street pump. His investigations gave him positive proof.
 Taking his findings with him, Snow approached the town officials and convinced them to remove the handle of the pump. As soon as this was done the outbreak trickled to a stop. Then, Reverend Henry Whitehead, a minister, who believed that the outbreak was due to divine intervention and not contamination of water, interviewed a woman whose child had contracted cholera from another source. During his talks he discovered that the mother used to wash the baby's diapers in water which was dumped into a leaky cesspool just three feet from the Broad Street pump.
 This information upheld and also supplemented Dr Snow's findings.
 On the basis of your reading of the passage answer the following questions by choosing the best option.

SubQuestion No : 20

Q.20 Which chance finding helped endorse Snow's theory?

- Ans**
- A. 500 residents of a particular area died in ten days
 - B. a cleric's assertion that cholera was due to divine intervention
 - C. statement of scientists that cholera was due to miasma in the air.
 - D. the proximity of cesspool to the source of drinking water

Question ID : 9767558260
 Status : Answered
 Chosen Option : 1

Section : Domain Questions

Q.1 Determine the vector equation of the plane passing through the intersection of the planes $\vec{r} \cdot (\hat{i} + \hat{j} + \hat{k}) = 6$ and $\vec{r} \cdot (2\hat{i} + 3\hat{j} + 4\hat{k}) = -5$, and the point $(1, 1, 1)$?

- Ans**
- A. $\vec{r} \cdot (10\hat{i} + 23\hat{j} + 13\hat{k}) = 69$
 - B. $\vec{r} \cdot (30\hat{i} + 23\hat{j} + 13\hat{k}) = 69$
 - C. $\vec{r} \cdot (10\hat{i} + 13\hat{j} + 23\hat{k}) = 69$
 - D. $\vec{r} \cdot (20\hat{i} + 23\hat{j} + 26\hat{k}) = 69$

Question ID : 9767558286
 Status : Marked For Review
 Chosen Option : 4

Q.2 What will be the unit vector in XY-plane, which makes an angle of 30° with the positive direction of x-axis?

Ans

A. $\frac{1}{\sqrt{2}}\hat{j}$

B. $\frac{\sqrt{3}}{2}\hat{i} + \frac{1}{2}\hat{j}$

C. $\frac{1}{\sqrt{3}}\hat{i} + \frac{1}{\sqrt{2}}\hat{j}$

D. $\frac{1}{\sqrt{3}}\hat{i} + \frac{1}{2}\hat{j}$

Question ID : 9767558266

Status : Answered

Chosen Option : 2

Q.3 Ten coins numbered 1 to 10 are kept in a packet, merged rigorously and then one coin is taken out randomly. If it is familiar that the number on the drawn coin is more than 3, what is the probability that it is an even number?

Ans

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

B. $\frac{4}{7}$

C. $\frac{5}{2}$

D. $\frac{2}{5}$

Question ID : 9767558277

Status : Answered

Chosen Option : 2

Q.4 Which of the following vectors forms the vertices of a right angled triangle?

Ans

A. $2\hat{i}-\hat{j}+2\hat{k}$, $\hat{i}-3\hat{j}-5\hat{k}$ and $3\hat{i}-4\hat{j}-4\hat{k}$

B. $2\hat{i}-\hat{j}+\hat{k}$, $\hat{i}-3\hat{j}-5\hat{k}$ and $3\hat{i}-4\hat{j}-4\hat{k}$

C. $2\hat{i}-\hat{j}+\hat{k}$, $\hat{i}-3\hat{j}-4\hat{k}$ and $3\hat{i}-4\hat{j}-4\hat{k}$

D. $2\hat{i}-\hat{j}+\hat{k}$, $\hat{i}-3\hat{j}-5\hat{k}$ and $3\hat{i}-4\hat{j}-2\hat{k}$

Question ID : 9767558262

Status : Answered

Chosen Option : 4

Q.5 In a dog race there are 5 dogs named as A, B, C, D, and E. Find the probability that A, B and C are first 3 to finish (in any order)? Assume that all finishing orders are equally likely

- Ans
- A. $\frac{1}{10}$
 - B. $\frac{1}{15}$
 - C. $\frac{1}{12}$
 - D. $\frac{1}{5}$

Question ID : 9767558278
 Status : Answered
 Chosen Option : 1

Q.6 What is the principal solutions of the equation $\tan x = -\frac{1}{\sqrt{3}}$?

- Ans
- A. $\frac{3\pi}{6}, \frac{2\pi}{6}$
 - B. $\frac{9\pi}{3}, \frac{7\pi}{3}$
 - C. $\frac{11\pi}{6}, \frac{5\pi}{6}$
 - D. $\frac{2\pi}{3}, \frac{2\pi}{3}$

Question ID : 9767558290
 Status : Answered
 Chosen Option : 3

Q.7 Determine a unit vector perpendicular to each of the vector $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$, where $\vec{a} = 3\hat{i} + 2\hat{j} + 2\hat{k}$ and $\vec{b} = \hat{i} + 2\hat{j} - 2\hat{k}$?

- Ans
- A. $\pm \frac{2\hat{i} - \hat{j} - 2\hat{k}}{3}$
 - B. $\pm \frac{2\hat{i} - 2\hat{j} - \hat{k}}{9}$
 - C. $\pm \frac{2\hat{i} - 2\hat{j} - \hat{k}}{3}$
 - D. $\pm \frac{2\hat{i} - \hat{j} - \hat{k}}{9}$

Question ID : 9767558263
 Status : Marked For Review
 Chosen Option : 2

Q.8 A point is moving with a velocity of 10 metres per second, and at a subsequent instant it is moving at the same rate in a direction inclined at 30° to the former direction, find the change of velocity?

- Ans
- A. 5.176 m/s
 - B. 3.288 m/s
 - C. 1.232 m/s
 - D. 7.128 m/s

Question ID : 9767558267
Status : Marked For Review
Chosen Option : 3

Q.9 Determine the area of the triangle with vertices X(1,1,2), Y(2,3,5) and Z(1,5,5)?

- Ans
- A. $\sqrt{18}$
 - B. $\frac{\sqrt{18}}{2}$
 - C. $\frac{\sqrt{61}}{2}$
 - D. $\sqrt{61}$

Question ID : 9767558265
Status : Marked For Review
Chosen Option : 3

Q.10 Determine the value of $\tan \frac{13\pi}{12}$ and $\sin 15^\circ$?

- Ans
- A. $1 - \sqrt{3}, \frac{\sqrt{3}-1}{\sqrt{2}}$
 - B. $3 - 2\sqrt{3}, \frac{\sqrt{3}}{\sqrt{2}}$
 - C. $2 - \sqrt{3}, \frac{\sqrt{3}-1}{2\sqrt{2}}$
 - D. $1 - 2\sqrt{3}, \frac{\sqrt{3}}{2\sqrt{2}}$

Question ID : 9767558287
Status : Answered
Chosen Option : 3

Q.11 Evaluate r , if ${}^5P_r = 6 {}^5P_{r-1}$?

- Ans
- A. 3, 5
 - B. 2, 5
 - C. 8, 3
 - D. 24, 11

Question ID : 9767558273
Status : Answered
Chosen Option : 3

Q.12 If $P(A) = \frac{4}{9}$, $P(B) = \frac{2}{9}$ and $P(A \cup B) = \frac{5}{9}$,

Evaluate (i) $P(A \cap B)$ (ii) $P(A|B)$ (iii) $P(B|A)$ respectively

- Ans
- A. $\frac{1}{7}, \frac{1}{3}, \frac{1}{2}$
 - B. $\frac{1}{4}, \frac{1}{5}, \frac{1}{3}$
 - C. $\frac{1}{9}, \frac{1}{2}, \frac{1}{4}$
 - D. $\frac{1}{7}, \frac{1}{2}, \frac{1}{2}$

Question ID : 9767558279
 Status : Answered
 Chosen Option : 3

Q.13 Figure-out the value of α and β if $(2\hat{i} + 6\hat{j} + 27\hat{k}) \times (\hat{i} + \alpha\hat{j} + \beta\hat{k}) = \vec{0}$?

- Ans
- A. $\alpha = 3, \beta = \frac{13}{2}$
 - B. $\alpha = 3, \beta = \frac{27}{2}$
 - C. $\alpha = 6, \beta = \frac{13}{2}$
 - D. $\alpha = 6, \beta = \frac{27}{2}$

Question ID : 9767558264
 Status : Answered
 Chosen Option : 2

Q.14 Determine the direction cosines of the unit vector perpendicular to the plane $\vec{r} \cdot (2\hat{i} - 6\hat{j} - 3\hat{k}) + 1 = 0$ passing through the origin?

- Ans
- A. $-\frac{6}{7}, \frac{3}{7}, \frac{2}{7}$
 - B. $-\frac{2}{7}, \frac{3}{7}, \frac{6}{7}$
 - C. $-\frac{2}{7}, \frac{3}{7}, -\frac{6}{7}$
 - D. $-\frac{2}{7}, \frac{6}{7}, \frac{3}{7}$

Question ID : 9767558283
 Status : Marked For Review
 Chosen Option : 2

Q.15 Determine the shortest distance between the lines l_1 and l_2 whose vector equations are

$$\vec{r} = 2\hat{i} + \hat{j} + \lambda(2\hat{i} - \hat{j} + \hat{k}) \dots (1)$$

$$\vec{r} = 3\hat{i} + \hat{j} - \hat{k} + \mu(3\hat{i} - 5\hat{j} + 2\hat{k}) \dots (2)$$

Ans

A. $\frac{10}{\sqrt{59}}$

B. $\frac{4}{\sqrt{59}}$

C. $\frac{10}{\sqrt{47}}$

D. $\frac{4}{\sqrt{47}}$

Question ID : 9767558282

Status : Marked For Review

Chosen Option : 1

Q.16 Given that $({}^nP_4 / {}^{n-1}P_4) = 5/3$, $n > 4$. Determine the value of n ?

Ans A. 14

B. 10

C. 5/3

D. 33

Question ID : 9767558272

Status : Answered

Chosen Option : 2

Q.17 What will be the total number of permutations of n different things taken r at a time, where repetition is allowed and where $0 \leq r \leq n$?

Ans A. $n!$

B. $\frac{n!}{r!(n-r)!}$

C. $\frac{n!}{(r)!}$

D. $\frac{n!}{(n-r)!}$

Question ID : 9767558270

Status : Answered

Chosen Option : 4

Q.18 Determine the co-ordinates of the foot of the perpendicular drawn from the origin to the plane $4x - 2y + 3z - 6 = 0$

- Ans
- A. $\frac{24}{29}, -\frac{12}{29}, \frac{18}{29}$
- B. $\frac{24}{45}, -\frac{18}{45}, \frac{12}{45}$
- C. $\frac{18}{\sqrt{29}}, -\frac{12}{\sqrt{29}}, \frac{24}{\sqrt{29}}$
- D. $\frac{12}{\sqrt{45}}, -\frac{18}{\sqrt{45}}, \frac{24}{\sqrt{45}}$

Question ID : 9767558284
 Status : Answered
 Chosen Option : 3

Q.19 In a space, there are lines which are neither intersecting nor parallel. Infact, such pair of lines are _____ and are called _____.

- Ans
- A. Coplanar, skew lines
- B. Coplanar, skipped lines
- C. Non coplanar, skew lines
- D. Non coplanar, skipped lines

Question ID : 9767558285
 Status : Answered
 Chosen Option : 4

Q.20 If ${}^nC_9 = {}^nC_8$, find ${}^nC_{17}$?

- Ans
- A. 17
- B. 9
- C. 1
- D. 2

Question ID : 9767558269
 Status : Answered
 Chosen Option : 2

Q.21 Determine the angle between the pair of lines given by

$$\vec{r} = 3\hat{i} + 2\hat{j} - 4\hat{k} + \lambda(2\hat{i} + 2\hat{j} + \hat{k})$$

And $\vec{r} = 5\hat{i} - 2\hat{j} + \mu(6\hat{i} + 2\hat{j} + 3\hat{k})$

- Ans
- A. $\text{Cos-1}\left(\frac{21}{19}\right)$
 - B. $\text{Cos-1}\left(\frac{19}{21}\right)$
 - C. $\text{Cos-1}\left(\frac{17}{23}\right)$
 - D. $\text{Cos-1}\left(\frac{23}{17}\right)$

Question ID : 9767558281

Status : Marked For Review

Chosen Option : 2

Q.22 If $\tan x = \frac{3}{4}$, $\pi < x < \frac{3\pi}{2}$, determine the value of $\sin \frac{x}{2}$, $\cos \frac{x}{2}$ and $\tan \frac{x}{2}$ respectively ?

- Ans
- A. $\frac{9}{10}$, $-\frac{1}{10}$ and -3
 - B. $\frac{3}{\sqrt{10}}$, $-\frac{1}{\sqrt{10}}$ and -3
 - C. $\frac{9}{\sqrt{10}}$, $-\frac{3}{\sqrt{10}}$ and -3
 - D. $\frac{1}{\sqrt{10}}$, $-\frac{3}{\sqrt{10}}$ and -3

Question ID : 9767558289

Status : Answered

Chosen Option : 3

Q.23 Determine the value of $\tan \frac{\pi}{8}$?

- Ans
- A. $\sqrt{2}$
 - B. $\sqrt{3} - 1$
 - C. $\sqrt{2} - 1$
 - D. $\sqrt{3}$

Question ID : 9767558291

Status : Answered

Chosen Option : 3

Q.24 Find the probability that they speak the same fact if A speaks truth in 60 % cases and B speaks truth in 75 % cases?

- Ans
- A. 62 %
 - B. 55 %
 - C. 64 %
 - D. 72 %

Question ID : 9767558280
Status : Answered
Chosen Option : 2

Q.25 The probability of a bowler in ten pin bowling hitting a target is $\frac{3}{4}$. How many minimum number of times must the bowler roll down so that the probability of hitting the target at least once is more than 0.99?

- Ans
- A. 3 times
 - B. 1 time
 - C. 2 times
 - D. 4 times

Question ID : 9767558274
Status : Marked For Review
Chosen Option : 1

Q.26 Which of the following is INCORRECT if E and F are independent?

- Ans
- A. $P(F|E) = P(F)$, where $P(E), P(F) \neq 0$
 - B. $P(E \cap F) = P(E)P(F)$
 - C. $P(E|F) = P(E)$, $P(F) \neq 0$
 - D. $P(F|E) = P(F)$, $P(E) \neq 0$

Question ID : 9767558275
Status : Answered
Chosen Option : 2

Q.27 A cage in a mine-shaft descends with 2 ft/sec units of acceleration. After it has been in motion for 10 seconds a particle is dropped on it from the top of the shaft. What time elapses before the particle hits the cage?

- Ans
- A. 7 seconds
 - B. $3\frac{1}{3}$ seconds
 - C. $3\frac{1}{2}$ seconds
 - D. 2 seconds

Question ID : 9767558268
Status : Marked For Review
Chosen Option : 3

Q.28 Evaluate the value of x if $\frac{1}{8!} + \frac{1}{9!} = \frac{x}{10!}$?

- Ans
- A. 80
 - B. 90
 - C. 100
 - D. 72

Question ID : 9767558271
 Status : Answered
 Chosen Option : 3

Q.29 Which of the following is true, if none of the angles x , y and $(x \pm y)$ is a multiple of π ?

- Ans
- A. $\tan(x + y) = \frac{1 - \tan x \tan y}{\tan x + \tan y}$
 - B. $\cot(x + y) = \frac{1 - \cot x \cot y}{\cot y + \cot x}$
 - C. $\tan(x + y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$
 - D. $\cot(x + y) = \frac{\cot x \cot y - 1}{\cot y + \cot x}$

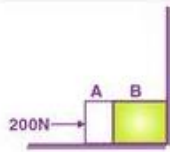
Question ID : 9767558288
 Status : Answered
 Chosen Option : 3

Q.30 A man is known to speak truth 2 out of 3 times. He throws a die and reports that it is a six. Find the probability that it is actually a six?

- Ans
- A. $\frac{2}{3}$
 - B. $\frac{2}{7}$
 - C. $\frac{3}{4}$
 - D. $\frac{3}{8}$

Question ID : 9767558276
 Status : Answered
 Chosen Option : 1

Q.31 Two bodies A and B of masses 2 kg and 6 kg in contact with each other rest on a table against a rigid wall. The coefficient of friction between the bodies and the table is 0.20. A force of 200 N is applied horizontally to A. Find the net force on the partition?



- Ans
- A. 177.5 N
 - B. 16 N
 - C. 184 N
 - D. 216 N

Question ID : 9767558305

Status : Marked For Review

Chosen Option : 3

Q.32 Compute the cartesian components of the electric field at the point if the potential at any point is given by $V = x(y^2 - 4x^2)$?

- Ans
- A. $(6x^2 - y^2), (-2xy)$
 - B. $(12x^2 - 2y^2), (-2xy)$
 - C. $(12x^2 - y^2), (-2xy)$
 - D. $(12x^2 - y^2), (-4xy)$

Question ID : 9767558309

Status : Marked For Review

Chosen Option : 2

Q.33 An object of size 2 cm is placed 18 cm in front of concave lens of focal length 27 cm. Find the height of the image produced by the lens?

- Ans
- A. 8.4 cm
 - B. 10.8 cm
 - C. 1.8 cm
 - D. 1.2 cm

Question ID : 9767558297

Status : Marked For Review

Chosen Option : 2

Q.34 A thermacole cubical icebox of side 20 cm has a thickness of 4.0 cm. If 5.0 kg of ice is put in the box, estimate the amount of ice remaining after 5h. The outside temperature is 35°C , and coefficient of thermal conductivity of thermacole is $0.01 \text{ J s}^{-1} \text{ m}^{-1} \text{ K}^{-1}$. (Heat of fusion of water = $335 \times 10^3 \text{ J kg}^{-1}$)

- Ans
- A. 3.1 kg
 - B. 4.2 kg
 - C. 4.8 kg
 - D. 3.7 kg

Question ID : 9767558320

Status : Marked For Review

Chosen Option : 2

- Q.35** The rear side of a truck is open and a box of 30 kg mass is placed 4.5m away from the open end as given in diagram. The coefficient of friction between the box and the surface below it is 0.20. On a straight road, the truck starts from rest and accelerates with 3 m/s^2 . At what distance from the starting point does the box fall off the truck? (ignore the size of the box) (Let $g = 10 \text{ m/s}^2$)



- Ans A. 13.5 m
 B. 19.98 m
 C. 4.5 m
 D. 16.5 m

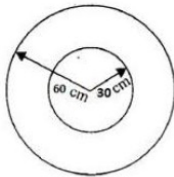
Question ID : 9767558304
 Status : Answered
 Chosen Option : 1

- Q.36** In an experiment on the specific heat of a metal, a 0.30 kg block of the metal at 120°C is dropped in a copper calorimeter (of water equivalent 0.025kg) containing 100 cm^3 of water at 27°C . The final temperature is 35°C . Calculate the specific heat of the metal?

- Ans A. $0.282 \text{ Jg}^{-1}\text{K}^{-1}$
 B. $0.144 \text{ Jg}^{-1}\text{K}^{-1}$
 C. $0.434 \text{ Jg}^{-1}\text{K}^{-1}$
 D. $0.636 \text{ Jg}^{-1}\text{K}^{-1}$

Question ID : 9767558321
 Status : Marked For Review
 Chosen Option : 2

- Q.37** Given an isolated conducting spherical shell of radius 30 cm. Some positive charges is given to it so that resulting electric field has a maximum intensity of $1.8 \times 10^6 \text{ NC}^{-1}$. The same amount of negative charge is given to another isolated conducting spherical shell of radius 60 cm. Now, first shell is placed inside the second so that both are concentric as given in figure below. Find the electrostatic energy stored in the system?



- Ans A. 0.06
 B. 0.03
 C. 0.15
 D. 0.09

Question ID : 9767558312
 Status : Marked For Review
 Chosen Option : 2

Q.38 About 10 % of the power of a 100 W light bulb is converted to visible radiation. What is the average intensity of visible radiation?

- (a) At a distance 2 m from the bulb?
 (b) At a distance of 5 m?

- Ans A. (a) 0.23 (b) 0.0412
 B. (a) 0.0412 (b) 0.23
 C. (a) 0.398 (b) 0.0398
 D. (a) 0.19 (b) 0.0319

Question ID : 9767558292

Status : Marked For Review

Chosen Option : 2

Q.39 Which of the following is the correct expression for maximum possible speed of a car on a banked road?

- Ans A. $v_{\max} = \sqrt{\mu_s Rg}$
 B. $v_{\max} = \left(Rg \frac{\mu_s + \tan \theta}{1 - \mu_s \tan \theta} \right)$
 C. $v_{\max} = \left(Rg \frac{\sqrt{\mu_s + \tan \theta}}{\sqrt{1 - \mu_s \tan \theta}} \right)$
 D. $v_{\max} = \left(Rg \frac{\mu_s + \tan \theta}{1 - \mu_s \tan \theta} \right)^{1/2}$

Question ID : 9767558306

Status : Answered

Chosen Option : 4

Q.40 In a chamber, a uniform magnetic field of 4.5 G ($1\text{G} = 10^{-4}\text{T}$) is maintained. An electron is shot into the field with a speed of 4.8×10^6 m/s normal to the field. Find the radius of the circular orbit? Also obtain the frequency of revolution of the electron in its circular orbit? ($e = 1.6 \times 10^{-19}\text{C}$, $m_e = 9.1 \times 10^{-31}\text{kg}$) choose an approximate value

- Ans A. 0.6 cm, 19 MHz
 B. 4.8 cm, 12.6 MHz
 C. 6.0 cm, 12.6 MHz
 D. 4.2 cm, 18 MHz

Question ID : 9767558319

Status : Marked For Review

Chosen Option : 2

Q.41 A uniform magnetic field of 2 T exists in a cylindrical region of radius 10 cm, its direction parallel to the axis along east to west. A wire carrying current 6 A in the north to south direction passes through the region. What is the magnitude of the force on the wire if
 (a) the wire intersects the axis
 (b) the wire in the N-S direction is lowered from the axis by a distance of 6 cm?

- Ans A. 2.4 N, 1.54 N respectively
 B. 2.4 N, 1.92 N respectively
 C. 2.1 N, 1.54 N respectively
 D. 2.1 N, 1.92 N respectively

Question ID : 9767558316

Status : Marked For Review

Chosen Option : 2

Q.42 A 60 kg man stands in contact against the inner wall of a hollow cylindrical drum of radius 4m rotating about its vertical axis with 180 rev./min. The coefficient of friction between the wall and his clothing is 0.20. Find the minimum rotational speed of the cylinder to enable the man to remain stuck to the wall (without falling) when the floor is suddenly removed? Assume $g = 10 \text{ m/s}^2$

- Ans
- A. $\sqrt{12.5} \text{ rad/s}$
 - B. $\sqrt{22.2} \text{ rad/s}$
 - C. $\sqrt{28.5} \text{ rad/s}$
 - D. $\sqrt{18.5} \text{ rad/s}$

Question ID : **9767558303**
 Status : **Marked For Review**
 Chosen Option : **2**

Q.43 Two capillaries whose diameters are respectively 9.0 mm and 8.0 mm, stand one by one in water. If water rises to a height 4.5 mm in the first capillary, what will be the height of water in the second capillary? (choose an approximate value)

- Ans
- A. $5.06 \times 10^{-3} \text{ m}$
 - B. $6.5 \times 10^{-3} \text{ m}$
 - C. $7.35 \times 10^{-3} \text{ m}$
 - D. $7.1 \times 10^{-3} \text{ m}$

Question ID : **9767558315**
 Status : **Answered**
 Chosen Option : **1**

Q.44 Two point charges of $2.6 \times 10^{-19} \text{ C}$ and $-2.6 \times 10^{-19} \text{ C}$ are separated from each other by $1.8 \times 10^{-10} \text{ m}$. The dipole is situated in a uniform electric field of intensity $5 \times 10^5 \text{ Vm}^{-1}$. Find the work done in rotating the dipole by 180° ?

- Ans
- A. $46.8 \times 10^{-24} \text{ J}$
 - B. $121.68 \times 10^{-24} \text{ J}$
 - C. $60.84 \times 10^{-24} \text{ J}$
 - D. $61.44 \times 10^{-24} \text{ J}$

Question ID : **9767558307**
 Status : **Marked For Review**
 Chosen Option : **2**

Q.45 Which of the following pair is **INCORRECT** for some transparent media with respect to air? (may consider the most approximate value)

- Ans
- A. Substance medium: dense flint glass,
 Refractive index: 1.62,
 Critical angle: 37.31.
 - B. Substance medium: diamond,
 Refractive index: 2.42,
 Critical angle: 24.41.
 - C. Substance medium: water,
 Refractive index: 1.33,
 Critical angle: 48.75.
 - D. Substance medium: crown glass,
 Refractive index: 1.12,
 Critical angle: 29.14.

Question ID : **9767558298**
 Status : **Answered**
 Chosen Option : **3**

Q.46 Let the electric field amplitude of an electromagnetic wave is $E_0=90 \text{ N/C}$ and that its frequency is $\nu = 50.0 \text{ MHz}$. find B_0 , k , and λ ?

- Ans
- A. $B_0=400 \text{ nT}$, $k = 1.05 \text{ rad/m}$, $\lambda = 6.0 \text{ m}$
 - B. $B_0=300 \text{ nT}$, $k = 1.05 \text{ rad/m}$, $\lambda = 6.0 \text{ m}$
 - C. $B_0=300 \text{ nT}$, $k = 1.02 \text{ rad/m}$, $\lambda = 3.0 \text{ m}$
 - D. $B_0=400 \text{ nT}$, $k = 1.02 \text{ rad/m}$, $\lambda = 3.0 \text{ m}$

Question ID : 9767558293

Status : Marked For Review

Chosen Option : 2

Q.47 Static friction is a self-adjusting force up to its limit _____. Do not put _____ without being sure that the maximum value of static friction is coming into play.

- Ans
- A. $\mu_s N$ ($fs \geq \mu_s N$), $fs < \mu_s N$
 - B. $\mu_s N$ ($fs \geq \mu_s N$), $fs = \mu_s N$
 - C. $\mu_s N$ ($fs \leq \mu_s N$), $fs = \mu_s N$
 - D. $\mu_s N$ ($fs = \mu_s N$), $fs = \mu_s N$

Question ID : 9767558302

Status : Answered

Chosen Option : 3

Q.48 The amplitude of the magnetic field part of a harmonic electromagnetic wave in vacuum is $B_0 = 480 \text{ nT}$. Find the amplitude of the electric field part of the wave?

- Ans
- A. 153 N/C
 - B. 144 N/C
 - C. 48 N/C
 - D. 440 N/C

Question ID : 9767558296

Status : Marked For Review

Chosen Option : 1

Q.49 Which of the following is the correct expression for cyclotron frequency?

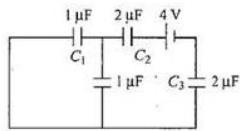
- Ans
- A. $\nu_c = \frac{\mu I}{2R}$
 - B. $\nu_c = \frac{\mu NI}{2\pi R}$
 - C. $\nu_c = \frac{2\pi m}{qB}$
 - D. $\nu_c = \frac{qB}{2\pi m}$

Question ID : 9767558318

Status : Marked For Review

Chosen Option : 2

Q.50 Find the charge and potential difference across C_1 of capacitance $1 \mu\text{F}$ for the given circuit?



- Ans
- A. $\frac{2}{3} \mu\text{C}, \frac{4}{3} \text{V}$
 - B. $\frac{2}{3} \mu\text{C}, \frac{2}{3} \text{V}$
 - C. $\frac{3}{4} \mu\text{C}, \frac{3}{4} \text{V}$
 - D. $\frac{4}{3} \mu\text{C}, \frac{4}{3} \text{V}$

Question ID : 9767558313

Status : Marked For Review

Chosen Option : 2

Q.51 Double-convex lens are to be manufactured from a glass of refractive index 1.55, with both faces of the same radius of curvature. Find the radius of curvature required if the focal length is to be 30 cm?

- Ans
- A. 33 cm
 - B. 22 cm
 - C. 55 cm
 - D. 44 cm

Question ID : 9767558299

Status : Answered

Chosen Option : 1

Q.52 When a $3 \mu\text{C}$ of charge is carried from point A to point B, the amount of work done by electric field is $75 \mu\text{J}$. Determine the potential difference?

- Ans
- A. 225 V
 - B. 25 V
 - C. 100 V
 - D. 2.5 V

Question ID : 9767558311

Status : Answered

Chosen Option : 2

Q.53 A magnetron in a microwave oven releases electromagnetic waves with $f = 1980 \text{ MHz}$. Find the magnetic strength necessary for electrons to move in circular track with this frequency?

- Ans
- A. 0.0714 T
 - B. $7.14 \times 10^3 \text{ T}$
 - C. $7.14 \times 10^{-3} \text{ T}$
 - D. 0.00714 T

Question ID : 9767558294

Status : Marked For Review

Chosen Option : 2

Q.54 A circular coil of 50 turns and radius 10 cm carrying a current of 5.0 A is suspended vertically in a uniform horizontal magnetic field of magnitude 1.0 T. The field lines make an angle of 90° with the normal of the coil. Calculate the magnitude of the counter torque that must be applied to prevent the coil from turning?

- Ans A. 3.13 Nm
 B. 7.85 Nm
 C. 2.83 Nm
 D. 6.32 Nm

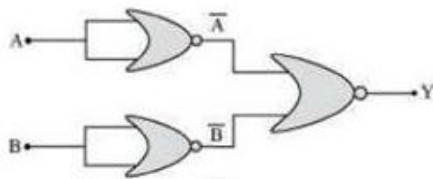
Question ID : 9767558317
 Status : Marked For Review
 Chosen Option : 2

Q.55 Calculate the speed of the electromagnetic wave in a medium if the amplitude of electric and magnetic fields are $2.4 \times 10^2 \text{ N C}^{-1}$ and $4 \times 10^{-3} \text{ T}$, respectively?

- Ans A. 0.5×10^{-5}
 B. 0.6×10^{-5}
 C. 0.5×10^5
 D. 0.6×10^3

Question ID : 9767558295
 Status : Marked For Review
 Chosen Option : 2

Q.56

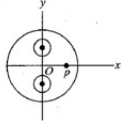


Identify the correct logic operations performed by the above circuit consisting NOR gates?

- Ans A. Circuit functions as an NAND gate
 B. Circuit functions as an NOT gate
 C. Circuit functions as an AND gate
 D. Circuit functions as an OR gate

Question ID : 9767558314
 Status : Answered
 Chosen Option : 1

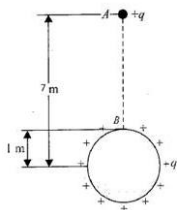
Q.57 A non-conducting sphere of radius $R = 5\text{cm}$ has its centre at the origin O of coordinates system as shown in figure. It has two spherical cavities of radius $r = 1\text{cm}$, whose centres are at $(0, 3\text{ cm})$, $(0, -3\text{ cm})$, respectively, and solid material of the sphere has uniform positive charge density $\rho = \frac{1}{\pi}\mu\text{Cm}^{-3}$. Compute electric potential at point P $(4\text{cm}, 0)$



- Ans** A. 34.92 V
 B. 65.21 V
 C. 42.52 V
 D. 23.68 V

Question ID : 9767558310
 Status : Marked For Review
 Chosen Option : 2

Q.58 A very small sphere of mass 60 g having a charge q is held at a height of 7m vertically above the center of a fixed conducting sphere of radius 1m, carrying an equal charge q . When released, it falls until it is repelled back just before it comes in contact with the sphere as shown in given figure. Find the charge? ($g=10\text{ m/s}^2$)



- Ans** A. $20\sqrt{3}$
 B. $20\sqrt{1.5}$
 C. $20\sqrt{2}$
 D. $25\sqrt{1.5}$

Question ID : 9767558308
 Status : Marked For Review
 Chosen Option : 2

Q.59 A tank with a square base of area 1.0 m^2 is divided by a vertical partition in the middle. The bottom of the partition has a small-hinged door of area 10 cm^2 . The tank is filled with water in one compartment, and an acid (of relative density 1.7) in the other, both to a height 3.0 m. Calculate the force necessary to keep the door close?

- Ans** A. 2.05 N
 B. 55 N
 C. 20.5 N
 D. 2.05×10^4

Question ID : 9767558301
 Status : Marked For Review
 Chosen Option : 2

Q.60 What is the largest average velocity of blood flow in an artery of radius 4×10^{-3} m if the flow must remain laminar?
Also determine the corresponding flow rate?

(Consider viscosity of blood to be 2.084×10^{-3} pa s.)

- Ans**
- A. $0.49, 24.6 \times 10^{-5} \text{ m}^3/\text{s}$
 - B. $0.49, 2.46 \times 10^{-5} \text{ m}^3/\text{s}$
 - C. $0.98, 24.6 \times 10^{-5} \text{ m}^3/\text{s}$
 - D. $0.98, 24.6 \times 10^{-6} \text{ m}^3/\text{s}$

Question ID : 9767558300

Status : Marked For Review

Chosen Option : 2

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