भारतीय विमानपत्तन प्राधिकरण

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

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(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	
Test Date	21/02/2023
Test Time	12:30 PM - 2:30 PM
Subject	Junior Executive (Air Traffic Control)

Section : **General Knowledge**

Q.1 **Which of the following leucoplasts store oils and fats?**

Ans
✗ 1. Aleuroplasts
✗ 2. Amyloplasts
✗ 3. Nucloeplasts
✓ 4. Elaioplasts

Question ID : **630680164379**
Status : **Answered**
Chosen Option : **3**

Q.2 **In which year did the University Grants Commission Act come into force?**

Ans
✗ 1. 1950
✓ 2. 1956
✗ 3. 1954
✗ 4. 1952

Question ID : **630680164374**
Status : **Answered**
Chosen Option : **2**

Q.3 **Who is the awardee of Major Dhyan Chand Khel Ratna Award 2022?**

Ans
✗ 1. R Praggnanandhaa
✗ 2. Eldhose Paul
✗ 3. Avinash Mukund Sable
✓ 4. Sharath Kamal Achanta

Question ID : **630680164382**
Status : **Answered**
Chosen Option : **1**

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Q.4 Identify the cnidarian that is correctly matched with its common name.

Ans
✗ 1. Pennatula – Sea-fan
✗ 2. Gorgonia – Sea anemone
✗ 3. Adamsia – Sea-pen
✓ 4. Physalia – Portuguese man-of-war

Question ID : **630680164380**
Status : **Answered**
Chosen Option : **2**

Q.5 The reformer Henry Vivian Derozio was associated with _____ .

Ans
✗ 1. Ahmadiya Movement
✓ 2. Young Bengal Movement
✗ 3. Akali Movement
✗ 4. Suddhi Movement

Question ID : **630680164373**
Status : **Answered**
Chosen Option : **2**

Q.6 Article 148 of the Constitution of India guides towards the appointment of _____.

Ans
✓ 1. Comptroller and Auditor-General of India
✗ 2. Finance Commissioner
✗ 3. Election Commissioner
✗ 4. Attorney-General for India

Question ID : **630680164381**
Status : **Answered**
Chosen Option : **4**

Q.7 Match the columns.

Rivers	Their origin
I. Indus	a) Amarkantak (Madhya Pradesh)
II. Godavari	b) Mansarovar (Tibet)
III. Cauvery	c) Nasik (Maharashtra)
IV. Narmada	d) Coorg (Karnataka)

Ans
✗ 1. I-b, II-c, III-a, IV-d
✓ 2. I-b, II-c, III-d, IV-a
✗ 3. I-a, II-c, III-b, IV-d
✗ 4. I-d, II-c, III-b, IV-a

Question ID : **630680164378**
Status : **Answered**
Chosen Option : **2**

Q.8 **Which of the following is NOT one of the three major types of indigenous wild silks produced in Assam?**

Ans
✗ 1. Golden Muga Silk
✓ 2. Kausheya Pat
✗ 3. White Pat
✗ 4. Warm Eri Silk

Question ID : **630680164377**
Status : **Answered**
Chosen Option : **2**

Q.9 **Which of the following Harappan sites was excavated in the 1960s under the guidance of BK Thapar?**

Ans
✗ 1. Harappa
✓ 2. Kalibangan
✗ 3. Lothal
✗ 4. Mohenjodaro

Question ID : **630680164375**
Status : **Answered**
Chosen Option : **2**

Q.10 **In which of the following states did Micro-Finance Institutions Network (MFIN) launch a series of free Medical Health Camps in 18 flood affected districts in September 2022?**

Ans
✓ 1. Assam
✗ 2. Bihar
✗ 3. Meghalaya
✗ 4. Jharkhand

Question ID : **630680164376**
Status : **Answered**
Chosen Option : **1**

Section : **General Intelligence**

Q.1 **Two men stepped out of an apartment but walked in different directions to reach different destinations. The first man walked 92 m towards west and took a left turn. He then walked 100 m and took a left turn. He then walked 240 m and took a right turn. Finally, he walked for 100 m to reach a point D. The second man walked 80 m towards east and took a right turn. He then walked 110 m to reach a point B. In which direction is point B from point D?**

Ans
✗ 1. South-East
✗ 2. South-West
✗ 3. North-East
✓ 4. North-West

Question ID : **630680164391**
Status : **Answered**
Chosen Option : **3**

Q.2 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:
Few sheep are chimpanzees.
No chimpanzee is a gorilla.
All gorillas are bears.
Conclusions:
(I) Some bears are not chimpanzees.
(II) All chimpanzees are sheep.
(III) All bears are gorillas.

Ans
✗ 1. Either conclusion I or conclusion III follow
✗ 2. Only conclusion II follows
✗ 3. None of the conclusions follow
✓ 4. Only conclusion I follows

Question ID : **630680164388**
Status : **Answered**
Chosen Option : **4**

Q.3 Given below are pairs of events (i) and (ii). You have to read them and decide their nature of relationship. You have to assume that the information given in both (i) and (ii) is true and not assume anything beyond the given information in deciding the answer.
Event (i) The prices of imported goods dropped significantly this year.
Event (ii) The government reduced the tax on importing goods.

Ans
✗ 1. Both the events are effects of some independent causes.
✗ 2. Both the events are effects of some common cause.
✗ 3. Event (ii) is the effect and event (i) is its immediate and principal cause.
✓ 4. Event (i) is the effect and event (ii) is its immediate and principal cause.

Question ID : **630680164397**
Status : **Answered**
Chosen Option : **4**

Q.4 Each of M, N, O, P, Q, R and S has birthdays on a different day of a week starting from Monday and ending on Sunday of the same week.
Only N has birthday before Q who has birthday on Tuesday. R has birthday on Thursday. P has birthday immediately after S, but not on Sunday. M has birthday on one of the days before O. Who has birthday on Sunday?

Ans
✗ 1. Q
✗ 2. M
✗ 3. S
✓ 4. O

Question ID : **630680164385**
Status : **Answered**
Chosen Option : **4**

Q.5 Select an option that is true regarding the following two statements labelled Assertion (A) and Reason (R).
A. Sun is a star.
R. Stars are space objects that produces their own energy through fusion reaction of gases.

Ans
✗ 1. Both 'A' and 'R' are false.
✗ 2. Both 'A' and 'R' are true but 'R' is not the correct explanation of 'A'.
✓ 3. Both 'A' and 'R' are true and 'R' is the correct explanation of 'A'.
✗ 4. 'A' is true but 'R' is false.

Question ID : **630680164395**
Status : **Answered**
Chosen Option : **3**

Q.6 **A question is given, two statements labelled I and II. Identify which of the statements is/are sufficient/necessary to answer the question.**
Question:
On what day of the week does Punit's birthday fall?
Statements:
I. Arjun correctly remembers that Punit's birthday comes before Thursday but after Monday.
II. Bhushan correctly remembers that Punit's birthday comes after Tuesday but before Saturday.

Ans
✔ 1. The data given in both statements I and II together are necessary to answer the question.
✘ 2. The data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
✘ 3. The data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
✘ 4. The data either in statement I alone or statement II alone are sufficient to answer the question.

Question ID : **630680164394**
Status : **Answered**
Chosen Option : **1**

Q.7 **Seven teachers P, Q, R, S, T, U and V are sitting in a straight row, facing north. Only Q sits between V and U. Only R sits to the right of T. P is to the immediate left of T. Only P sits between T and S. V does not sit at any of the extreme ends of the row. Who sits to the immediate left of Q?**

Ans
✘ 1. V
✘ 2. P
✔ 3. U
✘ 4. T

Question ID : **630680164384**
Status : **Answered**
Chosen Option : **1**

Q.8 **Given below are pairs of events (i) and (ii). You have to read them and decide their nature of relationship. You have to assume that the information given in both (i) and (ii) is true and not assume anything beyond the given information in deciding the answer.**
Event (i) Many people visited the Taj Mahal during the weekend.
Event (ii) Few foreigners visited the Taj Mahal during the weekdays.

Ans
✘ 1. Event (ii) is the effect and event (i) is its immediate and principal cause.
✘ 2. Event (i) is the effect and event (ii) is its immediate and principal cause.
✘ 3. Both the events are effects of some common cause.
✔ 4. Both the events are effects of some independent causes.

Question ID : **630680164396**
Status : **Answered**
Chosen Option : **3**

Q.9 **Mr. Pandey and Mr. Gupta stepped out of the same office and walked towards West. Mr. Pandey walked 300 m and took a right turn. He walked 200 m and took a left turn. He walked 90 m and reached the bank. Meanwhile, Mr. Gupta walked 650 m to reach the bus stop. In which direction is the bus stop from the bank?**

Ans
✘ 1. North
✔ 2. South-West
✘ 3. South-East
✘ 4. North-West

Question ID : **630680164390**
Status : **Answered**
Chosen Option : **4**

Q.10 A certain number of people are sitting in a row, facing south. Naresh sits fourth to the right of Sita. Only four people sit between Naresh and Kumar. Raju sits to the immediate right of Kumar. Only two people sit between Kumar and Anuj. Amit sits third to the right of Anuj. If no other person is sitting in the row, what is the total number of people seated?

Ans
✗ 1. 15
✗ 2. 17
✗ 3. 14
✓ 4. 16

Question ID : **630680164386**
Status : **Answered**
Chosen Option : **1**

Q.11 If in a certain coding language, 'flowers go black' is written as 'la vo mu', 'black panther died' is written as 'zi mu be' and 'panther go red' is written as 'be la ho', how will 'panther' be written in that language?

Ans
✗ 1. zi
✓ 2. be
✗ 3. ho
✗ 4. la

Question ID : **630680164389**
Status : **Answered**
Chosen Option : **2**

Q.12 If
'P & Q' means 'P is the brother of Q's mother',
'P Ø Q' means 'P is the father of Q',
'P * Q' means 'P is the mother of Q',
'P = Q' means 'P is the wife of Q',
'P % Q' means 'P is the husband of Q', then how is M related to S in the following expression?
S = Q Ø O % N * M

Ans
✗ 1. Daughter's husband
✓ 2. Son's child
✗ 3. Brother
✗ 4. Brother's child

Question ID : **630680164393**
Status : **Answered**
Chosen Option : **2**

Q.13 F, K, W, C, U, B and D are seven family members attending an economics fair. D is the brother of B. C is wife of W. F is K's husband. B is U's wife. K is the mother of U and daughter of W. How is D related to U?

Ans
✗ 1. Brother
✓ 2. Wife's brother
✗ 3. Husband
✗ 4. Father

Question ID : **630680164392**
Status : **Answered**
Chosen Option : **2**

Q.14 Each of the five persons among M, N, O, P and Q like different drinks among coffee, tea, hot chocolate, iced tea and energy drink, not necessarily in the same order. They all have different professions – Teacher, Librarian, Technician, Accountant and Acrobat.
N does not like tea. M likes coffee and is a librarian. N and P like neither energy drink nor iced tea. O likes energy drink but he is neither a teacher nor an accountant. Q is a technician. The one who likes tea is a teacher. Which of the following is correct?

Ans
✔ 1. P is a teacher and likes tea.
✘ 2. P is an accountant and likes iced tea.
✘ 3. O likes energy drink and is a technician.
✘ 4. Q is an acrobat and likes energy drink.

Question ID : **630680164387**
Status : **Answered**
Chosen Option : **1**

Q.15 Study the given information carefully and answer the question that follows.
A group of 8 classmates, 4 boys H, I, J and K and 4 girls D, E, F and G decided to sit at a round table to have coffee, during the lunch break. They are sitting in such a way that:
1. all of them are facing each other
2. no two girls or two boys are sitting side by side
3. J is between D and G and is facing I
4. E, who is sitting between K and I, is facing D
5. H is to the immediate right of F.
Who is sitting in front of K?

Ans
✘ 1. I
✘ 2. F
✘ 3. D
✔ 4. H

Question ID : **630680164383**
Status : **Answered**
Chosen Option : **4**

Section : **General Aptitude**

Q.1 In finding HCF of two positive integers by division method, the last divisor is 28 and the respective quotients from the beginning are 30, 1 and 3. What is the sum of the two integers?

Ans
✘ 1. 3566
✔ 2. 3556
✘ 3. 3564
✘ 4. 3554

Question ID : **630680164400**
Status : **Answered**
Chosen Option : **3**

Q.2 Rashid borrowed a sum of ₹30,240 at 10% p.a., interest compounded annually. If the amount is to be paid back in two equal annual instalments, then the interest paid by him is:

Ans
✘ 1. ₹4,590
✘ 2. ₹4,518
✘ 3. ₹4,600
✔ 4. ₹4,608

Question ID : **630680164408**
Status : **Answered**
Chosen Option : **3**

Q.3 By selling an article for ₹219.60, a shopkeeper loses 8.5%. If he sells it for ₹265.20, then his profit per cent is:

Ans
✗ 1. 10%
✗ 2. 12.5%
✗ 3. 9%
✓ 4. 10.5%

Question ID : **630680164402**
Status : **Answered**
Chosen Option : **4**

Q.4 The cost price of item A is ₹500 more than that of item B. When A is sold at a loss of 10% and B is sold at a profit of 25%, then there is a profit of 4% in the entire transaction. What is the selling price of item A?

Ans
✗ 1. ₹1,440
✓ 2. ₹1,350
✗ 3. ₹1,260
✗ 4. ₹1,620

Question ID : **630680164403**
Status : **Answered**
Chosen Option : **3**

Q.5 A sum of ₹7,560 is divided between A, B and C such that the ratio of the share of A to the combined share of B and C is 5 : 9 and the ratio of the share of C to the combined share of A and B is 3 : 7. What is the share of B?

Ans
✗ 1. ₹2,482
✓ 2. ₹2,592
✗ 3. ₹2,590
✗ 4. ₹2,480

Question ID : **630680164405**
Status : **Answered**
Chosen Option : **2**

Q.6 The value of $\frac{5\frac{1}{4} \div 2\frac{1}{3} \text{ of } \frac{3}{4} - \frac{3}{4} \times 1\frac{1}{2} \div 1\frac{1}{8} + \frac{2}{3}}{0.\overline{29} \div 0.3\overline{2} \text{ of } (30 \div 11)}$ is:

Ans
✓ 1. 8
✗ 2. $\frac{8}{9}$
✗ 3. 9
✗ 4. $\frac{9}{8}$

Question ID : **630680164398**
Status : **Answered**
Chosen Option : **2**

Q.7 **The marked price of an article is ₹450. It is sold for ₹348.48, after giving two successive discounts each of x% on the marked price. If a single discount of 2x% is given on the same marked price, then what will be its selling price?**

Ans
✔ 1. ₹342
✘ 2. ₹360
✘ 3. ₹315
✘ 4. ₹306

Question ID : **630680164404**
Status : **Answered**
Chosen Option : **2**

Q.8 **A car travelling at a speed of 70 km/h overtakes a bus travelling in the same direction and leaves it 170 m behind in 18 seconds. What is the speed (in km/h) of the bus?**

Ans
✘ 1. 40
✔ 2. 36
✘ 3. 42
✘ 4. 45

Question ID : **630680164409**
Status : **Answered**
Chosen Option : **2**

Q.9 The time taken by a boat to cover a certain distance upstream is equal to $\frac{4}{7}$ of the time taken by it to cover three times the same distance downstream. The speed of the stream is 7.5 km/h. How many (total) hours will the boat take to go 42 km upstream and 54 km downstream?

Ans
✘ 1. 3
✘ 2. 4
✘ 3. 4.2
✔ 4. 3.5

Question ID : **630680164410**
Status : **Answered**
Chosen Option : **3**

Q.10 The simple interest on a certain sum for $12\frac{1}{2}$ years at 15 % p.a. exceeds the amount of the same sum at simple interest for $6\frac{1}{2}$ years at 12 % p.a. by ₹1197. The sum (in ₹) is:

Ans
✘ 1. 12,800
✔ 2. 12,600
✘ 3. 12,500
✘ 4. 13,000

Question ID : **630680164407**
Status : **Answered**
Chosen Option : **3**

Q.11 A and B enter into a partnership with capitals in the ratio $\frac{4}{3} : \frac{5}{6}$. After 6-months, A reduces his capital by 25% and B increases his capital by 50%. What is the share of B in the profit of ₹63.6 lakhs, at the end of a year?

Ans
✔ 1. 30
✘ 2. 32
✘ 3. 33.6
✘ 4. 32.5

Question ID : **630680164406**
Status : **Answered**
Chosen Option : **3**

Q.12 **The diameter of a solid metallic spherical bullet is 3.5 cm. 96 such bullets are melted and recast into a solid right circular cylinder of height 56 cm. What is the curved surface area (in cm^2) of the cylinder?**

Ans
✘ 1. 448π
✘ 2. 336π
✔ 3. 392π
✘ 4. 280π

Question ID : **630680164412**
Status : **Answered**
Chosen Option : **3**

Q.13 Pipes A and B can fill a tank in 12 hours and 15 hours, respectively. Pipe C is an emptying pipe. Pipes A and B are opened together for 5 hours and then B is closed and C is opened. A and C together filled the remaining part of the tank in 10 hours. Pipe C alone can empty $\frac{7}{15}$ th part of the tank in:

Ans
✘ 1. $8\frac{1}{2}$ hours
✘ 2. $7\frac{1}{2}$ hours
✔ 3. 8 hours
✘ 4. 7 hours

Question ID : **630680164411**
Status : **Answered**
Chosen Option : **3**

Q.14 **If a 8-digit number 43x259y2 is divisible by 88, then the largest possible value of (5x+2y) is:**

Ans
✘ 1. 56
✘ 2. 52
✔ 3. 63
✘ 4. 64

Question ID : **630680164399**
Status : **Answered**
Chosen Option : **4**

Q.15 The ratio of alcohol and water in solution A is 3 : 5 and it is 7 : 3 in solution B. Six litres of A and 5 litres of B are mixed in a vessel and one litre water is also added to this mixture. What is the ratio of alcohol and water in the resulting mixture?

Ans
- ✔ 1. 23 : 25
- ✘ 2. 22 : 23
- ✘ 3. 21 : 22
- ✘ 4. 23 : 29

Question ID : **630680164401**
Status : **Answered**
Chosen Option : **3**

Section : **General English**

Q.1 Select the most appropriate ANTONYM of the given word.
Scrumptious

Ans
- ✔ 1. Tasteless
- ✘ 2. Satisfying
- ✘ 3. Delicious
- ✘ 4. Appetising

Question ID : **630680164427**
Status : **Answered**
Chosen Option : **1**

Q.2 Select the most appropriate option to fill in the blanks.
He ordered his soldiers to search ____ whole forest for ____ lost puppy of the boy.

Ans
- ✘ 1. a, the
- ✔ 2. the, the
- ✘ 3. a, a
- ✘ 4. the, a

Question ID : **630680164422**
Status : **Answered**
Chosen Option : **2**

Q.3 Select the most appropriate option to fill in the blank.
At the association's meeting, people voted by raising _____ hands.

Ans
- ✘ 1. them
- ✘ 2. our
- ✔ 3. their
- ✘ 4. theirs

Question ID : **630680164414**
Status : **Answered**
Chosen Option : **3**

Q.4 Select the most appropriate option to collocate with the word 'tired' to fill in the blank.
Sometimes she _____ tired of looking after small children.

Ans
- ✘ 1. goes
- ✘ 2. makes
- ✘ 3. begins
- ✔ 4. gets

Question ID : **630680164424**
Status : **Answered**
Chosen Option : **4**

Q.5 Select the most appropriate option to fill in the blank.
We found her playing with ____ little dog in the park.

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

Question ID : **630680164419**
Status : **Answered**
Chosen Option : **1**

Q.6 Select the most appropriate option to collocate with the word 'look' to fill in the blank.
Let's take a _____ look through this file.

Ans
✔ 1. quick
✘ 2. rapid
✘ 3. swift
✘ 4. fast

Question ID : **630680164423**
Status : **Answered**
Chosen Option : **1**

Q.7 Identify the proverb that best suits the following scenario.
As long as the outcome is good, problems on the way don't matter.

Ans
✘ 1. Every cloud has a silver lining.
✘ 2. An hour in the morning is worth two in the evening.
✔ 3. All is well that ends well.
✘ 4. All is fair in love and war.

Question ID : **630680164429**
Status : **Answered**
Chosen Option : **3**

Q.8 Select the most appropriate option to fill in the blanks.
I happily _____ to the demand of our workmen for extra bonus. After all, this year our sales had _____ all expectations.

Ans
✔ 1. acceded, exceeded
✘ 2. exceeded, exceeded
✘ 3. acceded, acceded
✘ 4. exceeded, acceded

Question ID : **630680164426**
Status : **Answered**
Chosen Option : **1**

Q.9 Select the most appropriate option to fill in the blank and complete the given proverb correctly.
A journey of thousand miles begins _____.

Ans
✘ 1. gradually
✘ 2. from home
✘ 3. after finishing school
✔ 4. with a single step

Question ID : **630680164428**
Status : **Answered**
Chosen Option : **4**

Q.10 Select the most appropriate option to fill in the blank.
Much of ____ credit for making this school great goes to its Principal.

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

Question ID : **630680164421**
Status : **Answered**
Chosen Option : **1**

Q.11 Select the most appropriate option to fill in the blank.
Last night, a thick fog caused a massive accident _____ the Expressway.

Ans
✓ 1. on
✗ 2. at
✗ 3. above
✗ 4. over

Question ID : **630680164413**
Status : **Answered**
Chosen Option : **4**

Q.12 Select the most appropriate option to fill in the blank.
Look, the children _____ such fun on this swing!

Ans
✓ 1. are having
✗ 2. had
✗ 3. have
✗ 4. have had

Question ID : **630680164416**
Status : **Answered**
Chosen Option : **1**

Q.13 Select the most appropriate option to fill in the blank.
I wanted to buy some peanuts, but I didn't see anyone _____ them.

Ans
✗ 1. sold
✓ 2. selling
✗ 3. sells
✗ 4. to sell

Question ID : **630680164415**
Status : **Answered**
Chosen Option : **4**

Q.14 Select the most appropriate option to fill in the blank.
Tom: "What are you going to do with this laptop?"
Peter: "I _____ it."

Ans
✗ 1. sell
✗ 2. sold
✗ 3. was selling
✓ 4. will sell

Question ID : **630680164418**
Status : **Answered**
Chosen Option : **4**

Q.15 Select the most appropriate option to fill in the blank.
Last year, I _____ a house in Shimla.

Ans
✗ 1. buy
✗ 2. was buying
✓ 3. bought
✗ 4. have bought

Question ID : **630680164417**
Status : **Answered**
Chosen Option : **3**

Q.16 Select the most appropriate option to fill in the blanks.
When she was hungry, she ate ____ orange and drank ____ glass of water.

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

Question ID : **630680164420**
Status : **Answered**
Chosen Option : **4**

Q.17 Select the most appropriate option to fill in the blank.
He _____ the loan he had taken from his friend within a month.

Ans
✓ 1. repaid
✗ 2. revealed
✗ 3. requested
✗ 4. reserved

Question ID : **630680164432**
Status : **Answered**
Chosen Option : **1**

Q.18 Select the most appropriate meaning of the given idiom.
Bag of bones

Ans
✗ 1. An unsolved issue
✗ 2. A bag full of trash
✗ 3. An unreliable person
✓ 4. A very thin person

Question ID : **630680164430**
Status : **Answered**
Chosen Option : **4**

Q.19 **Parts of a sentence are given below in jumbled order. Arrange the parts in the correct order to form a meaningful sentence.**
A. Shivaji's son Sambhaji grew up
B. under the shelter and watch
C. of his father and,
D. more importantly, his grandmother, Jijabai

Ans
✗ 1. ABDC
✗ 2. ACBD
✓ 3. ABCD
✗ 4. ADCB

Question ID : **630680164431**
Status : **Answered**
Chosen Option : **3**

Q.20 **Select the most appropriate synonym of the given word.**
Expedite

Ans
✗ 1. Halt
✓ 2. Hasten
✗ 3. Hinder
✗ 4. Hold

Question ID : **630680164425**
Status : **Answered**
Chosen Option : **1**

Section : **Domain Knowledge**

Q.1 If $a\sin^2\theta + b\cos^2\theta = c$, then $\tan^2\theta = ?$

Ans
✓ 1. $\frac{c-b}{a-c}$
✗ 2. $\frac{b-c}{a-c}$
✗ 3. $\frac{a-c}{c-b}$
✗ 4. $\frac{a-c}{b-c}$

Question ID : **630680164468**
Status : **Answered**
Chosen Option : **2**

Q.2 **For a 100 ohm resistor connected to a 220 V, 50 Hz AC supply, the net power consumed over a full cycle is:**

Ans
✗ 1. 220 W
✓ 2. 484 W
✗ 3. 4.84 W
✗ 4. 2.20 W

Question ID : **630680164443**
Status : **Answered**
Chosen Option : **2**

Q.3 If $\begin{vmatrix} 2x-4 & 4 & 0 \\ 2 & x-1 & 1 \\ 2 & 2 & 0 \end{vmatrix} = 0$, then $x = ?$

Ans
✗ 1. -4
✓ 2. 4
✗ 3. 5
✗ 4. -5

Question ID : **630680164470**
Status : **Answered**
Chosen Option : **2**

Q.4 **Isotopes have the same number of:**

Ans
✗ 1. nucleons
✓ 2. protons
✗ 3. neutrons
✗ 4. deuterons

Question ID : **630680164455**
Status : **Answered**
Chosen Option : **2**

Q.5 **A straight wire carries a current from north to south. The direction of the magnetic field at a point east of the wire will be:**

Ans
✓ 1. vertically upward
✗ 2. north to south
✗ 3. south to north
✗ 4. vertically downward

Question ID : **630680164439**
Status : **Answered**
Chosen Option : **1**

Q.6 If $x = a\left(t + \frac{1}{t}\right)$ and $y = a\left(t - \frac{1}{t}\right)$, then $\frac{dx}{dy}$ is:

Ans
✓ 1. $\frac{y}{x}$
✗ 2. 1
✗ 3. $\frac{x}{y}$
✗ 4. $\frac{1}{x}$

Question ID : **630680164477**
Status : **Answered**
Chosen Option : **3**

Q.7 A coin is tossed n times. If the probability of getting at least two heads is greater than that of getting at least three tails by $\frac{21}{128}$, then n is:

Ans
✗ 1. 6
✓ 2. 7
✗ 3. 5
✗ 4. 8

Question ID : **630680164492**
Status : **Answered**
Chosen Option : **2**

Q.8 **Capacitors connected in series behave like:**

Ans
✗ 1. resistors connected in series
✗ 2. potentiometer
✗ 3. galavanometer
✓ 4. resistors connected in parallel

Question ID : **630680164435**
Status : **Answered**
Chosen Option : **4**

Q.9 If $f(x)=\frac{1}{1+x}, g(x)=f\{f(x)\}$ and $h(x)=f\left[f\{f(x)\}\right]$, then the value of $f(x).g(x).h(x)$ is:

Ans
✗ 1. $\frac{1}{2x-3}$
✓ 2. $\frac{1}{2x+3}$
✗ 3. $\frac{1}{2x}$
✗ 4. -1

Question ID : **630680164464**
Status : **Answered**
Chosen Option : **2**

Q.10 **The average value of alternating current during a full cycle is (i_0 is the peak value):**

Ans
✓ 1. 0
✗ 2. i_0
✗ 3. $i_0 / 2\pi$
✗ 4. $2 i_0 / \pi$

Question ID : **630680164445**
Status : **Answered**
Chosen Option : **1**

Q.11 The ratio of the volume of an atom to the volume of the nucleus is (in terms of order of magnitude):

Ans
- ✔ 1. 10^{15}
- ✘ 2. 10^{5}
- ✘ 3. 10^{25}
- ✘ 4. 10^{10}

Question ID : **630680164454**
Status : **Answered**
Chosen Option : **1**

Q.12 The frequency of the electromagnetic wave produced by an oscillating charge particle (oscillating with frequency v) is:

Ans
- ✘ 1. 0
- ✘ 2. v/2
- ✔ 3. v
- ✘ 4. 2v

Question ID : **630680164446**
Status : **Answered**
Chosen Option : **4**

Q.13 When the length of a microscope tube is increased, its magnifying power:

Ans
- ✘ 1. increases
- ✘ 2. becomes zero
- ✘ 3. remains the same
- ✔ 4. decreases

Question ID : **630680164450**
Status : **Answered**
Chosen Option : **3**

Q.14 The magnitude of magnetic force per unit length (N/m) on a wire carrying a current of 8 A and making an angle of 30° with the direction of a uniform magnetic field of 0.15 T is:

Ans
- ✘ 1. 1.2
- ✘ 2. 0.15
- ✘ 3. 0.8
- ✔ 4. 0.6

Question ID : **630680164440**
Status : **Answered**
Chosen Option : **4**

Q.15 5 apples and 6 oranges are kept in a box. If three fruits are chosen at random, then the probability that 2 apples and one orange are picked is:

Ans

✔ 1. $\frac{4}{11}$

✗ 2. $\frac{5}{11}$

✗ 3. $\frac{6}{11}$

✗ 4. $\frac{4}{13}$

Question ID : **630680164490**
Status : **Answered**
Chosen Option : **1**

Q.16 **An unbiased p-n junction has holes diffusing from p-region to the n-region because:**

Ans

✔ 1. hole concentration in p-region is more compared to the n-region

✗ 2. free electrons in the n-region attracts them

✗ 3. holes move across the junction following the potential difference

✗ 4. holes in the p-region repel them

Question ID : **630680164462**
Status : **Answered**
Chosen Option : **1**

Q.17

The number of solutions of the matrix equation $A^2 = \begin{bmatrix} 1 & 1 \\ 2 & 3 \end{bmatrix}$ is:

Ans

✗ 1. less than 2

✗ 2. no solution

✔ 3. more than 2

✗ 4. exactly 2

Question ID : **630680164473**
Status : **Answered**
Chosen Option : **4**

Q.18 **A 100 W light bulb is able to convert 10% of its power to visible radiation. The average intensity of the visible radiation at a distance of 1 m from the bulb is:**

Ans

✗ 1. 10 W

✗ 2. 8 W/m^2

✗ 3. 0.08 W/m^2

✔ 4. 0.8 W/m^2

Question ID : **630680164448**
Status : **Answered**
Chosen Option : **4**

Q.19 The angle between the lines $3x = 3y = -2z$ and $2x = -y = -3z$ is:

Ans
1. $90°$ ✔
2. $30°$ ✘
3. $45°$ ✘
4. $60°$ ✘

Question ID : **630680164485**
Status : **Answered**
Chosen Option : **3**

Q.20 If $\mathbf{a} = \vec{i} - 2\vec{j} + \vec{k}$, $\mathbf{b} = \vec{i} + \vec{k}$, $\mathbf{c} = 2\vec{j} - \vec{k}$, then the area (in sq. units) of a parallelogram with diagonals a + b and b + c will be:

Ans
1. 14 ✘
2. $2\sqrt{14}$ ✘
3. $\sqrt{14}$ ✔
4. $\frac{\sqrt{14}}{2}$ ✘

Question ID : **630680164483**
Status : **Answered**
Chosen Option : **3**

Q.21 **Consider the solar system as a large atom. The quantum number (n) that characterises Earth's orbit (radius = 1.5 × 10^{11} m) with Earth moving at an orbital speed of 3 × 10^{4} m/s is (mass of Earth is 6 × 10^{24} kg):**

Ans
1. 2.56 ✘
2. 2.56 × 10^{74} ✔
3. 2.56 × 10^{73} ✘
4. 2.56 × 10^{39} ✘

Question ID : **630680164452**
Status : **Answered**
Chosen Option : **2**

Q.22 The value of $\lim_{x\to\infty}\left(\frac{2x-1}{2x+3}\right)^{\frac{x+1}{2}}$ is:

Ans
1. 0 ✘
2. $\frac{1}{e^2}$ ✘
3. e ✘
4. $\frac{1}{e}$ ✔

Question ID : **630680164474**
Status : **Answered**
Chosen Option : **4**

Q.23 If A and B are mutually exclusive events with $P(A) = \frac{1}{2}P(B)$, then $P(A) = ?$

Ans

✗ 1. $\frac{1}{6}$

✗ 2. $\frac{1}{4}$

✗ 3. $\frac{1}{2}$

✓ 4. $\frac{1}{3}$

Question ID : **630680164491**
Status : **Answered**
Chosen Option : **4**

Q.24 The value of k for which straight line $x + y + 3z - 2 = 0 = 2x + y - z - 3$ is parallel to the plane $3x + 2y + kz - 4 = 0$ is:

Ans

✓ 1. 2

✗ 2. 3

✗ 3. -1

✗ 4. 1

Question ID : **630680164487**
Status : **Answered**
Chosen Option : **3**

Q.25 The charge carriers in a p-type semiconductor are:

Ans

✗ 1. equal number of holes and electrons

✓ 2. large number of holes and a small number of electrons

✗ 3. only holes

✗ 4. large number of electrons and a small number of holes

Question ID : **630680164461**
Status : **Answered**
Chosen Option : **2**

Q.26 The electric field of a plane electromagnetic wave oscillates sinusoidally with a frequency of 2.0×10^{10} Hz and an amplitude of 60 Vm^{-1}. The wavelength (in cm) of the wave is ($c = 3 \times 10^8$ ms^{-1}):

Ans

✓ 1. 1.5

✗ 2. 0.015

✗ 3. 0.66

✗ 4. 0.15

Question ID : **630680164447**
Status : **Answered**
Chosen Option : **3**

Q.27 If $3\sin x + 3\sin 4x = \sin y$ and $3\cos x + 3\cos 4x = \cos y$, then $\cos 3x = ?$

Ans

✗ 1. $-1/18$

✗ 2. $1/18$

✓ 3. $-17/18$

✗ 4. $17/18$

Question ID : **630680164469**
Status : **Answered**
Chosen Option : **3**

Q.28 **In the hydrogen atom, transition takes place from n=3 to n=2 orbit. The wavelength of the emitted radiation lies in the _____ region.**

Ans

✗ 1. X-ray

✗ 2. UV

✓ 3. visible

✗ 4. infrared

Question ID : **630680164453**
Status : **Answered**
Chosen Option : **2**

Q.29 The value of $\int \frac{1}{2x^2+x-3}\,dx$ is:

Ans

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

✗ 2. $\log\left(\frac{x-1}{2x+3}\right)+c$

✗ 3. $\log\left(\frac{2x+3}{x-1}\right)+c$

✓ 4. $\frac{1}{5}\log\left(\frac{x-1}{2x+3}\right)+c$

Question ID : **630680164478**
Status : **Answered**
Chosen Option : **1**

Q.30 If $f(16)=16$ and $f'(16)=5$, then $\lim\limits_{x\to 16}\frac{\sqrt{f(x)}-4}{\sqrt{x}-4} = ?$

Ans

✗ 1. 4

✓ 2. 5

✗ 3. 8

✗ 4. 6

Question ID : **630680164475**
Status : **Answered**
Chosen Option : **2**

Q.31 The coordinates of the point that divides the join of (5, 6) and (−3, 6) in the ratio 3 : 5 are:

Ans

✗ 1. $(2, -6)$

✗ 2. $(-2, -2)$

✓ 3. $(2, 6)$

✗ 4. $(-2, 6)$

Question ID : **630680164484**
Status : **Answered**
Chosen Option : **3**

Q.32 If $f(x) = 6 - 5x, f : \mathbf{R} \to \mathbf{R}$, where $\mathbf{R}$ is a set of all real numbers, then f is:

Ans

✗ 1. only function

✗ 2. only one to one function

✓ 3. one to one and onto function

✗ 4. only onto function

Question ID : **630680164465**
Status : **Answered**
Chosen Option : **2**

Q.33 **The electric flux passing through a surface of area A = 8j m^2 in an electric field vector E = 2i + 3j – 4k V/m (bold is for vectors) is:**

Ans

✗ 1. 16 V-m

✗ 2. 32 V-m

✗ 3. –32 V-m

✓ 4. 24 V-m

Question ID : **630680164433**
Status : **Answered**
Chosen Option : **2**

Q.34

The value of the determinant $\begin{vmatrix} b^2-ab & b-c & bc-ac \\ ab-a^2 & a-b & b^2-ab \\ bc-ac & c-a & ab-a^2 \end{vmatrix} = ?$

Ans

✗ 1. abc

✗ 2. a + b + c

✓ 3. 0

✗ 4. ab + bc + ca

Question ID : **630680164471**
Status : **Answered**
Chosen Option : **3**

Q.35 Let * be binary operation defined on R by $p * q = \frac{p+q}{2}, \forall p, q \in R$. The operation is:

Ans

✗ 1. associative but not commutative

✗ 2. commutative and associative

✓ 3. commutative but not associative

✗ 4. neither associative nor commutative

Question ID : **630680164466**
Status : **Answered**
Chosen Option : **1**

Q.36 **Electric conduction in a semiconductor takes place due to:**

Ans

✓ 1. both holes and electrons

✗ 2. only holes

✗ 3. neither holes nor electrons

✗ 4. only electrons

Question ID : **630680164460**
Status : **Answered**
Chosen Option : **1**

Q.37 **Silicon (at 300 K) has hole concentration (and equal electron concentration) of 1.5 × 10^{16} m^{-3}. After indium is doped, the new hole concentration is 4.5 × 10^{22} m^{-3}. The value of electron concentration in the doped silicon is:**

Ans

✓ 1. 5.0 × 10^{9} m^{-3}

✗ 2. 1.5 × 10^{16} m^{-3}

✗ 3. 4.5 × 10^{22} m^{-3}

✗ 4. 3.0 × 10^{6} m^{-3}

Question ID : **630680164459**
Status : **Answered**
Chosen Option : **1**

Q.38 What is the length of the perpendicular drawn from point (3, 4, 5) to line $\frac{x}{1} = \frac{y-1}{2} = \frac{z-2}{3}$?

Ans

✗ 1. $3\sqrt{21}$

✗ 2. $\frac{\sqrt{21}}{7}$

✓ 3. $\frac{3\sqrt{21}}{7}$

✗ 4. $\frac{3}{7}$

Question ID : **630680164489**
Status : **Answered**
Chosen Option : **3**

Q.39 Let $A = \begin{pmatrix} \alpha & 1 \\ 0 & -1 \end{pmatrix}$ and $B = \begin{pmatrix} 4 & 1 \\ 0 & 1 \end{pmatrix}$, such that $A^2 = B$, then the value of α is:

Ans
✗ 1. -2
✓ 2. 2
✗ 3. -1
✗ 4. 1

Question ID : **630680164472**
Status : **Answered**
Chosen Option : **2**

Q.40 **A closely wound solenoid 80 cm long has 5 layers of windings of 400 turns each. The diameter of the solenoid is 1.8 cm. If the current carried is 8.0 A, the magnitude of the magnetic field inside the solenoid (near the centre) is:**

Ans
✗ 1. 2×10^{-2} T
✗ 2. 2 T
✓ 3. 2.5×10^{-2} T
✗ 4. 2.5 T

Question ID : **630680164441**
Status : **Answered**
Chosen Option : **2**

Q.41 The area bound by the parabolas $y = 3x^2$ and $x^2 - y + 4 = 0$ is:

Ans
✗ 1. $\frac{16}{3}\sqrt{3}$
✗ 2. $16\sqrt{2}$
✓ 3. $\frac{16}{3}\sqrt{2}$
✗ 4. $\frac{16}{3}$

Question ID : **630680164480**
Status : **Answered**
Chosen Option : **3**

Q.42 If $\int \frac{\sqrt{4+x^2}}{x^6}\,dx = \frac{A(4+x^2)^{3/2}(Bx^2-6)}{x^5} + C$, then A is:

Ans
✗ 1. -120
✓ 2. $\frac{1}{120}$
✗ 3. 120
✗ 4. $-\frac{1}{120}$

Question ID : **630680164481**
Status : **Answered**
Chosen Option : **3**

Q.43

The derivative of $\tan^{-1}\left(\frac{\sqrt{1+x^2}-1}{x}\right)$ with respect to $\tan^{-1}x$ is:

Ans

✗ 1. 1

✓ 2. $\frac{1}{2}$

✗ 3. $\frac{1}{1+x^2}$

✗ 4. $\frac{\sqrt{1+x^2}-1}{x^2}$

Question ID : **630680164476**
Status : **Answered**
Chosen Option : **4**

Q.44

If $\vec{a} = m\vec{i} + 16\vec{j}$ and $|a| = 20$, then find the value of m.

Ans

✓ 1. 12

✗ 2. 14

✗ 3. 11

✗ 4. 10

Question ID : **630680164482**
Status : **Answered**
Chosen Option : **1**

Q.45 If A = {1, 2, 3, 4, 5}, then the relation R = {(2, 3), (3, 4), (2, 4)} on A is:

Ans

✗ 1. symmetric only

✗ 2. reflexive and transitive only

✓ 3. transitive only

✗ 4. symmetric and transitive only

Question ID : **630680164463**
Status : **Answered**
Chosen Option : **4**

Q.46 **An electron beam with cross-section area 1.0 mm^2 has 6×10^{16} electrons ($q = 1.6 \times 10^{-19}$ C) passing per second perpendicular to any section. The current density (ampere per $metre^2$) in the beam is:**

Ans

✗ 1. 9.6×10^{-3}

✗ 2. 9.6

✓ 3. 9.6×10^{3}

✗ 4. 9.6×10^{2}

Question ID : **630680164438**
Status : **Answered**
Chosen Option : **3**

Q.47 The source of energy in stars is:

Ans
- ✗ 1. electron degeneracy
- ✗ 2. nuclear fission reaction
- ✓ 3. nuclear fusion reaction
- ✗ 4. dissociation of atoms

Question ID : **630680164458**
Status : **Answered**
Chosen Option : **3**

Q.48

The value of $\int \frac{x^{3/2}}{\sqrt{1+x^5}}\,dx$ is:

Ans
- ✗ 1. $\frac{1}{2}\log\left(\frac{1+x^5}{1-x^5}\right)+c$
- ✗ 2. $\frac{2}{5}\log\left(x^{5/2}-\sqrt{1+x^5}\right)+c$
- ✗ 3. $\frac{1}{2}\log\left(\sqrt{1+x^5}\right)+c$
- ✓ 4. $\frac{2}{5}\log\left(x^{5/2}+\sqrt{1+x^5}\right)+c$

Question ID : **630680164479**
Status : **Answered**
Chosen Option : **3**

Q.49 A parallel plate capacitor has a capacitance of 'C'. If the distance between the plates is reduced by half and the space between the plates is filled with a medium having dielectric constant 6, the new capacitance is:

Ans
- ✗ 1. 6C
- ✓ 2. 12C
- ✗ 3. 2C
- ✗ 4. C/3

Question ID : **630680164434**
Status : **Answered**
Chosen Option : **2**

Q.50 The radius of the innermost orbit of hydrogen atom is 5.3×10^{-11} m. The radii of n=2 orbit is:

Ans
- ✓ 1. 2.12×10^{-10} m
- ✗ 2. 10.6×10^{-10} m
- ✗ 3. 21.2×10^{-10} m
- ✗ 4. 1.06×10^{-10} m

Question ID : **630680164451**
Status : **Answered**
Chosen Option : **1**

Q.51 The half life of a radioactive substance is 10 years and its initial mass is 1 g. The remaining amount after 20 years is _____.

Ans
✗ 1. 0.50 g
✗ 2. 0.75 g
✓ 3. 0.25 g
✗ 4. 1.00 g

Question ID : **630680164457**
Status : **Answered**
Chosen Option : **3**

Q.52 A radioactive nucleus emits 3 alpha particles and 2 positrons. For the resultant nucleus, the ratio of neutrons to protons is (consider the initial nucleus to have atomic number Z and atomic mass A):

Ans
✗ 1. (A – Z - 8) / (Z - 4)
✓ 2. (A – Z - 4) / (Z - 8)
✗ 3. (A – Z - 4) / (Z - 2)
✗ 4. (A – Z - 12) / (Z - 4)

Question ID : **630680164456**
Status : **Answered**
Chosen Option : **3**

Q.53 The resistivity of a current-carrying conducting wire is p. If the wire is doubled in length and its area of cross-section is reduced by half, the new resistivity is:

Ans
✗ 1. half that of the old value
✗ 2. double that of the old value
✗ 3. four times that of the old value
✓ 4. same as the old value

Question ID : **630680164436**
Status : **Answered**
Chosen Option : **3**

Q.54 The instrument that is based on the principle that when an electric current flows in a coil placed in a magnetic field, a deflecting torque acts upon the coil is:

Ans
✗ 1. current carrying conductor
✗ 2. moving coil flywheel
✗ 3. rheostat
✓ 4. moving coil galvanometer

Question ID : **630680164442**
Status : **Answered**
Chosen Option : **1**

Q.55 Consider a circuit with Resistance, Inductor and Capacitor connected in series. The phase difference between the current and the alternating voltage (at resonance) is:

Ans
✓ 1. 0
✗ 2. π/4
✗ 3. π/2
✗ 4. π

Question ID : **630680164444**
Status : **Answered**
Chosen Option : **1**

Q.56 If P (2, 3, 4), Q (5, 8, 7) and R (−1, −2, 1) are collinear, then R divides PQ in the ratio:

Ans

✗ 1. 2 : 1 externally

✗ 2. 1 : 2 internally

✓ 3. 1 : 2 externally

✗ 4. 2 : 1 internally

Question ID : **630680164486**
Status : **Answered**
Chosen Option : **3**

Q.57 **Consider a conductor of metal with non-uniform cross-section. The parameter that is constant is:**

Ans

✓ 1. current

✗ 2. current density

✗ 3. drift velocity

✗ 4. drift speed

Question ID : **630680164437**
Status : **Answered**
Chosen Option : **3**

Q.58 Consider three vectors $p = 2i + 3j + 4k$, $q = i + 4j - k$ and $r = 2i + 3j + k$. If p, q and r denote the position vector of three non-collinear points, then the equation of the plane containing these points is:

Ans

✗ 1. $x - y - 5 = 0$

✗ 2. $x + y + 5 = 0$

✗ 3. $x - y + 5 = 0$

✓ 4. $x + y - 5 = 0$

Question ID : **630680164488**
Status : **Answered**
Chosen Option : **4**

Q.59 The value of $\sin 10° - \cos 10°$ is:

Ans

✗ 1. $\sqrt{2}\sin 35°$

✓ 2. $-\sqrt{2}\sin 35°$

✗ 3. $\sqrt{2}\cos 35°$

✗ 4. $-\sqrt{2}\cos 35°$

Question ID : **630680164467**
Status : **Answered**
Chosen Option : **2**

Q.60 **Consider gamma rays, X-rays and UV rays travelling in a vacuum. All of these are traveling with _____.**

Ans

✗ 1. same frequency but different speeds

✗ 2. same wavelength but different speeds

✓ 3. same speed but different wavelengths

✗ 4. same speed and same frequency

Question ID : **630680164449**
Status : **Answered**
Chosen Option : **3**