भारतीय विमानपत्तन प्राधिकरण

(अनुसूची – 'ए' मिनी रत्न - श्रेणी 1-सार्वजनिक क्षेत्र का उद्यम)

AIRPORTS AUTHORITY OF INDIA

(SCHEDULE – 'A' MINI RATNA- CATEGORY- 1 PUBLIC SECTOR ENTERPRISE)

राजीव गांधी भवन, सफदरजंग हवाईअड्डा, नई दिल्ली- 110003

RAJIV GANDHI BHAWAN, SAFDARJUNG AIRPORT, NEW DELHI-110003

RECRUITMENT FOR VARIOUS POSTS IN OFFICIAL LANGUAGE AND AIR TRAFFIC CONTROL

ADVERTISEMENT No. 08/2022

Participant ID	
Participant Name	
Test Center Name	iON Digital Zone iDZ 2 Sector 62
Test Date	21/02/2023
Test Time	8:30 AM - 10:30 AM
Subject	Junior Executive (Air Traffic Control)

Section : **General Knowledge**

Q.1 **In which state of India are the Mullayanagiri hills located?**

Ans
✔ 1. Karnataka
✘ 2. Telangana
✘ 3. Kerala
✘ 4. Tamil Nadu

Question ID : **630680163371**
Status : **Answered**
Chosen Option : **4**

Q.2 **In which year was Judo Federation of India formed?**

Ans
✘ 1. 1969
✘ 2. 1979
✘ 3. 1975
✔ 4. 1965

Question ID : **630680163376**
Status : **Answered**
Chosen Option : **3**

Q.3 **Who brought out the journal 'Samvad Kaumudi' to educate the public on various social issues during the 19th Century?**

Ans
✔ 1. Rammohan Roy

✘ 2. Iswar Chandra Vidyasagar

✘ 3. Keshab Chandra Sen

✘ 4. Sri. Ramakrishna Paramhamsa

Question ID : **630680163367**
Status : **Answered**
Chosen Option : **1**

Q.4 **Which of the following best describes 'Lothal', a Harappan site?**

Ans
✘ 1. It is located in the Larkana district of Sind (now Pakistan) on the bank of the river Indus.

✔ 2. It is located in the coastal flats of the Gulf of Cambay (Gujarat).

✘ 3. It is located on the bank of the river Ravi in Western Punjab.

✘ 4. It is located in Rajasthan along the dried-up bed of the river Ghaggar.

Question ID : **630680163369**
Status : **Answered**
Chosen Option : **2**

Q.5 Match the columns.

Bird sanctuary	Its location in India
I. Nal Sarovar Bird Sanctuary	a) Tamil Nadu
II. Vedanthangal Bird Sanctuary	b) Gujarat
III. Ranganathittu Bird Sanctuary	c) Kerala
IV. Kumarakom Bird Sanctuary	d) Karnataka

Ans
✔ 1. I-b, II-a, III-d, IV-c

✘ 2. I-d, II-c, III-b, IV-a

✘ 3. I-a, II-c, III-b, IV-d

✘ 4. I-c, II-b, III-a, IV-d

Question ID : **630680163372**
Status : **Answered**
Chosen Option : **4**

Q.6 In which year did the Anarchical Revolutionary Crimes Act receive the assent of the Governor General?

Ans
✗ 1. 1917
✗ 2. 1931
✗ 3. 1929
✓ 4. 1919

Question ID : **630680163368**
Status : **Answered**
Chosen Option : **4**

Q.7 The licence of which of the following banks of Maharashtra was cancelled by The Reserve Bank of India (RBI) in September 2022?

Ans
✗ 1. Corporation Bank, Pune
✗ 2. SVC Co-Operative Bank Limited, Pune
✗ 3. Bank of Maharashtra, Beed
✓ 4. Laxmi Co-operative Bank Limited, Solapur

Question ID : **630680163370**
Status : **Answered**
Chosen Option : **2**

Q.8 Liver fluke belongs to phylum _____.

Ans
✗ 1. Cnidarian
✗ 2. Annelida
✓ 3. Platyhelminthes
✗ 4. Aschelminthes

Question ID : **630680163373**
Status : **Answered**
Chosen Option : **1**

Q.9 The Constitution of District Planning Committee is mentioned in Article _____ of the Constitution of India.

Ans
✗ 1. 243ZB
✓ 2. 243ZD
✗ 3. 243ZA
✗ 4. 243ZC

Question ID : **630680163374**
Status : **Answered**
Chosen Option : **3**

Q.10 **In which year was Sachin Tendulkar awarded the Bharat Ratna?**

Ans
✗ 1. 2010
✗ 2. 2016
✓ 3. 2014
✗ 4. 2011

Question ID : **630680163375**
Status : **Answered**
Chosen Option : **2**

Section : **General Intelligence**

Q.1 If

'M Ω R' means 'M is the sister of the husband of R',

'M © R' means 'M is the son of R',

'M ¥ R' means 'M is the brother of R',

'M = R' means 'M is the daughter-in-law of R',

how is A related to E in the following expression?

A ¥ B Ω C = D © E

Ans
✗ 1. Son-in-law
✗ 2. Son
✓ 3. Child's son
✗ 4. Daughter

Question ID : **630680163388**
Status : **Answered**
Chosen Option : **1**

Q.2 **A certain number of people are sitting in a row, facing north. R sits at one of the positions at the right of G. P sits fourth to the left of Y. Only two people sit between R and T. Y sits fourth to the left of G. G sits at the immediate left of T. If no other person is sitting in the row, what is the total number of people seated?**

Ans
✗ 1. 10
✗ 2. 14
✗ 3. 12
✓ 4. 13

Question ID : **630680163379**
Status : **Answered**
Chosen Option : **1**

Q.3 **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:
A. Some buses are gliders.
B. All gliders are umbrellas.

Conclusions:
(I) No umbrella is a bus.
(II) Some buses are umbrellas.

Ans
✔ 1. Only conclusion II follows.
✘ 2. Only conclusion I follows.
✘ 3. Both conclusions I and II follow.
✘ 4. Either conclusion I or conclusion II follows.

Question ID : **630680163380**
Status : **Answered**
Chosen Option : **1**

Q.4 **In a certain code language, 'BOOK' is written as 'DRTR' and 'WORM' is written as 'YRWT'. How will 'READ' be written in that language?**

Ans
✔ 1. THFK
✘ 2. THFL
✘ 3. TIFK
✘ 4. THGK

Question ID : **630680163385**
Status : **Answered**
Chosen Option : **1**

Q.5 Which two numbers and signs should be interchanged to make the following equation correct?

$14 \times 3 \div 6 - 12 + 13 = 8$

Ans
✘ 1. 14 and 12, × and ÷
✘ 2. 12 and 14, × and –
✔ 3. 12 and 13, + and –
✘ 4. 6 and 12, × and –

Question ID : **630680163391**
Status : **Answered**
Chosen Option : **1**

Q.6 Select the term from among the given options that can replace the question mark (?) in the following series.

E25, H27, J30, M32, O35, ?

Ans
✔ 1. R37
✘ 2. Q36
✘ 3. R38
✘ 4. Q37

Question ID : **630680163382**
Status : **Answered**
Chosen Option : **1**

Q.7 Each of Z, Y, X, W, V, U and T has to join educational seminars on a different day of the week starting on Monday and ending on Sunday of the same week. V will join the seminar exactly between Y and X. U will join the seminar between T and Z. W will join the seminar immediately before T. X will join immediately after V. W will join on Thursday. Who will join on Saturday?

Ans
✘ 1. T
✔ 2. U
✘ 3. V
✘ 4. Z

Question ID : **630680163378**
Status : **Answered**
Chosen Option : **1**

Q.8 Refer to the given number, symbol series and answer the question that follows.

(Left) & 2 @ 1 2 $ 8 & # 4 & * % 5 ^ % & @ 2 1 4 % & # 2 1 (Right)

How many such numbers are there which are immediately preceded by a symbol and also immediately followed by a symbol?

Ans
✘ 1. 4
✘ 2. 2
✔ 3. 3
✘ 4. 5

Question ID : **630680163384**
Status : **Answered**
Chosen Option : **1**

Q.9 Select the correct combination of mathematical signs that can sequentially replace the @ signs and balance the given equation.

40 @ 8 @ 7 @ 7 @ 5

Ans
✘ 1. ×, ÷, =, −
✘ 2. ÷, ×, =, −
✔ 3. ÷, ×, =, ×
✘ 4. ×, =, − , ÷

Question ID : **630680163390**
Status : **Answered**
Chosen Option : **1**

Q.10 In a certain code language, 'WATER' is written as 'TCVYY' and 'FREEZ' is written as 'BCGPH'. How will 'SOLID' be written in that language?

Ans
✗ 1. FGNMT
✗ 2. FGNMV
✓ 3. FGNMU
✗ 4. FGMNU

Question ID : **630680163386**
Status : **Answered**
Chosen Option : **1**

Q.11 P, Q, R, S, T and U were sitting around a circular table, facing the centre. They were sitting at equal distances from one another. T and R were sitting exactly next to each other. P was at the immediate right of U. Q was at the immediate left of T. R is third to the left of S. Who is sitting to the immediate left of Q?

Ans
✗ 1. T
✗ 2. R
✗ 3. P
✓ 4. S

Question ID : **630680163377**
Status : **Answered**
Chosen Option : **1**

Q.12 Select the term from among the given options that can replace the question mark (?) in the following series.

A1Z, C3X, E9V, G14T, I98R, ?

Ans
✓ 1. K109P
✗ 2. K882P
✗ 3. K980P
✗ 4. K108P

Question ID : **630680163381**
Status : **Answered**
Chosen Option : **1**

Q.13 Refer to the given number, symbol series and answer the question that follows.

(Left) 5 6 # 2 % 5 4 $ # $ 1 @ * 7 & % 2 & 2 7 5 % 3 (Right)

How many such symbols are there which are immediately preceded by a number and also immediately followed by a number?

Ans
✗ 1. 3
✗ 2. 1
✓ 3. 4
✗ 4. 2

Question ID : **630680163383**
Status : **Answered**
Chosen Option : **4**

Q.14 If

'Q Ω T' means 'Q is the wife of T',

'Q ¥ T' means 'Q is the father of T',

'Q € T' means 'Q is the daughter of T',

'Q = T' means 'Q is the son of T',

then how is A related to F in the following expression?

A = B Ω C ¥ D Ω F

Ans
✔ 1. Wife's brother
✗ 2. Father-in-law
✗ 3. Son
✗ 4. Brother

Question ID : **630680163389**
Status : **Answered**
Chosen Option : **1**

Q.15 **Puja left her house and walks a distance of 80 m towards the north, then turns to her right and walks for 120 m. She again turns right and walks for 80 m. At this point, she finally turns to her right and walks for 150 m. How far is she from the starting point and in which direction her house is from her final reached point?**

Ans
✔ 1. 30 m due east
✗ 2. 30 m due west
✗ 3. 37 m due east
✗ 4. 30 m due north

Question ID : **630680163387**
Status : **Answered**
Chosen Option : **2**

Section : **General Aptitude**

Q.1 ?% of 145 + 12.5 % of 125 = $2^2 \times 22$ (correct to two decimal places) is:

Ans
✗ 1. 50.23
✔ 2. 49.91
✗ 3. 48.56
✗ 4. 48.82

Question ID : **630680163393**
Status : **Answered**
Chosen Option : **3**

Q.2 Convert the given octal number to decimal number.

$(58)_8$

Ans
✔ 1. 48
✘ 2. 47
✘ 3. 50
✘ 4. 49

Question ID : **630680163392**
Status : **Answered**
Chosen Option : **1**

Q.3 A manufacturer offers a 12% rebate on the marked price of a product. The retailer offers 15% rebate on the reduced price. The two reductions are equivalent to a single reduction of:

Ans
✘ 1. 27.4%
✘ 2. 27.8%
✘ 3. 26.8%
✔ 4. 25.2%

Question ID : **630680163396**
Status : **Answered**
Chosen Option : **2**

Q.4 6 men can complete a work in 10 days. They start the work and after 2 days 2 men leave. In how many days will the work be completed by the remaining men?

Ans
✘ 1. 8
✔ 2. 10
✘ 3. 7
✘ 4. 9

Question ID : **630680163400**
Status : **Answered**
Chosen Option : **2**

Q.5 A, B and C rent a pasture. A puts 5 oxen for 4 months, B puts 8 oxen for 5 months and C puts 10 oxen for 3 months for grazing. If the rent of the pasture is ₹180, then how much must B pay as his share of rent?

Ans
✘ 1. ₹70
✔ 2. ₹80
✘ 3. ₹75
✘ 4. ₹72

Question ID : **630680163397**
Status : **Answered**
Chosen Option : **2**

Q.6 A sum of ₹22,400 amounts to ₹24,250 in 6 years at the rate of simple interest. What is the rate of interest (correct to two decimal places)?

Ans
✗ 1. 1.02%
✗ 2. 1.56%
✗ 3. 1.65%
✓ 4. 1.38%

Question ID : **630680163398**
Status : **Answered**
Chosen Option : **3**

Q.7 A wheel turns 420 times around its axle to cover 4.2 km. The diameter of the wheel (in m) will be (correct to two decimal places):

Ans
✗ 1. 3.22
✓ 2. 3.18
✗ 3. 3.08
✗ 4. 3.25

Question ID : **630680163403**
Status : **Answered**
Chosen Option : **2**

Q.8 What is the ratio of the bikes' time taken to cover the same distance if the speeds of 3 bikes are in the ratio 3 : 5 : 7?

Ans
✓ 1. 35 : 21 : 15
✗ 2. 21 : 35 : 20
✗ 3. 35 : 21 : 20
✗ 4. 42 : 55 : 63

Question ID : **630680163399**
Status : **Answered**
Chosen Option : **1**

Q.9 Two men on either side of a temple of 40 m height observe its top at the angles of elevation 30° and 30°, respectively. What is the distance between the two men in meters?

Ans
✗ 1. $79\sqrt{3}$
✓ 2. $80\sqrt{3}$
✗ 3. $81\sqrt{3}$
✗ 4. $78\sqrt{3}$

Question ID : **630680163406**
Status : **Answered**
Chosen Option : **2**

Q.10 If the roots of $a(b-c)x^2 + b(c-a)x + c(a-b) = 0$ are equal, then a, b, c are:

Ans
✗ 1. triplets
✓ 2. in harmonic progression
✗ 3. in geometric progression
✗ 4. in arithmetic progression

Question ID : **630680163405**
Status : **Answered**
Chosen Option : **2**

Q.11 Two different mutual fund companies declare fixed annual rate of interest on the amounts invested with them by investors. The rate of interest offered by these companies may differ from year to year depending on the variation in the economy of the country and the banks' rate of interest. The annual rate of interest offered by the two companies X and Y are given.

Year	2013	2014	2015	2016	2017	2018	2019
X	6.8	7.4	7.2	7.3	8.2	8.3	8.6
Y	7.2	6.9	7.3	7.1	7.8	8	8.2

An investor invested a sum of ₹10 lakh in company X in 2014. The total amount received after one year was reinvested in the same company for one more year. The total appreciation received by the investor on his investment was (in ₹ lakhs):

Ans
✗ 1. 11.65235
✓ 2. 11.51328
✗ 3. 11.53265
✗ 4. 10.56422

Question ID : **630680163401**
Status : **Answered**
Chosen Option : **1**

Q.12 Find the remainder when $f(x) = 3x^3 - 5x^2 + 2x + 8$ is divided by $g(x) = 2x - 1$.

Ans
✓ 1. 65/8
✗ 2. 55/8
✗ 3. 46/8
✗ 4. 45/8

Question ID : **630680163402**
Status : **Answered**
Chosen Option : **1**

Q.13 **The curved surface area of a right circular cylinder and a sphere are equal. If the radius of the sphere and cylinder are 2 and 3, respectively, then find the total surface area of the cylinder.**

Ans
✗ 1. 32π
✓ 2. 34π
✗ 3. 28π
✗ 4. 30π

Question ID : **630680163404**
Status : **Answered**
Chosen Option : **2**

Q.14 The number of books sold by Ravi in the first month is 10% less than that sold in the fourth month. If the average number of books sold by him in the first three months is 730 and in the first four months is 850, then find the number of books sold by him in the first month.

Ans
✗ 1. 1086
✓ 2. 1089
✗ 3. 1088
✗ 4. 1077

Question ID : **630680163394**
Status : **Answered**
Chosen Option : **1**

Q.15 After spending 10% on clothes, 2% on books, 5% on purchasing gifts for husband and 4% on others, Rani has a balance of ₹5,135. How much money (in ₹) was there with her initially?

Ans
✗ 1. 6,450
✓ 2. 6,500
✗ 3. 6,390
✗ 4. 6,400

Question ID : **630680163395**
Status : **Answered**
Chosen Option : **1**

Section : **General English**

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

They tied _____ hands and locked him in a room.

Ans
✓ 1. his
✗ 2. their
✗ 3. her
✗ 4. him

Question ID : **630680163409**
Status : **Answered**
Chosen Option : **1**

Q.2 Select the most appropriate option to fill in the blank.

Earlier, it took 36 hours _____ Howrah from Delhi by train.

Ans
✗ 1. reach
✗ 2. to be reaching
✗ 3. reached
✓ 4. to reach

Question ID : **630680163410**
Status : **Answered**
Chosen Option : **4**

Q.3 Select the most appropriate option to collocate with the word 'stupid' to fill in the blank.

It was _____ stupid of me to think that I could outwit him.

Ans
1. fully
2. richly
3. utterly
4. deeply

Question ID : **630680163420**
Status : **Answered**
Chosen Option : **3**

Q.4 Select the most appropriate option to fill in the blank.

_____ water that the villagers drink comes from this lake.

Ans
1. The
2. No word required
3. An
4. A

Question ID : **630680163415**
Status : **Answered**
Chosen Option : **3**

Q.5 Select the most appropriate option to fill in the blank.

How did you like living on _____ island for six months?

Ans
1. an
2. No word required
3. a
4. the

Question ID : **630680163413**
Status : **Answered**
Chosen Option : **3**

Q.6 Select the most appropriate option to fill in the blank and complete the given proverb correctly.

Don't blow your _____.

Ans
1. chances away
2. candle off
3. own trumpet
4. breeze away

Question ID : **630680163425**
Status : **Answered**
Chosen Option : **3**

Q.7 Select the most appropriate option to collocate with the word 'sight' to fill in the blank.

Where are you? It is so difficult to _____ sight of you.

Ans
✔ 1. catch
✘ 2. get
✘ 3. have
✘ 4. keep

Question ID : **630680163418**
Status : **Answered**
Chosen Option : **4**

Q.8 Select the most appropriate option to fill in the blanks.

The new _____ of this book is available in _____ to the old one.

Ans
✔ 1. edition, addition
✘ 2. addition, addition
✘ 3. edition, edition
✘ 4. addition, edition

Question ID : **630680163422**
Status : **Answered**
Chosen Option : **1**

Q.9 Select the most appropriate option to fill in the blank.

Colonel Mishra lives in the flat just _____ mine.

Ans
✘ 1. over
✘ 2. up
✔ 3. above
✘ 4. upstairs

Question ID : **630680163408**
Status : **Answered**
Chosen Option : **3**

Q.10 Select the most appropriate option to fill in the blanks.

_____ moon was shining in _____ sky and there was enough light to see around.

Ans
✔ 1. The, the
✘ 2. A, the
✘ 3. A, a
✘ 4. The, a

Question ID : **630680163416**
Status : **Answered**
Chosen Option : **2**

Q.11 Select the most appropriate option to collocate with the word ' missing' to fill in the blank.

In the crowd of the Diwali Mela, the child _____ missing.

Ans
✔ 1. went
✘ 2. kept
✘ 3. got
✘ 4. had

Question ID : **630680163419**
Status : **Answered**
Chosen Option : **4**

Q.12 Select the most appropriate synonym of the given word.

Drenched

Ans
✔ 1. Soaked
✘ 2. Parched
✘ 3. Cold
✘ 4. Dry

Question ID : **630680163421**
Status : **Answered**
Chosen Option : **3**

Q.13 Select the most appropriate ANTONYM of the given word.

Delectable

Ans
✘ 1. Flavourful
✘ 2. Plentiful
✘ 3. Delightful
✔ 4. Distasteful

Question ID : **630680163423**
Status : **Answered**
Chosen Option : **4**

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

Your bedroom is _____ spacious.

Ans
✘ 1. such
✘ 2. enough
✔ 3. quite
✘ 4. a lot

Question ID : **630680163411**
Status : **Answered**
Chosen Option : **2**

Q.15 Select the most appropriate option to collocate with the word 'dinner' to fill in the blank.

Let's _____ our dinner at Wangers today.

Ans
✗ 1. do
✗ 2. get
✓ 3. have
✗ 4. make

Question ID : **630680163417**
Status : **Answered**
Chosen Option : **4**

Q.16 Select the most appropriate ANTONYM of the given word.

Languid

Ans
✗ 1. Leisurely
✗ 2. Lazy
✗ 3. Lethargic
✓ 4. Lively

Question ID : **630680163424**
Status : **Answered**
Chosen Option : **4**

Q.17 Select the most appropriate option to fill in the blank.

He has brought his little daughter _____ him to this meeting.

Ans
✗ 1. by
✗ 2. for
✓ 3. with
✗ 4. to

Question ID : **630680163407**
Status : **Answered**
Chosen Option : **3**

Q.18 Select the most appropriate option to fill in the blanks.

This story is about _____ little boy and _____ squirrel.

Ans
✓ 1. a, a
✗ 2. the, a
✗ 3. the, the
✗ 4. a, the

Question ID : **630680163414**
Status : **Answered**
Chosen Option : **1**

Q.19 **Select the most appropriate option to fill in the blank.**

By next month, the valley _____ with snow.

Ans
✔ 1. will be covered
✘ 2. is covered
✘ 3. is covering
✘ 4. has been covered

Question ID : **630680163412**
Status : **Answered**
Chosen Option : **1**

Q.20 **Select the most appropriate option to fill in the blank.**

Avika _____ guavas as she finds it difficult to chew its seeds.

Ans
✘ 1. wants
✘ 2. grows
✔ 3. dislikes
✘ 4. appreciates

Question ID : **630680163426**
Status : **Answered**
Chosen Option : **3**

Section : **Domain Knowledge**

Q.1 $\int \frac{e^{\tan^{-1}x}}{1+x^2} dx = ?$

Ans
✔ 1. $e^{\tan^{-1}x} + c$
✘ 2. $e^{\tan x} + c$
✘ 3. $e^{-\tan^{-1}x} + c$
✘ 4. $e^{-\tan^{-1}x}$

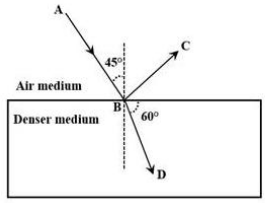
Question ID : **630680163474**
Status : **Answered**
Chosen Option : **1**

Q.2 If $\bar{a}, \bar{b}, \bar{c}, \bar{d}$ are the position vectors of the points A, B, C, D, respectively, such that no three of them are collinear and $\bar{a} + \bar{c} = \bar{b} + \bar{d}$, then the quadrilateral ABCD is:

Ans
✔ 1. a parallelogram
✘ 2. a square
✘ 3. a rectangle
✘ 4. a rhombus

Question ID : **630680163478**
Status : **Answered**
Chosen Option : **1**

Q.3 In the diagram below, AB, BC, and BD represent the incident, reflected and refracted rays, respectively. When a plane wavefront with wavelength 6000 Å is incident at the point of separation of air and denser medium, the wavelength of refracted light is _____.



Ans

✔ 1. 4243 Å

✘ 2. 3000 Å

✘ 3. 5196 Å

✘ 4. 3564 Å

Question ID : **630680163442**
Status : **Answered**
Chosen Option : **1**

Q.4 The relation $R = \{(1,2),(1,3),(1,4),(1,5)\}$ is:

Ans

✘ 1. one-one relation

✔ 2. one many relation

✘ 3. many-many relation

✘ 4. many one relation

Question ID : **630680163457**
Status : **Answered**
Chosen Option : **2**

Q.5 **When an object is placed between the pole point and focal point of a concave mirror, the nature of the image and the Cartesian sign conventions used are _____.**

Ans

✔ 1. -u, +v and -f. The nature of the image is virtual and erect

✘ 2. -u, -v and +f. The nature of the image is real and enlarged

✘ 3. -u, -v and -f. The nature of the image is real and inverted

✘ 4. +u, +v and +f. The nature of the image is virtual and diminished

Question ID : **630680163441**
Status : **Answered**
Chosen Option : **3**

Q.6 $\sqrt{2+\sqrt{2(1+\cos 4\theta)}} = ?$

Ans
✗ 1. $2\cos 2\theta$
✗ 2. $\sqrt{2}\cos\theta$
✓ 3. $2\cos\theta$
✗ 4. $\sqrt{2\cos\theta}$

Question ID : **630680163461**
Status : **Answered**
Chosen Option : **3**

Q.7 **Arrange the following in the ascending order of their wavelength.**
(i) Microwaves
(ii) Infrared rays
(iii) Visible rays
(iv) AM radio waves
(v) Gamma rays
(vi) X-rays
(vii) FM radio waves

Ans
✗ 1. (v), (vi), (ii), (iii), (iv), (vii) and (i)
✗ 2. (v), (vi), (iii), (i), (ii), (iv) and (vii)
✓ 3. (v), (vi), (iii), (ii), (i), (vii) and (iv)
✗ 4. (v), (vi), (ii), (iii), (i), (iv) and (vii)

Question ID : **630680163437**
Status : **Answered**
Chosen Option : **1**

Q.8 **If two unbiased six faced dice are thrown, the probability that the sum of the numbers on both the faces turned up, is a prime number greater than 5 is:**

Ans
✓ 1. $\frac{2}{9}$
✗ 2. $\frac{4}{9}$
✗ 3. $\frac{7}{9}$
✗ 4. $\frac{1}{9}$

Question ID : **630680163485**
Status : **Answered**
Chosen Option : **4**

Q.9 The sum of distances from origin to $(0,5,5)$ and $(5,8,6)$ is:

Ans
✗ 1. $5(\sqrt{2}-\sqrt{5})$

✗ 2. $5(-\sqrt{2}+\sqrt{5})$

✗ 3. $5(-\sqrt{2}-\sqrt{5})$

✓ 4. $5(\sqrt{2}+\sqrt{5})$

Question ID : **630680163482**
Status : **Answered**
Chosen Option : **4**

Q.10 **A 220 V, 50 Hz ac source is connected in series to a 30 Ω resistor, an inductor, and a capacitor, each having 200 Ω inductive reactance and 160 Ω capacitive reactance, respectively. The voltage drop across the resistor is_____.**

Ans
✗ 1. 52 V

✓ 2. 132 V

✗ 3. 92 V

✗ 4. 22 V

Question ID : **630680163449**
Status : **Answered**
Chosen Option : **1**

Q.11 The area of the triangle (in unit^2) whose vertices are $A(4,8), B(-6,2)$ and $C(5,4)$ is:

Ans
✗ 1. 48

✗ 2. 46

✗ 3. 21

✓ 4. 23

Question ID : **630680163465**
Status : **Answered**
Chosen Option : **4**

Q.12 **An external energy is used to excite an electron in the K shell of a hydrogen atom to the M shell. The angular momentum of the electron in the new shell after excitation is ____.**

Ans
✗ 1. 6.625×10^{-34}

✓ 2. 3.165×10^{-34}

✗ 3. 1.055×10^{-34}

✗ 4. 2.110×10^{-34}

Question ID : **630680163453**
Status : **Answered**
Chosen Option : **4**

Q.13 If $f(x) = x^2 + 2$ and $g(x) = 2x - 3$ are real functions, then $(fog)(x)$ is:

Ans
✗ 1. $4x^2 + 12x - 11$
✓ 2. $4x^2 - 12x + 11$
✗ 3. $4x^2 + 12x + 11$
✗ 4. $4x^2 - 12x - 11$

Question ID : **630680163459**
Status : **Answered**
Chosen Option : **2**

Q.14 If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 4 & 5 \\ 5 & 6 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 & 1 \\ 2 & 2 & 2 \\ 3 & 3 & 3 \end{bmatrix}$, then $\det(A + B) = ?$

Ans
✗ 1. 1
✗ 2. 2
✗ 3. 3
✓ 4. 0

Question ID : **630680163467**
Status : **Answered**
Chosen Option : **4**

Q.15 When the masses of an electron, proton, and neutron are m_e, m_p, and m_n, respectively, then the nuclear mass of an atom $_ZX^A$ is _____.

Ans
✗ 1. $Zm_p + Nm_n + Zm_e$
✓ 2. $Zm_p + Nm_n$
✗ 3. $Zm_n + Nm_e$
✗ 4. $Nm_p + Zm_e$

Question ID : **630680163451**
Status : **Answered**
Chosen Option : **1**

Q.16 **When the P-N junction diode is connected to reverse bias condition, a small current in the order of 10^{-6} A is flowing in the circuit, which is due to the ____.**

Ans
✓ 1. flow of minority charge carriers
✗ 2. threshold current
✗ 3. low dynamic resistance
✗ 4. breakdown voltage

Question ID : **630680163445**
Status : **Answered**
Chosen Option : **4**

Q.17 If $*$ is a binary operation defined as $a * b = \frac{ab}{2}$, then the identity element with respect to this binary operation is:

Ans
✔ 1. 2
✘ 2. 0
✘ 3. 1
✘ 4. 3

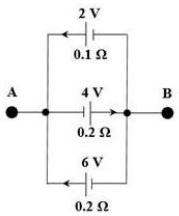
Question ID : **630680163460**
Status : **Answered**
Chosen Option : **3**

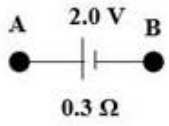
Q.18 **In a vacuum, two point charges with magnitudes of +1.8 nC and −1.8 nC are separated by 6 mm along the x-axis. At the halfway point of the separation distance, the electric field is _____.**

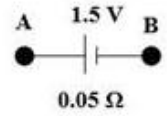
Ans
✘ 1. 1.8×10^6 NC $^{-1}$
✘ 2. 0
✘ 3. 0.45×10^6 NC $^{-1}$
✔ 4. 3.6×10^6 NC $^{-1}$

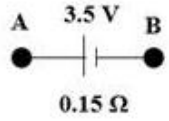
Question ID : **630680163427**
Status : **Answered**
Chosen Option : **2**

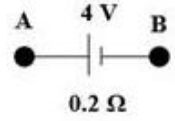
Q.19 The EMF of the batteries with internal resistance is connected in the circuit shown below. The equivalent EMF and internal resistance of the circuit between terminal 'AB' are equal to _____.



Ans
✘ 1. 

✔ 2. 

✘ 3. 

✘ 4. 

Question ID : **630680163433**
Status : **Answered**
Chosen Option : **1**

Q.20 **When a ray of light passes through the first principal focus of a convex lens:**

Ans
1. after refraction it converges behind the second principal focus
2. after refraction it emerges parallel to the principal axis
3. after refraction it passes through the second principal focus
4. after refraction it converges beyond the second principle focus

Question ID : **630680163443**
Status : **Answered**
Chosen Option : **2**

Q.21 **Rapid electron acceleration and deceleration in a conducting wire can generate _____ with frequencies ranging from _____.**

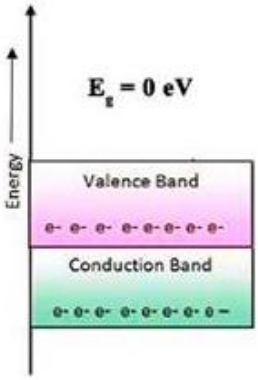
Ans
1. x-rays, 10^{16} Hz to 10^{20} Hz
2. microwaves, 10^{10} Hz to 10^{12} Hz
3. long radio waves, a few Hz to a few MHz
4. infrared rays, 10^{12} Hz to 10^{14} Hz

Question ID : **630680163438**
Status : **Answered**
Chosen Option : **1**

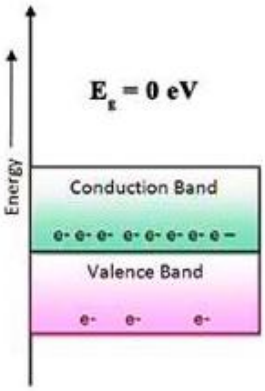
Q.22 Which of the following diagram represent the semiconductor behaviour?

Ans

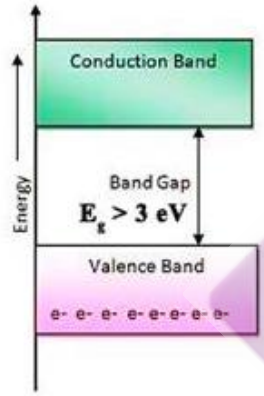
1. ✗



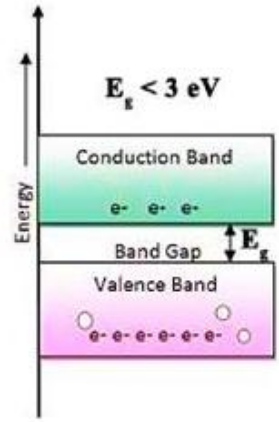
2. ✗



3. ✗



4. ✓



Question ID : **630680163446**
Status : **Answered**
Chosen Option : **2**

Q.23 The surface charge density of a thin spherical shell placed in an air medium is 88.54 C/m^2. The intensity of the electric field measured 12 mm outside the shell from the centre of the shell is 5.625 × 10^{12} N/C. The thin spherical shell has a radius of:

Ans
✔ 1. 9.0 mm

✗ 2. 0.35 mm

✗ 3. 6.0 mm

✗ 4. 10.5 mm

Question ID : **630680163429**
Status : **Answered**
Chosen Option : **1**

Q.24 The area under the curve $y = x^2$ between the lines $x = 2$ and $x = 3$ is:

Ans
✗ 1. $\frac{19}{8}$

✗ 2. $\frac{1}{9}$

✔ 3. $\frac{19}{3}$

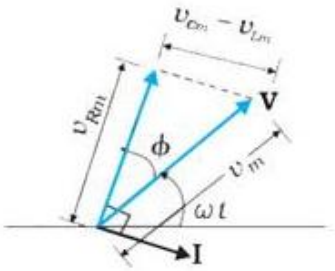
✗ 4. $\frac{9}{19}$

Question ID : **630680163476**
Status : **Answered**
Chosen Option : **3**

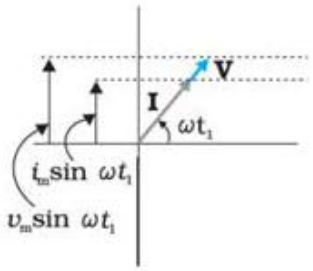
Q.25 **Which of the following is the best phasor diagram representing the phase relationship between current and voltage in an alternating current source connected to a capacitor?**

Ans

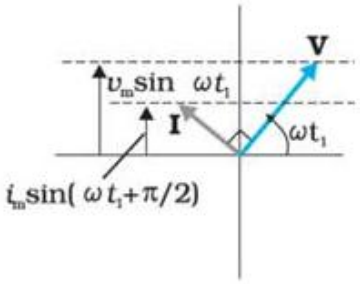
✗ 1.



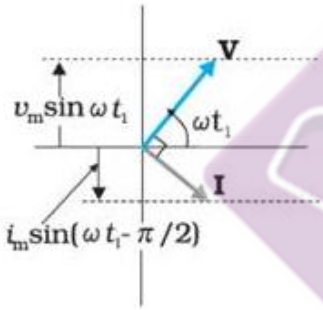
✗ 2.



✓ 3.



✗ 4.



Question ID : **630680163448**
Status : **Answered**
Chosen Option : **4**

Q.26 $\sin^{-1}\frac{4}{5}-\sin^{-1}\frac{5}{13}=?$

Ans

1. $\sin^{-1}\frac{65}{33}$
2. $\sin^{-1}\frac{33}{65}$
3. $\sin^{-1}\frac{33}{63}$
4. $\sin^{-1}\frac{53}{65}$

Question ID : **630680163463**
Status : **Answered**
Chosen Option : **4**

Q.27 Given that $\bar{a}=3\bar{\imath}-8\bar{\jmath}+\bar{k}$ and $\bar{b}=4\bar{\imath}+3\bar{\jmath}-\lambda\bar{k}$. If $\bar{a}+\bar{b}=7\bar{\imath}-5\bar{\jmath}-3\bar{k}$, then the value of λ is:

Ans

1. 3
2. 6
3. 4
4. 5

Question ID : **630680163479**
Status : **Answered**
Chosen Option : **3**

Q.28 If $y=2^x+x\log x$, then find $\frac{dy}{dx}$:

Ans

1. $2^x\log 2+\log x-1$
2. $2^x\log 2+\log x+1$
3. $2^x\log 2-\log x+1$
4. $2^x\log 2-\log x-1$

Question ID : **630680163472**
Status : **Answered**
Chosen Option : **2**

Q.29 **Light with an energy flux of 500 kW/m^2 falls for 5 minutes at normal incidence on a non-reflecting circular surface with a radius of 10 cm. The total momentum delivered to this surface has a magnitude of _____.**

Ans

✗ 1. $7.5\pi \times 10^{-3}$ kg m s^{-1}

✗ 2. $25\pi \times 10^{-3}$ kg m s^{-1}

✓ 3. $5\pi \times 10^{-3}$ kg m s^{-1}

✗ 4. $8.3\pi \times 10^{-3}$ kg m s^{-1}

Question ID : **630680163436**
Status : **Answered**
Chosen Option : **1**

Q.30 If the direction ratios of two lines are $(1,2,3)$ and $(-2,3,-4)$, Then the angle between the lines is:

Ans

✗ 1. $\cos^{-1}\left(\frac{6}{\sqrt{406}}\right)$

✓ 2. $\cos^{-1}\left(-\frac{8}{\sqrt{406}}\right)$

✗ 3. $\cos^{-1}\left(\frac{8}{\sqrt{406}}\right)$

✗ 4. $\cos^{-1}\left(-\frac{6}{\sqrt{406}}\right)$

Question ID : **630680163483**
Status : **Answered**
Chosen Option : **2**

Q.31 **A 100 mH inductor is connected to a 157 V, 50 Hz AC source. The peak current of the circuit is _____.**

Ans

✓ 1. $I_{max} = 7.07$ A

✗ 2. $I_{max} = 2.51$ A

✗ 3. $I_{max} = 3.14$ A

✗ 4. $I_{max} = 3.53$ A

Question ID : **630680163450**
Status : **Answered**
Chosen Option : **2**

Q.32 $\lim_{\theta \to 0} \frac{1-\cos m\theta}{1-\cos n\theta} = ?$

Ans

✗ 1. $\frac{m^2}{n}$

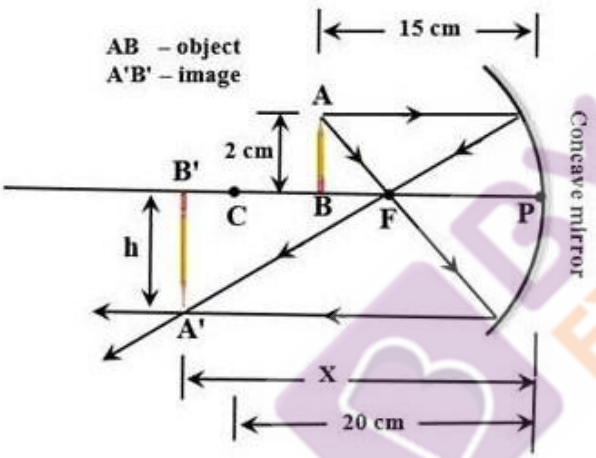
✗ 2. $\frac{m}{n^2}$

✓ 3. $\frac{m^2}{n^2}$

✗ 4. $\frac{m}{n}$

Question ID : **630680163469**
Status : **Answered**
Chosen Option : **3**

Q.33 Find the value of 'X' and 'h' in the following diagram.



Ans

✗ 1. X = 40 cm; h = 10 cm

✗ 2. X = 60 cm; h = 8 cm

✗ 3. X = 20 cm; h = 6 cm

✓ 4. X = 30 cm; h = 4 cm

Question ID : **630680163440**
Status : **Answered**
Chosen Option : **3**

Q.34 The product of the cofactors of 3 and -2 in the matrix $\begin{bmatrix} 1 & 0 & -2 \\ 3 & -1 & 2 \\ 4 & 5 & 6 \end{bmatrix}$ is:

Ans
✔ 1. -190
✘ 2. -180
✘ 3. 190
✘ 4. 180

Question ID : **630680163466**
Status : **Answered**
Chosen Option : **3**

Q.35 A toroidal coil has 2400 turns and carries 250 mA of current, producing a magnetic field of 31.4×10^{-4}T. The perimeter of the toroidal coil is _____.

Ans
✘ 1. 0.38 m
✘ 2. 0.50 m
✔ 3. 0.24 m
✘ 4. 0.12 m

Question ID : **630680163434**
Status : **Answered**
Chosen Option : **3**

Q.36 In an excited hydrogen atom, what is the wavelength of the spectral line emitted by an electron that jumps from an 'O' orbital to 'L' orbital?

Ans
✔ 1. 4341 Å
✘ 2. 4861 Å
✘ 3. 4102 Å
✘ 4. 3646 Å

Question ID : **630680163454**
Status : **Answered**
Chosen Option : **1**

Q.37 Which of the following statements is correct concerning the below reactions?

(i) ${}_0^1n + {}_{92}^{235}U \rightarrow {}_{92}^{236}U \rightarrow {}_{51}^{133}Sb + {}_{41}^{99}Nb + 4\,{}_0^1n + Q$

(ii) ${}_0^1n + {}_{92}^{235}U \rightarrow {}_{54}^{140}Xe + {}_{38}^{94}Sr + 2\,{}_0^1n + Q$

Ans ✔ 1.
Both reactions (i) and (ii) are nuclear fission reactions and during the reaction, ~ 216 MeV energy is released.

✘ 2.
The reaction (ii) is a nuclear fission reaction but (i) is not and during the reaction, ~ 50 MeV energy is released.

✘ 3.
The reaction (i) is a nuclear fission reaction but (ii) is not and during the reaction, ~ 216 MeV energy is released.

✘ 4.
Both reactions (i) and (ii) are nuclear fusion reactions and during the reaction, they emit β particles in succession to achieve stable end products.

Question ID : **630680163452**
Status : **Answered**
Chosen Option : **4**

Q.38 If $y = x^{\sec^2 x} * \frac{1}{x^{\tan^2 x}}$, then $\frac{dy}{dx} = ?$

Ans ✘ 1. 0

✘ 2. -1

✘ 3. $2x^{\sec^2 x} \log \tan^2 x$

✔ 4. 1

Question ID : **630680163470**
Status : **Answered**
Chosen Option : **3**

Q.39 **When the EMF of two cells is compared in a potentiometer experiment, the ratio of balancing length is obtained as 2 : 5. If one of the cells has an EMF of 1.2 V, the other cell's EMF is _____.**

Ans ✘ 1. 3.0 V (or) 6.0 V

✘ 2. 0.3 V (or) 2.4 V

✘ 3. 4.5 V (or) 6.0 V

✔ 4. 0.48 V (or) 3.0 V

Question ID : **630680163431**
Status : **Answered**
Chosen Option : **1**

Q.40 The maximum value of $y = \tan^{-1}\frac{1-x}{1+x}$ on $[0,1]$ is:

Ans
1. $\frac{\pi}{6}$
2. $\frac{\pi}{4}$
3. $\frac{\pi}{3}$
4. $\frac{\pi}{2}$

Question ID : **630680163473**
Status : **Answered**
Chosen Option : **2**

Q.41 **Which of the following statements is correct?**

Ans
1. In a P-type semiconductor, the doner energy level is formed due to the pentavalent dopant and it lies just below the conduction band.
2. In an N-type semiconductor, the acceptor energy level is formed due to the pentavalent dopant and it lies just above the conduction band.
3. In an N-type semiconductor, the donar energy level is formed due to the trivalent dopant and it lies just below the valence band.
4. In a P-type semiconductor, the acceptor energy level is formed due to the trivalent dopant and it lies just above the valence band.

Question ID : **630680163444**
Status : **Answered**
Chosen Option : **2**

Q.42 **A 50 cm long wire carrying a current of 500 mA is bent to form a rectangular coil of breadth 5 cm. When the rectangular coil is placed on its long side perpendicular to the uniform magnetic field of 1.5 tesla, the torque experienced is _____.**

Ans
1. 3.75×10^{-3} N m
2. 18.75×10^{-3} N m
3. 33.75×10^{-3} N m
4. 7.50×10^{-3} N m

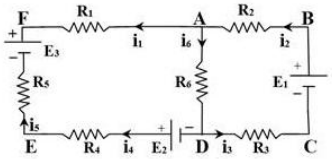
Question ID : **630680163435**
Status : **Answered**
Chosen Option : **4**

Q.43 The equation $X = 0$ represents:

Ans
✗ 1. $XYZ - space$
✗ 2. $XZ - Plane$
✓ 3. $YZ - Plane$
✗ 4. $XY - Plane$

Question ID : **630680163481**
Status : **Answered**
Chosen Option : **3**

Q.44 What is the resulting equation when Kirchhoff's loop law is applied to the following closed-loop ADEFA?



Ans
✗ 1. $-I_6 R_6 + I_4 R_4 + I_5 R_5 - I_1 R_1 = E_2 - E_3$
✗ 2. $I_6 R_6 + I_4 R_4 + I_5 R_5 + I_1 R_1 = -(E_2 + E_3)$
✓ 3. $I_6 R_6 + I_4 R_4 + I_5 R_5 - I_1 R_1 = E_2 + E_3$
✗ 4. $I_6 R_6 - I_4 R_4 - I_5 R_5 + I_1 R_1 = -E_2 + E_3$

Question ID : **630680163432**
Status : **Answered**
Chosen Option : **3**

Q.45 The function $f(x) = \frac{x}{1+x^2}$ from R to R is:

Ans
✗ 1. neither one-one nor onto
✓ 2. one-one but not onto
✗ 3. onto but not one-one
✗ 4. one-one as well as onto

Question ID : **630680163458**
Status : **Answered**
Chosen Option : **2**

Q.46 **In the Rydberg formula for the spectrum of the hydrogen atom, the wavenumber is _____.**

Ans
✗ 1. inversely proportional to the square root of an electron charge
✓ 2. directly proportional to the fourth power of an electron charge
✗ 3. inversely proportional to the fourth power of an electron charge
✗ 4. directly proportional to the square root of an electron charge

Question ID : **630680163456**
Status : **Answered**
Chosen Option : **2**

Q.47 The solution of the system of equations $3x + 2y - 6z = 1, 2x - 3y + 3z = -1, x - 4y + z = -6$ is:

Ans
1. $(1,-2,1)$
2. $(1,1,2)$
3. $(2,1,1)$
4. $(1,2,1)$

Question ID : **630680163468**
Status : **Answered**
Chosen Option : **4**

Q.48 **If a current of 18.2 Ampere per second flows through a copper conductor and the average collision time of electrons is 0.25 μs, then the value of conductivity of the copper conductor is _____.**

Ans
1. 4.55×10^6 mho/m
2. 72.8×10^6 mho/m
3. 0.80×10^6 mho/m
4. 13.7×10^6 mho/m

Question ID : **630680163430**
Status : **Answered**
Chosen Option : **1**

Q.49 If $y = u^2 + \log u$ and $u = e^x$, then find $\frac{dy}{dx}$:

Ans
1. $1 + e^{2x}$
2. $1 + 2e^{2x}$
3. $1 + 2e^{-2x}$
4. $1 + e^{-2x}$

Question ID : **630680163471**
Status : **Answered**
Chosen Option : **2**

Q.50 $\int \frac{2x+3}{x^3+x^2-2x}dx = ?$

Ans

✗ 1. $\frac{5}{3}\log(x-1)-\frac{3}{2}\log|x|+\frac{1}{6}\log|x-2|+c$

✓ 2. $\frac{5}{3}\log(x-1)-\frac{3}{2}\log|x|-\frac{1}{6}\log|x+2|+c$

✗ 3. $\frac{5}{3}\log(x-1)+\frac{3}{2}\log|x|-\frac{1}{6}\log|x+2|+c$

✗ 4. $\frac{5}{3}\log(x-1)+\frac{3}{2}\log|x|+\frac{1}{6}\log|x+2|+c$

Question ID : **630680163477**
Status : **Answered**
Chosen Option : **1**

Q.51 What is the minimum energy required to convert a ground-state $_1H^1$ atom into an H^+ ion?

Ans

✗ 1. 3.4 eV

✗ 2. 1.511 eV

✗ 3. 10.2 eV

✓ 4. 13.6 eV

Question ID : **630680163455**
Status : **Answered**
Chosen Option : **4**

Q.52 **Which of the following statements is/are correct?**
(i) Gauss' law applies to any closed surface, regardless of shape or size.
(ii) We cannot distinguish between positive and negative flux depending on the direction of the electric flux lines.
(iii) The net electric flux leaving a surface will always be zero if there is a charge bound inside of it.

Ans

✗ 1. Both (i) and (iii)

✓ 2. Only (i)

✗ 3. Only (ii)

✗ 4. Both (ii) and (iii)

Question ID : **630680163428**
Status : **Answered**
Chosen Option : **2**

Q.53 **The self-inductance of the coil depends on _____.**

Ans
✗ 1. the induced EMF developed in the coil

✗ 2. the temperature of the coil

✓ 3. the area of the coil

✗ 4. the current flowing through the coil

Question ID : **630680163447**
Status : **Answered**
Chosen Option : **1**

Q.54 $\int_0^{\frac{\pi}{4}} \sin^3\theta \, d\theta = ?$

Ans
✗ 1. $-\frac{2}{3}-\frac{5}{6\sqrt{2}}$

✗ 2. $\frac{2}{3}+\frac{5}{6\sqrt{2}}$

✗ 3. $-\frac{2}{3}+\frac{5}{6\sqrt{2}}$

✓ 4. $\frac{2}{3}-\frac{5}{6\sqrt{2}}$

Question ID : **630680163475**
Status : **Answered**
Chosen Option : **1**

Q.55 The equation of the plane which contain the points $(0,6,0)$ and $(-2,-3,4)$ and which is parallel to the ray with direction ratios $(2,3,-2)$ is:

Ans
✗ 1. $3x-2y+6z+12=0$

✗ 2. $3x+2y-6z-12=0$

✓ 3. $3x+2y+6z-12=0$

✗ 4. $3x-2y-6z+12=0$

Question ID : **630680163484**
Status : **Answered**
Chosen Option : **3**

Q.56 In a certain college, 25% of boys and 10% of girls are studying Mathematics. The girls constitute 60% of the student body. The probability that mathematics being studied is:

Ans

✔ 1. $\frac{4}{25}$

✗ 2. $\frac{1}{10}$

✗ 3. $\frac{2}{5}$

✗ 4. $\frac{3}{5}$

Question ID : **630680163486**
Status : **Answered**
Chosen Option : **1**

Q.57 If $\bar{a} = 3\bar{\imath} - 2\bar{\jmath} + \bar{k}$ and $\bar{b} = 4\bar{\imath} + 3\bar{\jmath} - \lambda\bar{k}$ are orthogonal, then $\lambda = ?$

Ans

✔ 1. 6

✗ 2. -6

✗ 3. 12

✗ 4. -12

Question ID : **630680163480**
Status : **Answered**
Chosen Option : **1**

Q.58 The general solution of $3\sin^2 x - 7\sin x + 2 = 0$ is:

Ans

✔ 1. $x = n\pi + (-1)^n \sin^{-1}\frac{1}{3}$

✗ 2. $x = n\pi + (-1)^n \sin\frac{1}{3}$

✗ 3. $x = 2n\pi + (-1)^n \sin\frac{1}{3}$

✗ 4. $x = \frac{n\pi}{2} + (-1)^n \sin^{-1}\frac{1}{3}$

Question ID : **630680163462**
Status : **Answered**
Chosen Option : **1**

Q.59 **Which of the following statement(s) is/are NOT correct?**
(i) Infrared radiation plays an important role in keeping the earth cool.
(ii) Infrared rays are emitted by certain semiconductor light-emitting diodes.
(iii) Water vapour is an excellent infrared ray trapper.
(iv) The thermal motion of the materials decreases after they absorb infrared rays.

Ans
✗ 1. Both (iii) and (iv)
✓ 2. Both (i) and (iv)
✗ 3. Both (ii) and (iii)
✗ 4. Both (i) and (ii)

Question ID : **630680163439**
Status : **Answered**
Chosen Option : **4**

Q.60 If A, B and C are angles of a triangle, then which of the following is correct?

Ans
✗ 1. $\sin 2A + \sin 2B - \sin 2C = 4\cos A \sin B \cos C$
✗ 2. $\tan\frac{A}{2}\tan\frac{B}{2} + 1 = \tan\frac{B}{2}\tan\frac{C}{2} + \tan\frac{C}{2}\tan\frac{A}{2}$
✓ 3. $\tan A + \tan B + \tan C = \tan A \tan B \tan C$
✗ 4. $\cot A \cot B + \cot B \cot C + \cot C \cot A = -1$

Question ID : **630680163464**
Status : **Answered**
Chosen Option : **3**