

Section : Mental Ability

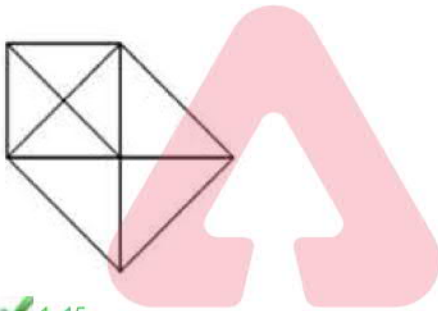
Q.1 Which of the mathematical signs should be interchanged in the below equation to make it mathematically correct?

$$440 \times 10 - 330 + 100 \div 5 = 214$$

- Ans
- ☒ 1. + and ×
 - ☒ 2. × and ÷
 - ☐ 3. + and +
 - ☐ 4. - and +

Question ID : 97675510591

Q.2 How many triangles are there in the given figure?

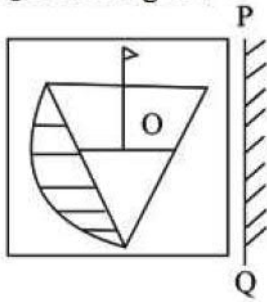


- Ans
- ☒ 1. 15
 - ☐ 2. 18
 - ☐ 3. 13
 - ☐ 4. 12

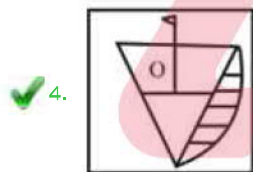
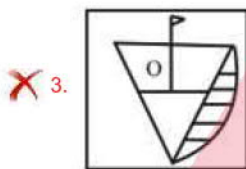
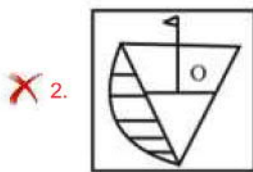
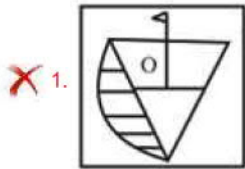
Question ID : 97675510597

Q.3 Which answer figure is the exact mirror image of the given question figure when mirror is held at PQ?

Question figure:



Ans



TEACHERS
adda247

Question ID : 97675510599

Q.4 In the question below, there are three statements followed by two conclusions. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusion logically follow(s) from the given statements.

Statements:

1. All keys are locks.
2. All locks are screws.
3. All doors are keys.

Conclusions:

- I. All screws are keys.
- II. Some locks are keys.

Ans

✓ 1. If only conclusion II follows

✗ 2. If either conclusion I or II follows

✗ 3. If only conclusion I follows

✗ 4. If neither conclusion I nor II follows

Question ID : 97675510589

Q.5 A family went out for a walk. Daughter walked before the father. Son was walking behind the mother and ahead of father. Who walked last?

- Ans
- ☐ 1. Mother
 - ☒ 2. Father
 - ☐ 3. Son
 - ☐ 4. Daughter

Question ID : 97675510586

Q.6 A boy starts walking towards west, he turns right and again he turns right and then he turns left at last. Towards which direction is he walking now?

- Ans
- ☐ 1. South
 - ☐ 2. West
 - ☐ 3. East
 - ☒ 4. North

Question ID : 97675510595

Q.7 Select the related word from the given alternatives.

Bacteriophobia : Bacteria :: ? : Darkness

- Ans
- ☐ 1. Cardiophobia
 - ☒ 2. Lygophobia
 - ☐ 3. Pyrophobia
 - ☐ 4. Hydrophobia

Question ID : 97675510583

Q.8 In a certain code language, 'POCKET' is written as 'QQFOJZ'. How will 'FEMALE' be written as in that language?

- Ans
- ☐ 1. SBDNED
 - ☐ 2. DDANBD
 - ☒ 3. GGPEQK
 - ☐ 4. HHDNBF

Question ID : 97675510585

Q.9 From the given responses, find the missing term in the series.

J10T, N14S, R18R, V22Q, ?

- Ans
- ☐ 1. G9N
 - ☐ 2. V23P
 - ☐ 3. D5N
 - ☒ 4. Z26P

Question ID : 97675510580

Q.10 In the question below, there are two statements followed by four conclusions given in options. You have to take the given statements to be true even if they seem to be at variance with commonly known facts and then decide which of the given conclusion logically follow(s) from the given statements.

Statements:

All months are Septembers.

All months are Octobers.

Ans

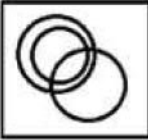
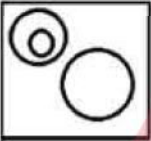
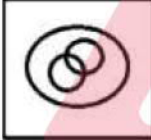
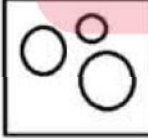
- ☒ 1. All Octobers are months
- ☒ 2. All Septembers are months
- ☒ 3. Some Octobers are Septembers
- ☒ 4. All Septembers are Octobers

Question ID : 97675510588

Q.11 Identify the diagram that best represents the relationship among the following.

Amphibians, crocodiles, Sharks

Ans

- ☒ 1. 
- ☒ 2. 
- ☒ 3. 
- ☒ 4. 

Question ID : 97675510593

Q.12 In the question given, relations between different elements are shown in the statements. These statements are followed by two conclusions. Find out which of the given conclusions follow(s) the given statements and select the correct alternative from the given choices.

Statements:

$O > Z \geq L > Y; U = Y > H \geq P$

Conclusions:

I. $Z > H$

II. $P \geq U$

Ans

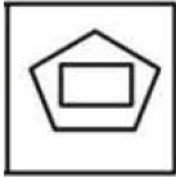
- ☒ 1. Only conclusion I is true
- ☒ 2. Only conclusion II is true
- ☒ 3. Neither conclusion I nor II is true
- ☒ 4. Either conclusion I or II is true

Question ID : 97675510590

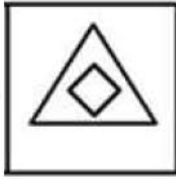
Q.13 Find the odd one out.

Ans

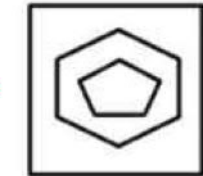
☒ 1.



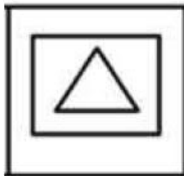
☒ 2.



☒ 3.



☒ 4.



Question ID : 97675510596

Q.14 In the following question, select the related letters from the given alternatives.

FHBJ : LPDT :: EKCG : ?

Ans

☒ 1. VJFN

☒ 2. JFVN

☒ 3. IWNF

☒ 4. JVFN

Question ID : 97675510584

Q.15 In the following question, select the odd word from the given alternatives.

Ans

☒ 1. Nitrogen

☒ 2. Baking powder

☒ 3. Salt

☒ 4. Water

Question ID : 97675510582

Q.16 Find the missing number in a series given below.

4, 10, 22, 46, ?

Ans

☒ 1. 76

☒ 2. 66

☒ 3. 56

☒ 4. 94

Question ID : 97675510592

Q.17 From the given responses, find the missing letter cluster in the series.

DaC, Fel, HiO, JmU, ?

Ans

☒ 1. Qlv

☒ 2. LqA

☒ 3. LQw

☒ 4. pLC

Question ID : 97675510581

Q.18 In a row of children, Deepa is 9th from the left end and Kajal is 13th from the right end. If their positions are interchanged, Deepa becomes 18th from the left. What is the new position of Kajal from the right end of the row?

Ans

☒ 1. 27

☒ 2. 22

☒ 3. 25

☒ 4. 33

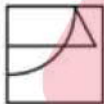
Question ID : 97675510587

Q.19 Which answer figure will complete the pattern in the question figure?



Ans

☒ 1.



☒ 2.



☒ 3.



☒ 4.

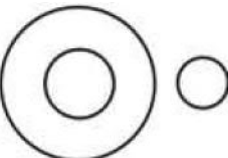
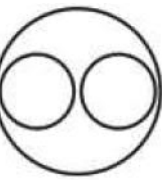
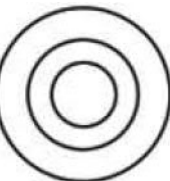
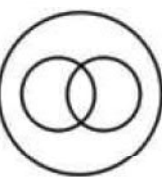


Question ID : 97675510598

Q.20 Identify the diagram that best represents the relationship among the following:

“Uttar Pradesh, Jhansi, Goa”

Ans

- ✓ 1. 
- ✗ 2. 
- ✗ 3. 
- ✗ 4. 

Question ID : 97675510594

Section : General Awareness

Q.1 The festival of Kumbh mela is organised in India every _____ years.

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

Question ID : 97675510600

Q.2 Who wrote the book "Untouchable"?

- Ans
- ✓ 1. Mulk Raj Anand
- ✗ 2. BR Ambedkar
- ✗ 3. Khushwant Singh
- ✗ 4. Mahatma Gandhi

Question ID : 97675510615

Q.3 Where was the Muslim League established in the year 1906?

- Ans
- ✗ 1. Calcutta
- ✓ 2. Dhaka
- ✗ 3. Lucknow
- ✗ 4. Lahore

Question ID : 97675510610

Q.4 Where is the headquarters of The Board of Control for Cricket in India located?

- Ans
- ☐ 1. Pune
 - ☐ 2. Bangalore
 - ☐ 3. New Delhi
 - ☒ 4. Mumbai

Question ID : 97675510616

Q.5 Who was the first woman in the world to reach the summit of Mt. Everest?

- Ans
- ☐ 1. Tenzing Norgay
 - ☐ 2. Edmund Hillary
 - ☐ 3. Bachendri Pal
 - ☒ 4. Junko Tabei

Question ID : 97675510607

Q.6 What is the name of the small strip of land that connects the North America and the South America?

- Ans
- ☐ 1. Adam's Bridge
 - ☒ 2. Isthmus of Panama
 - ☐ 3. Bermuda Strip
 - ☐ 4. Suez Canal

Question ID : 97675510608

Q.7 भारत के संविधान के मूल पाठ में कितनी अनुसूचियां (Schedules) थीं?

- Ans
- ☐ 1. 9
 - ☐ 2. 10
 - ☐ 3. 12
 - ☒ 4. 8

Question ID : 97675510613

Q.8 Who is the only woman in the world to have received multiple Nobel Prizes?

- Ans
- ☐ 1. Mother Teresa
 - ☐ 2. Jane Addams
 - ☐ 3. Aung San Suu Kyi
 - ☒ 4. Marie Skłodowska Curie

Question ID : 97675510614

Q.9 Which woman tennis player recently emerged as the winner of the Australian Open 2021?

- Ans
- ☐ 1. Maria Sharapova
 - ☒ 2. Naomi Osaka
 - ☐ 3. Martina Navratilova
 - ☐ 4. Serena Williams

Question ID : 97675510617

Q.10 भारत की प्रसिद्ध एलीफेंटा गुफाएं कहाँ स्थित हैं?

- Ans
- ☐ 1. ओडिशा
 - ☒ 2. महाराष्ट्र
 - ☐ 3. कर्नाटक
 - ☐ 4. राजस्थान

Question ID : 97675510601

Q.11 What temperature is known as the lowest temperature at which a substance can catch fire?

- Ans
- ☐ 1. Fire Temperature
 - ☒ 2. Ignition Temperature
 - ☐ 3. Oxidization Temperature
 - ☐ 4. Flaming Temperature

Question ID : 97675510605

Q.12 Which of the following financial institutions is also known as International Bank for Reconstruction and Development (IBRD)?

- Ans
- ☐ 1. European Investment Bank (EIB)
 - ☐ 2. International Monetary Fund (IMF)
 - ☒ 3. World Bank
 - ☐ 4. Asian Development Bank (ADB)

Question ID : 97675510603

Q.13 डॉ. राजेंद्र प्रसाद की नियुक्ति से पहले किसने संविधान सभा के पहले अध्यक्ष के रूप में कार्य किया?

- Ans
- ☐ 1. डॉ एके अय्यारी
 - ☐ 2. डॉ बी आर अम्बेडकर
 - ☐ 3. पं. जवाहर लाल नेहरू
 - ☒ 4. डॉ सच्चिदानंद सिन्हा

Question ID : 97675510612

Q.14 Which of the below-mentioned states was the first one to implement "Kudumbashree", a women-oriented community-based poverty reduction programme?

- Ans
- ☐ 1. Tamil Nadu
 - ☒ 2. Kerala
 - ☐ 3. Andhra Pradesh
 - ☐ 4. Karnataka

Question ID : 97675510604

Q.15 भारत के संविधान को अंतिम रूप देने से पहले संविधान के प्रारूप पर चर्चा करते हुए संविधान सभा द्वारा कितने सत्र आयोजित किए गए थे?

- Ans
- ☒ 1. 12
 - ☒ 2. 11
 - ☒ 3. 7
 - ☒ 4. 9

Question ID : 97675510611

Q.16 Which country's military contingent participated in the Indian Republic Day Parade on 26th January 2021?

- Ans
- ☒ 1. United Kingdom
 - ☒ 2. Bangladesh
 - ☒ 3. France
 - ☒ 4. Bhutan

Question ID : 97675510619

Q.17 वर्ष 1969 में आर.एच. व्हिटेकर द्वारा प्रारंभ में कितने जीव वर्गीकरण प्रस्तावित किए गए थे?

- Ans
- ☒ 1. 12
 - ☒ 2. 5
 - ☒ 3. 3
 - ☒ 4. 7

Question ID : 97675510606

Q.18 बुद्ध को ज्ञान की प्राप्ति कहाँ हुई थी?

- Ans
- ☒ 1. सारनाथ
 - ☒ 2. बोध गया
 - ☒ 3. कुशीनगर
 - ☒ 4. लुम्बिनी

Question ID : 97675510609

Q.19 नवंबर 2020 में, केंद्र शासित प्रदेश लद्दाख को लेह इंडियन एयरफ़ोर्स (IAF) सेंटर में केंद्र की पहल के अंतर्गत स्थापित सबसे बड़ी सौर परियोजना मिली, जो जीवाश्म ईंधन और ऊर्जा उत्पादन के पारंपरिक तरीकों के लिए स्थायी ऊर्जा विकल्प प्रदान करती है।

- Ans
- ☒ 1. स्किल इंडिया
 - ☒ 2. स्मार्ट सिटी
 - ☒ 3. डिजिटल इंडिया
 - ☒ 4. मेक इन इंडिया

Question ID : 97675510602

Q.20 निम्नलिखित में से किसकी जयंती प्रत्येक वर्ष 23 जनवरी को पराक्रम दिवस के रूप में मनाई जाएगी?

Ans ☒ 1. नेताजी सुभाष चंद्र बोस

☐ 2. भगत सिंह

☐ 3.

लाल बहादुर शास्त्री

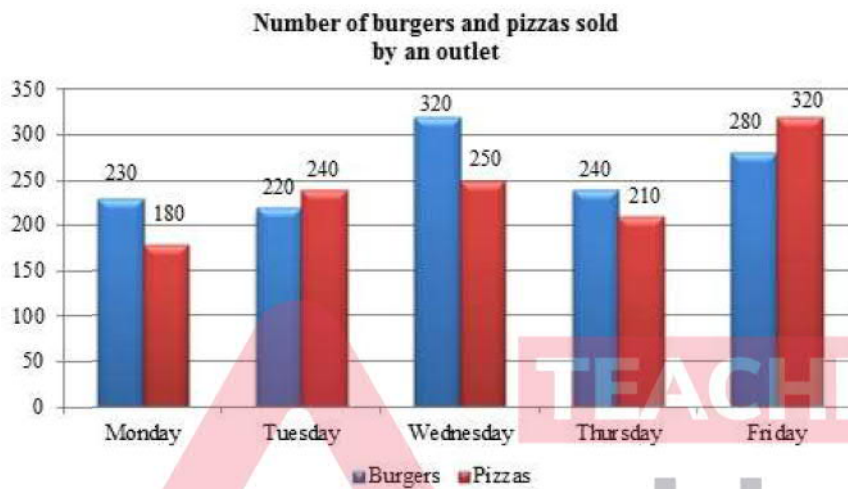
☐ 4.

जवाहर लाल नेहरू

Question ID : 97675510618

Section : Arithmetic Ability

Q.1 The given bar graph shows the number of burgers and pizzas sold by an outlet on different days of a week.



Find the ratio of number of burgers sold on Wednesday to the number of pizzas sold on Tuesday.

Ans ☐ 1. 2:1

☒ 2. 4:3

☐ 3. 3:2

☐ 4. 5:4

Question ID : 97675510639

Q.2 In an examination, 68 percent of candidates passed in mathematics and 62 percent of the candidates passed in statistics. While 40 percent passed in both the subjects. If 30 candidates failed in both these subjects, then the total number of candidates were:

Ans ☐ 1. 600

☐ 2. 180

☐ 3. 450

☒ 4. 300

Question ID : 97675510627

Q.3 Find the maximum number of students among whom 63 pens and 98 copies can be distributed in such a way that each student gets the same number of pens and the same number of copies.

- Ans
- ☐ 1. 5
 - ☐ 2. 3
 - ☐ 3. 2
 - ☒ 4. 7

Question ID : 97675510623

Q.4 What will come in the place of question mark (?) in the given expression?

$$\sqrt{2704} \times 3 + 246 - 332 - 189 \div 9 = ?$$

- Ans
- ☐ 1. 53
 - ☐ 2. 43
 - ☒ 3. 49
 - ☐ 4. 59

Question ID : 97675510620

Q.5 6 प्रतिशत प्रतिवर्ष ब्याज की दर से कितने समय में 1250 रुपये की राशि, 1475 रुपये हो जाएगी?

- Ans
- ☐ 1. 5 वर्ष
 - ☐ 2. 4 वर्ष
 - ☒ 3. 3 वर्ष
 - ☐ 4. 2 वर्ष

Question ID : 97675510631

Q.6 A group of 'm' men can do a certain work in 20 days. If there were 3 less men in the group, then it would have taken 4 more days to complete the same work. How long would a group of (m - 6) men take to do the work?

- Ans
- ☐ 1. 28 days
 - ☐ 2. 36 days
 - ☒ 3. 30 days
 - ☐ 4. 32 days

Question ID : 97675510634

Q.7 If the 9-digit number 206x46920 is exactly divisible by 9, then which among the following can be the value of $(x^2 - 3x + 5)$?

- Ans
- ☐ 1. 31
 - ☒ 2. 33
 - ☐ 3. 40
 - ☐ 4. 29

Question ID : 97675510622

Q.8 A person travels equal distances with speeds of 3 km/hr, 4 km/hr and 5 km/hr and takes a total time of 47 minutes. The total distance (in km) is:

- Ans
- ☐ 1. 2
 - ☒ 2. 3
 - ☐ 3. 4
 - ☐ 4. 5

Question ID : 97675510633

Q.9 If the numerical value of the perimeter of an equilateral triangle is $4\sqrt{3}$ times its area, then find the length of each side of the triangle.

- Ans
- ☐ 1. 3 unit
 - ☒ 2. 1 unit
 - ☐ 3. 4 unit
 - ☐ 4. 2 unit

Question ID : 97675510635

Q.10 4 years ago, the average age of a family of 6 members was 32 years. The present average age is also 32 years after including a child into a family. Find the age of the child.

- Ans
- ☐ 1. 12 years
 - ☒ 2. 8 years
 - ☐ 3. 6 years
 - ☐ 4. 7 years

Question ID : 97675510625

Q.11 The following table shows the marks of a student in an exam.

Subject	Max. marks	Marks obtained
Hindi	100	74
English	50	42
Math	150	124
Science	100	73
Social Science	50	47

What is the percentage of marks for the student in all the subjects put together?

- Ans
- ☐ 1. 75 percent
 - ☐ 2. 72 percent
 - ☐ 3. 84 percent
 - ☒ 4. 80 percent

Question ID : 97675510637

Q.12 By selling a book for Rs.1512 a retailer got 5.5 percent loss after allowing a discount of 10 percent. What is the marked price if he wants to get 20 percent profit after allowing a discount of 20 percent?

- Ans
- ☐ 1. Rs.1920
 - ☐ 2. Rs.2200
 - ☐ 3. Rs.2500
 - ☒ 4. Rs.2400

Question ID : 97675510628

Q.13 A vessel contains 54 litres mixture of honey, milk and water in the ratio of 3:4:5 respectively. 1.5 litres of honey and 2 litres of milk is added to this mixture. Find the new ratio of honey, milk and water in the vessel.

- Ans
- ☐ 1. 5:6:7
 - ☒ 2. 6:8:9
 - ☐ 3. 5:4:3
 - ☐ 4. 4:5:6

Question ID : 97675510629

Q.14 Find the time taken by a boatman to travel a distance of 150 km downstream where downstream speed of boatman is 250 percent of upstream speed of boatman. Speed of stream is 15 km/hr.

- Ans
- ☐ 1. 6 hours
 - ☒ 2. 3 hours
 - ☐ 3. 4 hours
 - ☐ 4. 5 hours

Question ID : 97675510632

Q.15 Curved surface area of a right circular cone is 396 cm^2 . If its slant height is 5 cm more than its radius, then calculate closest value for its height (in cm).

(Use $\pi = 22/7$)

- Ans
- ☐ 1. 13
 - ☒ 2. 11
 - ☐ 3. 9
 - ☐ 4. 14

Question ID : 97675510636

Q.16 Find the smallest fraction of the following fractions.

- Ans
- ☒ 1. $\frac{58}{171}$
 - ☐ 2. $\frac{80}{181}$
 - ☐ 3. $\frac{95}{201}$
 - ☐ 4. $\frac{76}{199}$

Question ID : 97675510624

Q.17 5 years from now, the ratio of ages of A, B and C will be 3:5:2. The sum of their present ages is 125 years, what is the present age of C?

- Ans ☒ 1. 23 years
☐ 2. 20 years
☐ 3. 28 years
☐ 4. 25 years

Question ID : 97675510630

Q.18 40 percent of a number is equal to four-seventh of another number. What is the ratio between the first number and the second number respectively?

- Ans ☐ 1. 5:7
☒ 2. 10:7
☐ 3. 7:4
☐ 4. 4:7

Question ID : 97675510626

Q.19 Find the values of a + b in the equation below.

$$4^{(5/6)} \times 11^{(12)} = 16^{2/6} \times 4^{a/6} \times 11^{4+b}$$

- Ans ☐ 1. 8
☒ 2. 9
☐ 3. 7
☐ 4. 11

Question ID : 97675510621

Q.20 The following table shows the marks of a student in an exam.

Subject	Max. marks	Marks obtained
Hindi	100	74
English	50	42
Math	150	124
Science	100	73
Social Science	50	47

In how many subject, percentage marks obtained by the student in each subject is more than his overall percentage marks?

- Ans ☐ 1. 1
☒ 2. 3
☐ 3. 4
☐ 4. 2

Question ID : 97675510638

Q.1 Select the most appropriate synonym of the given word.

INTRIGUE

- Ans
- ☒ 1. Sink
 - ☒ 2. Attract
 - ☒ 3. Bore
 - ☒ 4. Burrow

Question ID : 97675510648

Q.2 Select the correctly spelt word.

- Ans
- ☒ 1. Proportionate
 - ☒ 2. Porportionate
 - ☒ 3. Proprotionte
 - ☒ 4. Proportionate

Question ID : 97675510650

Q.3 Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.

In the first two decade of the 21st century, India has, along with the rest of the world, witnessed the unfolding of rapid and significant technological change.

- Ans
- ☒ 1. No substitution required
 - ☒ 2. first two decades
 - ☒ 3. the first two decades
 - ☒ 4. the two first decades

Question ID : 97675510643

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

People can advise me, he said, _____ at the end of the day I make the decisions about my health.

- Ans
- ☒ 1. and
 - ☒ 2. so
 - ☒ 3. as
 - ☒ 4. but

Question ID : 97675510644

Q.5 Identify the segment in the sentence which contains the grammatical error If there is no error, select No error as option.

Education helps us understand and tolerate differences and so holds out the promise that we can live together harmoniously.

- Ans
- ☒ 1. No error
 - ☒ 2. that we can live together harmoniously
 - ☒ 3. Education helps us understand and tolerate differences
 - ☒ 4. and so holds out the promise

Question ID : 97675510641

Q.6 Rearrange the following sentences in their correct order to form a meaningful paragraph.

P. He launched and promoted the local produce- Bamboo Flower rice as an 'economically profitable' product.

Q. As the nation goes vocal for local, Chief Minister of Tripura, Biplab Kumar Deb took a step ahead.

R. The extraction of this rice takes years to cultivate as bamboo flowers in the form of a short grain rice.

S. Bamboo Rice also known as Mulayari is actually the seed of a dying bamboo shoot, which is produced at the end of its life span.

Ans ☒ 1. QPSR

☐ 2. SRQP

☐ 3. PQRS

☐ 4. RQPS

Question ID : 97675510646

Q.7 Select the most appropriate meaning of the given idiom/ phrase.

Hit the nail on the head

Ans ☒ 1. Be accurately right about something

☐ 2. An ideal situation

☐ 3. To get upset

☐ 4. Make a problem worse

Question ID : 97675510652

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

A low-carb diet _____ your carbohydrate intake - such as those found in grains, legumes, pulses, bread, starchy vegetables, and fruits.

Ans ☐ 1. enlarges

☒ 2. limits

☐ 3. outlines

☐ 4. frames

Question ID : 97675510645

Q.9 Select the alternative which best expresses the meaning of the idiom/phrase bold in the sentence.

The effort to trace the culprit was a wild goose chase.

Ans ☐ 1. Genuine effort

☐ 2. Ideal seeking

☐ 3. Fruitful hunting

☒ 4. Futile search

Question ID : 97675510653

Q.10 Rearrange the following sentences in their correct order to form a meaningful paragraph.

(P) Tom's weakest subject was Chinese.

(Q) So, for the past half a year, his mother had engaged a private tutor to give him supplementary lessons to brush up on his Chinese.

(R) This was his first major national examination and they both did not know what to expect.

(S) Mrs Tan was feeling a lot of stress because her son's examination was approaching.

Ans ☒ 1. SRPQ

☒ 2. RPSQ

☒ 3. QSPR

☒ 4. PSQR

Question ID : 97675510647

Q.11 In the following question, four sentences are given out of which three sentences are grammatically incorrect while one is correct. Find out which sentence is grammatically correct and select the appropriate option.

Ans ☒ 1. The State Bank of India (SBI) has a warning for there customers.

☒ 2. Cyber fraudsters keeps finding new ways to scam people.

☒ 3. The post also has a link to reliable details on EMI Deferment Scheme offered by SBI.

☒ 4. The only way to beats the cybercriminals is to be alert and to be aware.

Question ID : 97675510640

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

VESTIBULE

Ans ☒ 1. Exit

☒ 2. Lay

☒ 3. Endow

☒ 4. Lodge

Question ID : 97675510649

Q.13 Select the word which means the same as the group of words given.

Form of society in which the Mother or Female is head of the family.

Ans ☒ 1. Monarchy

☒ 2. Matriarchy

☒ 3. Hierarchy

☒ 4. Patriarchy

Question ID : 97675510654

Q.14 Select the wrongly spelt word.

Ans ☒ 1. Schedule

☒ 2. Sacrifice

☒ 3. Salry

☒ 4. Sacrilegious

Question ID : 97675510651

Q.15 Select the most appropriate option to substitute the underlined segment in the given sentence. If there is no need to substitute it, select 'No substitution required'.

Several research groups are now trying to answer these questions using a combination of observational, computational, and experimental approaches.

- Ans
- ☒ 1. observationally, computationally, and experimentally approaches.
 - ☒ 2. No substitution required.
 - ☒ 3. observation, computation, and experiment approaches.
 - ☒ 4. observational, computational, and experimentation approaches.

Question ID : 97675510642

Comprehension:

Read the following passage and answer the questions below.

Late at night, guards on the battlements of Denmark's Elsinore castle are met by Horatio, Prince Hamlet's friend from school. The guards describe a ghost they have seen that resembles Hamlet's father, the recently-deceased king. At that moment, the Ghost reappears, and the guards and Horatio decide to tell Hamlet.

Claudius, Hamlet's uncle, married Hamlet's recently-widowed mother, becoming the new King of Denmark. Hamlet continues to mourn for his father's death and laments his mother's lack of loyalty. When Hamlet hears of the Ghost from Horatio, he wants to see it for himself.

Elsewhere, the royal attendant Polonius says farewell to his son Laertes, who is departing for France. Laertes warns his sister, Ophelia, away from Hamlet and thinking too much of his attentions towards her.

The Ghost appears to Hamlet, claiming indeed to be the ghost of his father. He tells Hamlet about how Claudius, the current King and Hamlet's uncle, murdered him, and Hamlet swears vengeance for his father. Hamlet decides to feign madness while he tests the truth of the Ghost's allegations (always a good idea in such situations).

According to his plan, Hamlet begins to act strangely. He rejects Ophelia, while Claudius and Polonius, the royal attendant, spy on him. They had hoped to find the reason for Hamlet's sudden change in behaviour but could not. Claudius summons Guildenstern and Rosencrantz, old friends of Hamlet to find out what's got into him. Their arrival coincides with a group of travelling actors that Hamlet happens to know well. Hamlet writes a play which includes scenes that mimic the murder of Hamlet's father. During rehearsal, Hamlet and the actors plot to present Hamlet's play before the King and Queen.

SubQuestion No : 16

Q.16 Which of the following best expresses the opposite meaning to the given word "Summon"?

- Ans
- ☒ 1. convoke
 - ☒ 2. call for
 - ☒ 3. send for
 - ☒ 4. discharge

Question ID : 97675510659

Comprehension:

Read the following passage and answer the questions below.

Late at night, guards on the battlements of Denmark's Elsinore castle are met by Horatio, Prince Hamlet's friend from school. The guards describe a ghost they have seen that resembles Hamlet's father, the recently-deceased king. At that moment, the Ghost reappears, and the guards and Horatio decide to tell Hamlet.

Claudius, Hamlet's uncle, married Hamlet's recently-widowed mother, becoming the new King of Denmark. Hamlet continues to mourn for his father's death and laments his mother's lack of loyalty. When Hamlet hears of the Ghost from Horatio, he wants to see it for himself.

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The Ghost appears to Hamlet, claiming indeed to be the ghost of his father. He tells Hamlet about how Claudius, the current King and Hamlet's uncle, murdered him, and Hamlet swears vengeance for his father. Hamlet decides to feign madness while he tests the truth of the Ghost's allegations (always a good idea in such situations).

According to his plan, Hamlet begins to act strangely. He rejects Ophelia, while Claudius and Polonius, the royal attendant, spy on him. They had hoped to find the reason for Hamlet's sudden change in behaviour but could not. Claudius summons Guildenstern and Rosencrantz, old friends of Hamlet to find out what's got into him. Their arrival coincides with a group of travelling actors that Hamlet happens to know well. Hamlet writes a play which includes scenes that mimic the murder of Hamlet's father. During rehearsal, Hamlet and the actors plot to present Hamlet's play before the King and Queen.

SubQuestion No : 17

Q.17 Why did Hamlet want to kill his uncle Claudius?

- Ans ☒ 1. because his uncle Claudius murdered his father
- ☐ 2. because his mother was killed by Claudius
- ☐ 3. because he wanted to get married to Ophelia
- ☐ 4. because Claudius was a vicious king of Denmark

TEACHERS

Question ID : 97675510656

adda247

Comprehension:

Read the following passage and answer the questions below.

Late at night, guards on the battlements of Denmark's Elsinore castle are met by Horatio, Prince Hamlet's friend from school. The guards describe a ghost they have seen that resembles Hamlet's father, the recently-deceased king. At that moment, the Ghost reappears, and the guards and Horatio decide to tell Hamlet.

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SubQuestion No : 18

Q.18 Why did Hamlet lament on his mother's lack of loyalty?

- Ans
- ☒ 1. because she abandoned Hamlet and punished him many times
 - ☒ 2. because she did not liked Hamlet's uncle Claudius to be the king
 - ☒ 3. because she married his uncle Claudius, after the death of Hamlet's father
 - ☒ 4. because she expelled fiancé Ophelia from her empire

Question ID : 97675510657

Comprehension:

Read the following passage and answer the questions below.

Late at night, guards on the battlements of Denmark's Elsinore castle are met by Horatio, Prince Hamlet's friend from school. The guards describe a ghost they have seen that resembles Hamlet's father, the recently-deceased king. At that moment, the Ghost reappears, and the guards and Horatio decide to tell Hamlet.

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The Ghost appears to Hamlet, claiming indeed to be the ghost of his father. He tells Hamlet about how Claudius, the current King and Hamlet's uncle, murdered him, and Hamlet swears vengeance for his father. Hamlet decides to feign madness while he tests the truth of the Ghost's allegations (always a good idea in such situations).

According to his plan, Hamlet begins to act strangely. He rejects Ophelia, while Claudius and Polonius, the royal attendant, spy on him. They had hoped to find the reason for Hamlet's sudden change in behaviour but could not. Claudius summons Guildenstern and Rosencrantz, old friends of Hamlet to find out what's got into him. Their arrival coincides with a group of travelling actors that Hamlet happens to know well. Hamlet writes a play which includes scenes that mimic the murder of Hamlet's father. During rehearsal, Hamlet and the actors plot to present Hamlet's play before the King and Queen.

SubQuestion No : 19

Q.19 Why did Claudius and Polonius spy on Hamlet?

- Ans
- ☒ 1. because they were very much feared from the ghost of Hamlet's father
 - ☒ 2. because they wanted to know what hamlet's friends are conspiring against them
 - ☒ 3. because they wanted to find sudden change in Hamlet's behaviour
 - ☒ 4. because they wanted to expel Hamlet and his mother from the their empire

Question ID : 97675510658

Comprehension:

Read the following passage and answer the questions below.

Late at night, guards on the battlements of Denmark's Elsinore castle are met by Horatio, Prince Hamlet's friend from school. The guards describe a ghost they have seen that resembles Hamlet's father, the recently-deceased king. At that moment, the Ghost reappears, and the guards and Horatio decide to tell Hamlet.

Claudius, Hamlet's uncle, married Hamlet's recently-widowed mother, becoming the new King of Denmark. Hamlet continues to mourn for his father's death and laments his mother's lack of loyalty. When Hamlet hears of the Ghost from Horatio, he wants to see it for himself.

Elsewhere, the royal attendant Polonius says farewell to his son Laertes, who is departing for France. Laertes warns his sister, Ophelia, away from Hamlet and thinking too much of his attentions towards her.

The Ghost appears to Hamlet, claiming indeed to be the ghost of his father. He tells Hamlet about how Claudius, the current King and Hamlet's uncle, murdered him, and Hamlet swears vengeance for his father. Hamlet decides to feign madness while he tests the truth of the Ghost's allegations (always a good idea in such situations).

According to his plan, Hamlet begins to act strangely. He rejects Ophelia, while Claudius and Polonius, the royal attendant, spy on him. They had hoped to find the reason for Hamlet's sudden change in behaviour but could not. Claudius summons Guildenstern and Rosencrantz, old friends of Hamlet to find out what's got into him. Their arrival coincides with a group of travelling actors that Hamlet happens to know well. Hamlet writes a play which includes scenes that mimic the murder of Hamlet's father. During rehearsal, Hamlet and the actors plot to present Hamlet's play before the King and Queen.

SubQuestion No : 20

Q.20 Which of the following statements is incorrect according to the given passage?

- Ans
- ☒ 1. Hamlet decides to feign madness while he tests the truth of the Ghost's allegations.
 - ☒ 2. When Hamlet hears of the Ghost from Ophelia, he wants to see it for himself.
 - ☒ 3. Hamlet writes a play which includes scenes that mimic the murder of Hamlet's father.
 - ☒ 4. Hamlet rejects Ophelia, while Claudius and Polonius, the royal attendant, spy on him

Question ID : 97675510660

Section : General Hindi

Q.1 निम्नलिखित में से वाच्य के प्रकार का चयन कीजिए-

लड़कियां विद्यालय जा रही हैं।

- Ans
- ☒ 1. क्रियावाच्य
 - ☒ 2. कर्तृवाच्य
 - ☒ 3. भाववाच्य
 - ☒ 4. कर्मवाच्य

Question ID : 97675510672

Q.2 निम्नलिखित में से "मूषक" का पर्यायवाची शब्द कौन-सा है?

- Ans
- ☒ 1. हेय
 - ☒ 2. रंघ
 - ☒ 3. विधु
 - ☒ 4. इंदुर

Question ID : 97675510665

Q.3 निम्नलिखित में से तत्सम शब्द का चयन कीजिए-

- Ans
- ☒ 1. सपना
 - ☒ 2. सनीचर
 - ☒ 3. श्वसुर
 - ☒ 4. समझ

Question ID : 97675510662

Q.4 निम्नलिखित में से लोकोक्ति "नौ की लकड़ी नब्बे खर्च" का क्या अर्थ है?

- Ans
- ☒ 1. अपनी अकुशलता का दोष दूसरों पर डालना।
 - ☒ 2. निर्धन कुछ नहीं कर सकता।
 - ☒ 3. मूल्य से अधिक वस्तु की देखरेख में व्यय।
 - ☒ 4. किसी बात के कारण चीज को ही जड़ से मिटा देना।

Question ID : 97675510674

Q.5 निम्नलिखित में से "धनुष्टंकार" में कौन-सी संधि है?

- Ans
- ☒ 1. विसर्ग संधि
 - ☒ 2. यण संधि
 - ☒ 3. अयादि संधि
 - ☒ 4. व्यंजन संधि

Question ID : 97675510661

Q.6 नीचे दिए गए वाक्य में निम्न में से किस चिन्ह का प्रयोग किया गया है?

"आस्तिक" का विलोम शब्द "नास्तिक" है

- Ans
- ☒ 1. उद्धरण चिन्ह
 - ☒ 2. अर्द्धविराम चिन्ह
 - ☒ 3. विवरण चिन्ह
 - ☒ 4. योजक चिन्ह

Question ID : 97675510675

Q.7 निम्नलिखित में से कौन-सा शब्द भाववाचक संज्ञा का उदाहरण नहीं है?

- Ans
- ☒ 1. ईमानदारी
 - ☒ 2. गहनता
 - ☒ 3. खामोशी
 - ☒ 4. बाजार

Question ID : 97675510664

Q.8 दिए गए वाक्यांश के लिए एक शब्द का चयन कीजिए-

"दो दिशाओं के बीच की दिशा"

- Ans
- ☒ 1. उपदिशा
 - ☒ 2. उभाना
 - ☒ 3. उच्छिन्न
 - ☒ 4. उपही

Question ID : 97675510668

Q.9 निम्नलिखित में से "मौन" का विलोम शब्द कौन-सा है?

- Ans ☒ 1. मुखरता
☐ 2. मितभाषी
☐ 3. शांत
☐ 4. खामोश

Question ID : 97675510667

Q.10 निम्नलिखित में से दिया गया वाक्य किस काल का उदाहरण है?

"श्रेया स्कूल जा रही थी।"

- Ans ☐ 1. संभाव्य भविष्य काल
☒ 2. अपूर्ण भूतकाल
☐ 3. आसन्न भूतकाल
☐ 4. पूर्ण वर्तमान काल

Question ID : 97675510669

Q.11 निम्नलिखित में से एकवचन शब्द का चयन कीजिए-

- Ans ☐ 1. नेतागण
☐ 2. पाठकवृंद
☐ 3. शासकवर्ग
☒ 4. दिशा

Question ID : 97675510670

Q.12 निम्नलिखित में से मुहावरा "अँधे के आगे रोना" का क्या अर्थ है?

- Ans ☐ 1. आदर-सत्कार की भावना खत्म करना।
☐ 2. हाथ की सफाई दिखाना।
☒ 3. निर्दयी से दया की याचना करना।
☐ 4. साहसपूर्वक सामना करना।

Question ID : 97675510673

Q.13 निम्नलिखित में से "बहिर्मुखी" शब्द में कौन-सा उपसर्ग है?

- Ans ☒ 1. बहिर्
☐ 2. वहीर
☐ 3. मुखी
☐ 4. बहम

Question ID : 97675510663

Q.14 निम्नलिखित में से शुद्ध वर्तनी वाले शब्द का चयन कीजिए-

- Ans ☒ 1. चिकित्सागृह
☐ 2. अभिलाशा
☐ 3. रक्तलोचन
☐ 4. श्रेष्ठत्व

Question ID : 97675510666

Q.15 निम्नलिखित में से कौन-सा वाक्य मिश्र वाक्य नहीं है?

- Ans
- ☒ 1. यदि पानी न बरसा तो सूखा पड़ जाएगा।
 - ☒ 2. कार्य समाप्त हो जाए तो आप जा सकते हो।
 - ☒ 3. आश्चर्य है कि वह हार गया।
 - ☒ 4. करण और अर्जुन साथ ही रहते हैं।

Question ID : 97675510671

Comprehension:

निम्नलिखित गद्यांश का ध्यानपूर्वक अध्ययन कर प्रश्नों के उत्तर दीजिए-

जो विद्या की इच्छा रखता है, वह विद्यार्थी है। मनुष्य जीवनभर कुछ न कुछ सीखने की इच्छा रखता है। इस दृष्टि से वह सदैव विद्यार्थी रहता है, किन्तु स्थूल रूप में मानव-जीवन में विद्यार्थी काल बहुत लंबा समय नहीं है। यह मनुष्य के जीवन का स्वर्णिम काल है। विद्यार्थी-जीवन हँसने-हँसाने का समय है। खेल-खेल में पढ़ाई का अभ्यास इसी उम्र में होता है। माता-पिता लाड-प्यार करते हैं। परिवारजन स्नेह की वर्षा से अबोध मन को गुदगुदाते हैं। नित्य नए मित्र बनते हैं, छेड़-छाड़ चलती है। कभी-कभी बात बढ़ जाती है और नौबत मारपीट, हाथापाई तक आ जाती है, परन्तु सारा द्वेष, समस्त क्रोध, कड़वाहट दूसरे पल में ही नष्ट हो जाती है। आज जिससे लड़े, कल उसी के साथ बैठ मीठी-मीठी बातें करने का दृश्य दिखाई देता है। खाने-पीने और मौज उड़ाने का यह मस्ताना मौसम चाहे कितना छोटा क्यों न हो, लुभावना और सुहावना होता है, और यह प्रत्येक विद्यार्थी के जीवन का सबसे सुनहरा काल होता है, जो एक निश्चित समय के पश्चात ढल जाता है।

SubQuestion No : 16

Q.16 निम्नलिखित में से “स्थूल” का विलोम शब्द क्या है?

- Ans
- ☒ 1. संपन्न
 - ☒ 2. सूक्ष्म
 - ☒ 3. घना
 - ☒ 4. मोटा

TEACHERS

Question ID : 97675510681

Comprehension:

निम्नलिखित गद्यांश का ध्यानपूर्वक अध्ययन कर प्रश्नों के उत्तर दीजिए-

जो विद्या की इच्छा रखता है, वह विद्यार्थी है। मनुष्य जीवनभर कुछ न कुछ सीखने की इच्छा रखता है। इस दृष्टि से वह सदैव विद्यार्थी रहता है, किन्तु स्थूल रूप में मानव-जीवन में विद्यार्थी काल बहुत लंबा समय नहीं है। यह मनुष्य के जीवन का स्वर्णिम काल है। विद्यार्थी-जीवन हँसने-हँसाने का समय है। खेल-खेल में पढ़ाई का अभ्यास इसी उम्र में होता है। माता-पिता लाड-प्यार करते हैं। परिवारजन स्नेह की वर्षा से अबोध मन को गुदगुदाते हैं। नित्य नए मित्र बनते हैं, छेड़-छाड़ चलती है। कभी-कभी बात बढ़ जाती है और नौबत मारपीट, हाथापाई तक आ जाती है, परन्तु सारा द्वेष, समस्त क्रोध, कड़वाहट दूसरे पल में ही नष्ट हो जाती है। आज जिससे लड़े, कल उसी के साथ बैठ मीठी-मीठी बातें करने का दृश्य दिखाई देता है। खाने-पीने और मौज उड़ाने का यह मस्ताना मौसम चाहे कितना छोटा क्यों न हो, लुभावना और सुहावना होता है, और यह प्रत्येक विद्यार्थी के जीवन का सबसे सुनहरा काल होता है, जो एक निश्चित समय के पश्चात ढल जाता है।

SubQuestion No : 17

Q.17 निम्नलिखित में से “अबोध” शब्द से क्या अभिप्राय है?

- Ans
- ☒ 1. नादान
 - ☒ 2. परम्परा
 - ☒ 3. सयाना
 - ☒ 4. चतुर

Question ID : 97675510678

Comprehension:

निम्नलिखित गद्यांश का ध्यानपूर्वक अध्ययन कर प्रश्नों के उत्तर दीजिए-

जो विद्या की इच्छा रखता है, वह विद्यार्थी है। मनुष्य जीवनभर कुछ न कुछ सीखने की इच्छा रखता है। इस दृष्टि से वह सदैव विद्यार्थी रहता है, किन्तु स्थूल रूप में मानव-जीवन में विद्यार्थी काल बहुत लंबा समय नहीं है। यह मनुष्य के जीवन का स्वर्णिम काल है। विद्यार्थी-जीवन हँसने-हँसाने का समय है। खेल-खेल में पढ़ाई का अभ्यास इसी उम्र में होता है। माता-पिता लाड-प्यार करते हैं। परिवारजन स्नेह की वर्षा से अबोध मन को गुदगुदाते हैं। नित्य नए मित्र बनते हैं, छेड़-छाड़ चलती है। कभी-कभी बात बढ़ जाती है और नौबत मारपीट, हाथापाई तक आ जाती है, परन्तु सारा द्वेष, समस्त क्रोध, कड़वाहट दूसरे पल में ही नष्ट हो जाती है। आज जिससे लड़े, कल उसी के साथ बैठ मीठी-मीठी बातें करने का दृश्य दिखाई देता है। खाने-पीने और मौज उड़ाने का यह मस्ताना मौसम चाहे कितना छोटा क्यों न हो, लुभावना और सुहावना होता है, और यह प्रत्येक विद्यार्थी के जीवन का सबसे सुनहरा काल होता है, जो एक निश्चित समय के पश्चात ढल जाता है।

SubQuestion No : 18

Q.18 निम्नलिखित में से उपर्युक्त गद्यांश का उचित शीर्षक कौन-सा है?

- Ans ☒ 1. चरित्र निर्माण एवं अनुशासन।
- ☒ 2. विद्यार्थी-जीवन की विशेष मानसिकता।
- ☒ 3. चरित्र निर्माण।
- ☒ 4. जीवन में सफलता एवं असफलता का महत्व।

Question ID : 97675510677

Comprehension:

निम्नलिखित गद्यांश का ध्यानपूर्वक अध्ययन कर प्रश्नों के उत्तर दीजिए-

जो विद्या की इच्छा रखता है, वह विद्यार्थी है। मनुष्य जीवनभर कुछ न कुछ सीखने की इच्छा रखता है। इस दृष्टि से वह सदैव विद्यार्थी रहता है, किन्तु स्थूल रूप में मानव-जीवन में विद्यार्थी काल बहुत लंबा समय नहीं है। यह मनुष्य के जीवन का स्वर्णिम काल है। विद्यार्थी-जीवन हँसने-हँसाने का समय है। खेल-खेल में पढ़ाई का अभ्यास इसी उम्र में होता है। माता-पिता लाड-प्यार करते हैं। परिवारजन स्नेह की वर्षा से अबोध मन को गुदगुदाते हैं। नित्य नए मित्र बनते हैं, छेड़-छाड़ चलती है। कभी-कभी बात बढ़ जाती है और नौबत मारपीट, हाथापाई तक आ जाती है, परन्तु सारा द्वेष, समस्त क्रोध, कड़वाहट दूसरे पल में ही नष्ट हो जाती है। आज जिससे लड़े, कल उसी के साथ बैठ मीठी-मीठी बातें करने का दृश्य दिखाई देता है। खाने-पीने और मौज उड़ाने का यह मस्ताना मौसम चाहे कितना छोटा क्यों न हो, लुभावना और सुहावना होता है, और यह प्रत्येक विद्यार्थी के जीवन का सबसे सुनहरा काल होता है, जो एक निश्चित समय के पश्चात ढल जाता है।

SubQuestion No : 19

Q.19 उपर्युक्त गद्यांश के अनुसार विद्यार्थी-जीवन का आपसी लड़ाई-झगड़ा जल्दी समाप्त हो जाने का कारण _____ है।

- Ans ☒ 1. घरवालों के द्वारा खर्च में कटौती किये जाने का भय।
- ☒ 2. मन की सरल एवं निष्कपट भावना।
- ☒ 3. अध्यापक द्वारा दंड दिए जाने का भय।
- ☒ 4. स्वयं के अकेले रह जाने का भय।

Question ID : 97675510680

Comprehension:

निम्नलिखित गद्यांश का ध्यानपूर्वक अध्ययन कर प्रश्नों के उत्तर दीजिए-

जो विद्या की इच्छा रखता है, वह विद्यार्थी है। मनुष्य जीवनभर कुछ न कुछ सीखने की इच्छा रखता है। इस दृष्टि से वह सदैव विद्यार्थी रहता है, किन्तु स्थूल रूप में मानव-जीवन में विद्यार्थी काल बहुत लंबा समय नहीं है। यह मनुष्य के जीवन का स्वर्णिम काल है। विद्यार्थी-जीवन हैसने-हँसाने का समय है। खेल-खेल में पढ़ाई का अभ्यास इसी उम्र में होता है। माता-पिता लाड-प्यार करते हैं। परिवारजन स्नेह की वर्षा से अबोध मन को गुदगुदाते हैं। नित्य नए मित्र बनते हैं, छेड़-छाड़ चलती है। कभी-कभी बात बढ़ जाती है और नौबत मारपीट, हाथापाई तक आ जाती है, परन्तु सारा द्वेष, समस्त क्रोध, कड़वाहट दूसरे पल में ही नष्ट हो जाती है। आज जिससे लड़े, कल उसी के साथ बैठ मीठी-मीठी बातें करने का दृश्य दिखाई देता है। खाने-पीने और मोज उड़ाने का यह मस्ताना मौसम चाहे कितना छोटा क्यों न हो, लुभावना और सुहावना होता है, और यह प्रत्येक विद्यार्थी के जीवन का सबसे सुनहरा काल होता है, जो एक निश्चित समय के पश्चात ढल जाता है।

SubQuestion No : 20

Q.20 उपर्युक्त गद्यांश के अनुसार मनुष्य सदैव विद्यार्थी है, क्योंकि वह _____

- Ans
- ☒ 1. उम्र की प्रत्येक अवस्था में विद्यार्थी जीवन ही जी पाता है।
 - ☒ 2. प्रत्येक समय नयी-नयी डिग्री हासिल करना चाहता है।
 - ☒ 3. उसका अहंकार बढ़ता जाता है।
 - ☒ 4. सदैव कुछ नया सीखने की इच्छा रखता है।

Question ID : 97675510679

Section : Discipline1

Q.1 Action and reaction forces act on what?

- Ans
- ☒ 1. The different bodies
 - ☒ 2. The same body but different position
 - ☒ 3. The same body or different body
 - ☒ 4. The same body only

Question ID : 97675510698

Q.2 Find the maximum value of acceleration of the bus if a mass of 3 kg lying on the floor of the bus will remain stationary (Given the co efficient of static friction is 0.15):

- Ans
- ☒ 1. 0.5 ms^{-2}
 - ☒ 2. 2.0 ms^{-2}
 - ☒ 3. 1.5 ms^{-2}
 - ☒ 4. 2.5 ms^{-2}

Question ID : 97675510700

Q.3 The dimension of potential energy is:

- Ans
- ☒ 1. $M^1 L^2 T^{-1}$
 - ☒ 2. $M^0 L^2 T^{-2}$
 - ☒ 3. $M^1 L^1 T^{-2}$
 - ☒ 4. $M^1 L^2 T^{-2}$

Question ID : 97675510693

Q.4 Impulsive force is:

- Ans
- ☐ 1. Small force acts in a short time
 - ☐ 2. Large force acts in a longtime
 - ☐ 3. Small force acts in a long time
 - ☒ 4. Large force acts in a short time

Question ID : 97675510697

Q.5 Find the dimensional-formula of $X_0 + ut + \frac{1}{2}at^2 -$

- Ans
- ☐ 1. $M^{-1}L^1T^1$
 - ☐ 2. $M^0L^{-1}T^0$
 - ☒ 3. $M^0L^1T^0$
 - ☐ 4. $M^1L^{-1}T^1$

Question ID : 97675510689

Q.6 If during a collision, the initial velocities and final velocities of both the bodies are along the same straight line then it is called:

- Ans
- ☐ 1. Direct collision
 - ☒ 2. Head on collision
 - ☐ 3. Head to head collision
 - ☐ 4. Natural collision

Question ID : 97675510696

Q.7 Gravity is an example of?

- Ans
- ☐ 1. Kinetic force
 - ☐ 2. Conservative energy
 - ☐ 3. Conservation of energy
 - ☒ 4. Conservative force

Question ID : 97675510692

Q.8 जब स्प्रिंग को कठोर कहा जाता है तब स्प्रिंग स्थिरांक का मान _____ होता है।

- Ans
- ☒ 1. उच्च
 - ☐ 2. कम
 - ☐ 3. मध्यम
 - ☐ 4. शून्य

Question ID : 97675510694

Q.9 Neutrino is a particle emitted in ?

- Ans
- ☐ 1. δ decay
 - ☐ 2. α -decay
 - ☒ 3. β -decay
 - ☐ 4. γ decay

Question ID : 97675510683

Q.10 Suppose that a projectile is launched with velocity V_0 that makes an angle θ_0 with the horizontal axis. What is the time of flight of the projectile ?

- Ans
- ☐ 1. $V_0 \sin \theta_0 / g$
 - ☐ 2. $2V_0 \cos \theta_0 / g$
 - ☐ 3. $g \sin \theta_0 / V_0$
 - ☒ 4. $2V_0 \sin \theta_0 / g$

Question ID : 97675510701

Q.11 The relation between Ergs(erg) and electron volt(eV) is?

- Ans
- ☐ 1. $1 \text{ erg} = 0.625 \times 10^{-10} \text{ eV}$
 - ☐ 2. $1 \text{ erg} = 0.625 \times 10^{-12} \text{ eV}$
 - ☒ 3. $1 \text{ erg} = 0.625 \times 10^{12} \text{ eV}$
 - ☐ 4. $1 \text{ erg} = 0.625 \times 10^{10} \text{ eV}$

Question ID : 97675510691

Q.12 The dimensional formula of mass is :

- Ans
- ☒ 1. $[M^1 L^0 T^0]$
 - ☐ 2. $M^1 L^1 T^{-2}$
 - ☐ 3. $M^1 L^2 T^{-1}$
 - ☐ 4. $M^1 L^1 T^1$

Question ID : 97675510690

Q.13 Equilibrium of a particle in mechanics refers to the situation when the particles are in _____.

- Ans
- ☒ 1. Both translational and rotational equilibrium
 - ☐ 2. Conditional equilibrium only
 - ☐ 3. Rotational equilibrium only
 - ☐ 4. Translational equilibrium only

Question ID : 97675510699

Q.14 In β -decay ,the nucleus emits-

- Ans
- ☐ 1. proton
 - ☐ 2. neutron
 - ☐ 3. positron
 - ☒ 4. electron

Question ID : 97675510682

Q.15 To measure 0.0001 m length accurately one what can be use?

- Ans
- ☐ 1. Metre scale
 - ☐ 2. Screw gauge
 - ☒ 3. Vernier Callipers
 - ☐ 4. Spherometer

Question ID : 97675510685

Q.16 A car is moving with a speed of 5 ms^{-1} on a smooth road and its mass is 10 quintal. It collides with a wall and the wall is mounted with a spring of spring constant $6.25 \times 10^3 \text{ Nm}^{-1}$. Find the maximum compression of the spring.

- Ans
- ☐ 1. 1.00 meter
 - ☐ 2. 4.00 meter
 - ☐ 3. 3.00 meter
 - ☒ 4. 2.00 meter

Question ID : 97675510695

Q.17 Plane angle is defined as the ratio of ?

- Ans
- ☒ 1. Length of arc to the radius
 - ☐ 2. Length of the arc to the square of the radius
 - ☐ 3. The intercepted area of a spherical surface to the square of its radius
 - ☐ 4. Area of the circle to the radius

Question ID : 97675510684

Q.18 The error which is associated with the resolution of the instrument is known as

- Ans
- ☐ 1. Absolute error
 - ☐ 2. Relative error
 - ☐ 3. Random error
 - ☒ 4. Least count error

Question ID : 97675510686

Q.19 Voltage and current are given as $V = (100 \pm 9)\text{V}$ and $I = (100 \pm 0.5)\text{A}$. Find the Percentage error in resistance (R)

- Ans
- ☐ 1. 5 percent
 - ☒ 2. 14 percent
 - ☐ 3. 9 percent
 - ☐ 4. 12 percent

Question ID : 97675510687

Q.20 The accuracy in measurement of mass 9.89 g is $\pm 0.01 \text{ g}$. Then the relative error in 9.89g is:

- Ans
- ☐ 1. ± 10 percent
 - ☐ 2. ± 0.01 percent
 - ☒ 3. ± 0.1 percent
 - ☐ 4. ± 1 percent

Question ID : 97675510688

Q.1 Escape speed of a body is independent of _____.

- Ans
- ☒ 1. Mass of the body
 - ☐ 2. Gravity
 - ☐ 3. Gravity and radius of the earth
 - ☐ 4. Radius of the earth

Question ID : 97675510720

Q.2 In pure translational motion at any instant of time all particles of the body have _____.

- Ans
- ☐ 1. Different momentum
 - ☐ 2. Different velocity
 - ☐ 3. Same momentum
 - ☒ 4. Same velocity

Question ID : 97675510707

Q.3 If d is the depth, R_E is the radius of the earth and g is the acceleration due to gravity at earth's surface, the g at a depth d , $g(d)$ is:

- Ans
- ☐ 1. $g(d) = g(1 - 2d/R_E)$
 - ☐ 2. $g(d) = g(1 + 2d/R_E)$
 - ☒ 3. $g(d) = g(1 - d/R_E)$
 - ☐ 4. $g(d) = g(1 + d/R_E)$

Question ID : 97675510715

Q.4 Which of the following is a scalar quantity ?

- Ans
- ☐ 1. Angular velocity
 - ☐ 2. Linear momentum
 - ☐ 3. Angular momentum
 - ☒ 4. Angular frequency

Question ID : 97675510705

Q.5 Find the moment of inertia of a hollow ring about its tangent.

- Ans
- ☒ 1. $\frac{3MR^2}{4}$
 - ☐ 2. MR^2
 - ☐ 3. $\frac{MR^2}{4}$
 - ☐ 4. $\frac{5MR^2}{4}$

Question ID : 97675510714

Q.6 Acceleration due to gravity above the surface of the earth is not dependent on?

- Ans
- ☒ 1. Radius of the earth
 - ☒ 2. Mass of the earth
 - ☒ 3. Height
 - ☒ 4. Gravity of the earth

Question ID : 97675510721

Q.7 The relation between time period T and radius R , of the circular orbit of a planet about the sun, where gravity is G , and mass of the sun is M_S is:

Ans

☒ 1. $T = \sqrt{\frac{4\pi^2}{GM_S}} R^2$

☒ 2. $T = \sqrt{\frac{4\pi^2}{GM_S}} R^3$

☒ 3. $T^2 = \frac{4\pi^2}{GM_S} R$

☒ 4. $T = \frac{4\pi^2}{GM_S} R$

Question ID : 97675510718

Q.8 The centre of gravity of a body is that point where the total gravitational torque on the body is _____.

- Ans
- ☒ 1. Infinite
 - ☒ 2. Zero
 - ☒ 3. Maximum
 - ☒ 4. Minimum

Question ID : 97675510712

Q.9 A river is 1000 m wide and water flows at a speed of 50 m/min. A man can swim at a speed of $66\frac{2}{3}$ m/min in still water. What is the time needed by the man to cross the river?

- Ans
- ☒ 1. 15 min
 - ☒ 2. 20 min
 - ☒ 3. 10 min
 - ☒ 4. 25 min

Question ID : 97675510704

Q.10 Find the escape speed for moon?

- Ans
- ☒ 1. 11.2 km/s
 - ☒ 2. 2.11 km/s
 - ☒ 3. 3.2 km/s
 - ☒ 4. 2.3 km/s

Question ID : 97675510716

Q.11 We don't have to specify the direction of _____.

- Ans
- ☒ 1. Unit vector
 - ☐ 2. A null vector
 - ☐ 3. Displacement vector
 - ☐ 4. Radius vector

Question ID : 97675510703

Q.12 The moment of inertia of a hollow cylinder of radius R is MR^2 about?

- Ans
- ☐ 1. Parallel axis
 - ☐ 2. Diameter
 - ☐ 3. Perpendicular axis
 - ☒ 4. Axis of cylinder

Question ID : 97675510713

Q.13 What is the position of the centre of mass for two particles of equal masses?

- Ans
- ☐ 1. It lies between any point of the masses
 - ☐ 2. It lies near each mass
 - ☐ 3. It lies at perpendicular distance from either of the mass
 - ☒ 4. It lies exactly midway between the masses

Question ID : 97675510709

Q.14 Find the magnitude of linear velocity of a particle whose angular velocity is $7\hat{i} + 3\hat{j} - 5\hat{k}$ and the distance from the origin is $\hat{i} - \hat{j} + \hat{k}$.

- Ans
- ☒ 1. 15.75 ms^{-1}
 - ☐ 2. 13.75 ms^{-1}
 - ☐ 3. 12.35 ms^{-1}
 - ☐ 4. 14.62 ms^{-1}

Question ID : 97675510710

Q.15 The example of rotation where axis may not be fixed?

- Ans
- ☐ 1. Spinning top and potters wheel
 - ☐ 2. A ceiling fan only
 - ☒ 3. A spinning top only
 - ☐ 4. A potter's wheel only

Question ID : 97675510708

Q.16 The year of a planet is 29.5 times that of the earth .If the distance between sun and the earth is $1.50 \times 10^8 \text{ km}$ then find the distance between the planet and the earth?

- Ans
- ☐ 1. $1.43 \times 10^{14} \text{ meter}$
 - ☐ 2. $1.34 \times 10^{14} \text{ meter}$
 - ☐ 3. $1.34 \times 10^{12} \text{ meter}$
 - ☒ 4. $1.430 \times 10^{12} \text{ meter}$

Question ID : 97675510719

Q.17 Which statement is false for a "rigid body" ?

- Ans
- ☐ 1. It has perfectly definite shape
 - ☐ 2. The shape is unchangeable
 - ☐ 3. All particles of the body are moving together
 - ☒ 4. The rigid body is not in pure translational motion

Question ID : 97675510706

Q.18 A boy throws a stone at a speed of 28 ms^{-1} . The stone makes 30° angle with the horizontal surface. Find the maximum height of the stone from the ground.

- Ans
- ☐ 1. 12.0 meter
 - ☐ 2. 6.0 meter
 - ☐ 3. 8.0 meter
 - ☒ 4. 10.0 meter

Question ID : 97675510702

Q.19 A pair of forces of equal magnitude but acting in opposite direction with different lines of action is known as:

- Ans
- ☐ 1. Moment
 - ☐ 2. Precession
 - ☒ 3. Couple
 - ☐ 4. Centre of mass

Question ID : 97675510711

Q.20 Find the total energy of a circularly orbiting satellite?

- Ans
- ☒ 1. Negative
 - ☐ 2. Zero
 - ☐ 3. Postive
 - ☐ 4. Infinite

Question ID : 97675510717

Section : Discipline3

Q.1 Calculate the total work done in bringing a charge of $5 \times 10^{-7} \text{ C}$ from Infinity to a point which is 10 cm away from a charge of $3 \times 10^{-9} \text{ C}$?

- Ans
- ☐ 1. $1.6 \times 10^{-4} \text{ J}$
 - ☒ 2. $1.35 \times 10^{-4} \text{ J}$
 - ☐ 3. $1.6 \times 10^{-5} \text{ J}$
 - ☐ 4. 1.6×10^{-9}

Question ID : 97675510738

Q.2 Which of the following is not a mechanical wave ?

- Ans
- ☐ 1. Sound wave
 - ☐ 2. Seismic wave
 - ☒ 3. Light wave
 - ☐ 4. Water wave

Question ID : 97675510729

Q.3 How much negative charge is present in 500 g of water?

- Ans
- ☐ 1. 1.34×10^6 C
 - ☐ 2. 3.68×10^7 C
 - ☒ 3. 2.68×10^7 C
 - ☐ 4. 1.34×10^7 C

Question ID : 97675510732

Q.4 What is the electrostatic potential energy, when two charges $5 \mu\text{C}$ and $-3 \mu\text{C}$ are placed at a distance of 16 cm away from each other ?

- Ans
- ☐ 1. -0.95 J
 - ☐ 2. 0.8 J
 - ☐ 3. 0.9 J
 - ☒ 4. -0.84 J

Question ID : 97675510739

Q.5 The electric field of an electric dipole at a point on the equatorial plane for $r \gg a$ is _____

- Ans
- ☐ 1. $-\frac{2p}{4\pi\epsilon_0 r^3}$
 - ☒ 2. $-\frac{p}{4\pi\epsilon_0 r^3}$
 - ☐ 3. $\frac{2p}{4\pi\epsilon_0 r^3}$
 - ☐ 4. $\frac{p}{4\pi\epsilon_0 r^3}$

Question ID : 97675510736

Q.6 What is the length of simple pendulum if frequency is 0.5 Hz ($g = 9.8 \text{ ms}^{-2}$)?

- Ans
- ☐ 1. 2 meter
 - ☐ 2. 4 meter
 - ☐ 3. 3 meter
 - ☒ 4. 1 meter

Question ID : 97675510727

Q.7 In a non polar molecule ,the molecule has _____.

- Ans
- ☒ 1. Intrinsic dipole moment
 - ☒ 2. No intrinsic dipole moment
 - ☒ 3. Week dipole moment
 - ☒ 4. Permanent dipole moment

Question ID : 97675510741

Q.8 The relation between the average energy of vibrations (E) and temperature (T) is _____.

- Ans
- ☒ 1. E proportional T
 - ☒ 2. E proportional $1/T$
 - ☒ 3. E proportional T^2
 - ☒ 4. E proportional $1/T^2$

Question ID : 97675510723

Q.9 Which law of kepler can be understood as a consequence of a conservation of an angular momentum which is valid for any central force ?

- Ans
- ☒ 1. Law of orbits
 - ☒ 2. Law of semi major axis
 - ☒ 3. Law of areas
 - ☒ 4. Law of periods

Question ID : 97675510722

Q.10 Gamma is the ratio of two specific heats .What is value of gamma for air ?

- Ans
- ☒ 1. 2.4
 - ☒ 2. 2
 - ☒ 3. 1.4
 - ☒ 4. 1

Question ID : 97675510731

Q.11 When the frequency of a periodic is small then it is called :

- Ans
- ☒ 1. Repeating
 - ☒ 2. Vibration
 - ☒ 3. Oscillation
 - ☒ 4. Damping

Question ID : 97675510724

Q.12 Which statement is false in case of Coulomb's law?

- Ans
- ☒ 1. It is true when one charge is positive and another is negative
 - ☒ 2. It is true when both charges are positive
 - ☒ 3. It is true when both charges are negative
 - ☒ 4. It is true only when both charges are positive

Question ID : 97675510734

Q.13 Find the amplitude for forced oscillations in case of small damping?

Ans

☒ 1. $A = \frac{F_0}{m(w^2 + w_d^2)}$

☒ 2. $A = \frac{F_0}{(w^2 - w_d^2)}$

☒ 3. $A = \frac{F_0}{(w - w_d)}$

☒ 4. $A = \frac{F_0}{m(w^2 - w_d^2)}$

Question ID : 97675510728

Q.14 According to Gauss's law the electric field at a distance r from an infinitely long straight uniformly charged wire (charge density λ) is _____.

Ans

☒ 1. $\vec{E} = \frac{2\lambda}{\pi\epsilon_0 r} \vec{n}$

☒ 2. $\vec{E} = \frac{\lambda}{4\pi\epsilon_0 r} \vec{n}$

☒ 3. $\vec{E} = \frac{\lambda}{2\pi\epsilon_0 r} \vec{n}$

☒ 4. $\vec{E} = \frac{\lambda}{\pi\epsilon_0 r} \vec{n}$

Question ID : 97675510737

Q.15 SI unit of angular wave number is-

Ans

☒ 1. Radian

☒ 2. ms^{-1}

☒ 3. rad s^{-1}

☒ 4. rad m^{-1}

Question ID : 97675510730

Q.16 The SI unit of electric flux is -

Ans

☒ 1. NC^{-1}m^2

☒ 2. NCm^2

☒ 3. $\text{NC}^{-1}\text{m}^{-2}$

☒ 4. NCm^{-1}

Question ID : 97675510735

Q.17 The value of the permittivity of the free space in SI unit is _____.

Ans

- ☒ 1. $8.854 \times 10^{-14} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$
- ☒ 2. $8.854 \times 10^{-19} \text{ C}^2\text{Nm}^{-2}$
- ☒ 3. $7.854 \times 10^{-12} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$
- ☒ 4. $8.854 \times 10^{-12} \text{ C}^2\text{N}^{-1}\text{m}^{-2}$

Question ID : 97675510733

Q.18 Which statement is true for electrostatics of conductors ?

Ans

- ☒ 1. Electrostatics potential is not constant throughout
- ☒ 2. Inside a conductor ,electrostatic field has some value
- ☒ 3. The interior of a conductor can have no excess charge in the static situation
- ☒ 4. Inside a conductor ,electrostatic field is normal to the surface

Question ID : 97675510740

Q.19 For simple harmonic motion which of the following is true ?

Ans

- ☒ 1. Displacement of the particle varies with velocity
- ☒ 2. Displacement of the particle varies with distance
- ☒ 3. Displacement of the particle varies with time
- ☒ 4. Displacement of the particle varies with amplitude

Question ID : 97675510725

Q.20 The phase constant of simple harmonic motion is dependent on :

Ans

- ☒ 1. Displacement
- ☒ 2. Time
- ☒ 3. Amplitude
- ☒ 4. Frequency

Question ID : 97675510726

Section : Discipline4

Q.1 A wire of mass 0.4 kg and length 1.6 m carries a current of 3 A . Around the wire a uniform magnetic field is present .Find the magnitude of magnetic field .

Ans

- ☒ 1. 0.93 T
- ☒ 2. 0.82 T
- ☒ 3. 0.74 T
- ☒ 4. 0.65 T

Question ID : 97675510755

Q.2 Find the magnitude of magnetic field when an electron moves in a circular path of radius 26 cm with a speed of 3×10^7 m/s. Mass and charge of electron is 9×10^{-31} kg and 1.6×10^{-19} C respectively.

- Ans
- ☐ 1. 1.6×10^{-2} T
 - ☒ 2. 2.6×10^{-4} T
 - ☐ 3. 3.6×10^{-6} T
 - ☐ 4. 4.6×10^{-8} T

Question ID : 97675510756

Q.3 Suppose four particles of same mass, present at the vertices of a square of side "a", then the potential energy of the system is- (G- gravity, m- mass)

- Ans
- ☐ 1. $(4.2 \text{ Gm/a}) \text{ J}$
 - ☐ 2. $(5.41 \text{ Gm}^2/\text{a}) \text{ J}$
 - ☒ 3. $(-5.41 \text{ Gm}^2/\text{a}) \text{ J}$
 - ☐ 4. $(-4.2 \text{ Gm/a}) \text{ J}$

Question ID : 97675510751

Q.4 The range of resistivity of a material is of $10^{-8} \Omega\text{m}$ to $10^{-6} \Omega\text{m}$. Find the material?

- Ans
- ☐ 1. Insulator
 - ☐ 2. Resistor
 - ☐ 3. Semiconductor
 - ☒ 4. Metals

Question ID : 97675510746

Q.5 According to Biot-Savart Law, the magnitude of the magnetic field at a distance x from the centre of current (I) carrying circular loop of radius R in vacuum of permeability μ_0 is –

- Ans
- ☒ 1. $\frac{\mu_0 IR^2}{2 (x^2 + R^2)^{3/2}}$
 - ☐ 2. $\frac{\mu_0 IR}{2 (x^2 + R^2)^{3/2}}$
 - ☐ 3. $\frac{\mu_0 IR}{2 (x^2 + R^2)}$
 - ☐ 4. $\frac{\mu_0 IR}{2 (x^2 + R^2)^2}$

Question ID : 97675510757

Q.6 The resistivity of a semiconductor _____.

- Ans
- ☒ 1. decrease with increasing temperatures
 - ☐ 2. increase with decreasing temperatures
 - ☐ 3. decrease with decreasing temperatures
 - ☐ 4. increase with increasing temperatures

Question ID : 97675510747

Q.7 Weber is a unit of _____.

- Ans
- ☒ 1. Magnetic flux
 - ☐ 2. Magnetic moment
 - ☐ 3. Magnetic induction
 - ☐ 4. Velocity

Question ID : 97675510760

Q.8 Which of the following called the Bohr radius?

- Ans
- ☒ 1. $a_0 = \frac{h^2 \epsilon_0}{\pi m e^2}$
 - ☐ 2. $a_0 = \frac{h^2 \epsilon}{\pi m e^2}$
 - ☐ 3. $a_0 = \frac{h \epsilon_0}{\pi m e^2}$
 - ☐ 4. $a_0 = \frac{h^2 \epsilon_0}{\pi m e}$

Question ID : 97675510761

Q.9 When the magnetic force $q(\vec{V} \times \vec{B})$ is not zero?

- Ans
- ☐ 1. When velocity and magnetic field are anti parallel
 - ☒ 2. When velocity and magnetic field are perpendicular to each other
 - ☐ 3. When velocity and magnetic field are parallel
 - ☐ 4. When velocity and magnetic field directions are opposite

Question ID : 97675510752

Q.10 In Balmer Series, line with the longest wavelength, 656.3 nm in the _____ is called H_α ; the next line with wavelength 486.1 nm in the _____ is called H_β .

- Ans
- ☐ 1. Blue-green, red
 - ☐ 2. Violet, blue-green
 - ☒ 3. Red, blue-green
 - ☐ 4. Red, violet

Question ID : 97675510758

Q.11 The internal resistance of a dry cell is _____ the common electrolytic cell.

- Ans
- ☒ 1. much higher than
 - ☐ 2. equal
 - ☐ 3. much less than
 - ☐ 4. less than

Question ID : 97675510748

Q.12 Which instrument has the advantage that it draws no current from the voltage source being measured?

- Ans
- ☒ 1. Potentiometer
 - ☐ 2. Galvanometer
 - ☐ 3. Wheatstone bridge
 - ☐ 4. Meter bridge

Question ID : 97675510749

Q.13 If the area of the cross section of a conductor is halved then its resistance become _____.

- Ans
- ☒ 1. two times
 - ☐ 2. infinite
 - ☐ 3. half
 - ☐ 4. zero

Question ID : 97675510743

Q.14 The magnitude of the drift velocity per unit electric field is -

- Ans
- ☐ 1. Resistivity
 - ☒ 2. Mobility
 - ☐ 3. Electricity
 - ☐ 4. Conductivity

Question ID : 97675510745

Q.15 The earth's magnetic field is about-

- Ans
- ☒ 1. $3.6 \times 10^{-5} \text{ T}$
 - ☐ 2. $3.9 \times 10^{-5} \text{ T}$
 - ☐ 3. $3.6 \times 10^{-6} \text{ T}$
 - ☐ 4. $3.9 \times 10^{-6} \text{ T}$

Question ID : 97675510754

Q.16 The relation between orbital radius and the electron velocity is :

- Ans
- ☒ 1. $r \propto \frac{1}{v^2}$
 - ☐ 2. $r \propto v$
 - ☐ 3. $r \propto v^3$
 - ☐ 4. $r \propto v^2$

Question ID : 97675510759

Q.17 The SI unit of current density is-

Ans

☒ 1. $\frac{A}{m^2}$

☐ 2. Am^2

☐ 3. $\frac{m^2}{A}$

☐ 4. $\frac{A}{m}$

Question ID : 97675510744

Q.18 1 gauss = _____ tesla

Ans

☐ 1. 10^{-6}

☐ 2. 10^{-2}

☐ 3. 10^{-3}

☒ 4. 10^{-4}

Question ID : 97675510753

Q.19 Find the capacitance of a parallel plate capacitor when the area of the plate is 1 m^2 and the distance between them is 1 mm ?

Ans

☐ 1. $8.88 \times 10^{-9}\text{ F}$

☐ 2. $8.85 \times 10^{-8}\text{ F}$

☒ 3. $8.85 \times 10^{-9}\text{ F}$

☐ 4. $8.88 \times 10^{-8}\text{ F}$

Question ID : 97675510742

Q.20 Which is not the limitation of ohm's law?

Ans

☐ 1. V depends on I non linearly

☐ 2. The relation between V and I is non unique

☐ 3. The relation between V and I depends on the sign of V for the same absolute value of V

☒ 4. The relation between V and I is dependent on R

Question ID : 97675510750

Section : Discipline5

Q.1 The expression for zero point energy which is a consequence of the Heisenberg uncertainty principle is :

Ans

☐ 1. $E_0 = \hbar^2/4ma^2$

☐ 2. $E_0 = \hbar/ma^2$

☒ 3. $E_0 = \hbar^2/8ma^2$

☐ 4. $E_0 = \hbar/8ma^2$

Question ID : 97675510769

Q.2 To transmit music an approximate bandwidth of _____ is required.

- Ans
- ☒ 1. 20 kHz
 - ☐ 2. 12 kHz
 - ☐ 3. 18 kHz
 - ☐ 4. 26 kHz

Question ID : 97675510775

Q.3 What is the range of frequency band for uplink in satellite communication?

- Ans
- ☐ 1. 6.5-7.642GHz
 - ☐ 2. 4.2-5.6 GHz
 - ☐ 3. 3.7- 4.2 GHz
 - ☒ 4. 5.925-6.425 GHz

Question ID : 97675510776

Q.4 If an antenna radiates electromagnetic waves from a height 40 m then what is the range of transmission of the wave ? Given radius of earth = 6.4×10^6 m.

- Ans
- ☐ 1. 25.34 km
 - ☐ 2. 23.45 km
 - ☒ 3. 22.63 km
 - ☐ 4. 21.59 km

Question ID : 97675510777

Q.5 If $L^* \approx 2 \times 10^{10} L_\odot$ is a characteristic galaxy luminosity, then the luminosities of a giant elliptical is-

- Ans
- ☐ 1. $L > L^*$
 - ☐ 2. $L \leq L^*$
 - ☐ 3. $L = L^*$
 - ☒ 4. $L \geq L^*$

Question ID : 97675510780

Q.6 Find the mass of ^{12}C atom ?

- Ans
- ☒ 1. 1.99×10^{-26} kg
 - ☐ 2. 1.99×10^{-23} kg
 - ☐ 3. 1.99×10^{-24} kg
 - ☐ 4. 1.99×10^{-25} kg

Question ID : 97675510764

Q.7 The element gold has _____ isotopes.

- Ans
- ☐ 1. 36
 - ☐ 2. 30
 - ☒ 3. 32
 - ☐ 4. 34

Question ID : 97675510765

Q.8 Which series lies in the ultraviolet region?

- Ans
- ☒ 1. Brackett
 - ☒ 2. Pfund
 - ☒ 3. Lyman
 - ☒ 4. Paschen

Question ID : 97675510763

Q.9 The surface brightness of the disk at a distance r from the centre and the disk scale length r_d , measured along the mid plane of the disk is given by- :

- Ans
- ☒ 1. $I_d(r) = I_d(0) e^{-r/r_d}$
 - ☒ 2. $I_d(r) = I_d(0) e^{r/r_d}$
 - ☒ 3. $I_d(r) = I_d(0) e^{-\pi r/r_d}$
 - ☒ 4. $I_d(r) = I_d(0) e^{\pi r/r_d}$

Question ID : 97675510781

Q.10 The half life of radium is 1600 years. What fractions of a sample of radium that would remain after 8000 years?

- Ans
- ☒ 1. $\frac{1}{32}$
 - ☒ 2. $\frac{1}{8}$
 - ☒ 3. $\frac{1}{64}$
 - ☒ 4. $\frac{1}{5}$

Question ID : 97675510767

Q.11 No electron conduction is possible between the Valence Band and Conduction band when _____.

- Ans
- ☒ 1. $E_g < 3 \text{ eV}$
 - ☒ 2. $E_g < 2 \text{ eV}$
 - ☒ 3. $E_g > 2 \text{ eV}$
 - ☒ 4. $E_g > 3 \text{ eV}$

Question ID : 97675510770

Q.12 What element will be formed if thorium -230 undergoes alpha decay ?

- Ans
- ☒ 1. Radium-234
 - ☒ 2. Uranium-234
 - ☒ 3. Radium-226
 - ☒ 4. Uranium-226

Question ID : 97675510768

Q.13 The loss of strength of a signal while propagating through a medium is known as

- Ans
- ☐ 1. Transducer
 - ☐ 2. Modulation
 - ☐ 3. Repeater
 - ☒ 4. Attenuation

Question ID : 97675510774

Q.14 For hydrogen atom the radius of innermost orbit of electron is 4.5×10^{-12} m .What is radius of $n=4$ orbital ?

- Ans
- ☐ 1. 1.72×10^{-10} m
 - ☒ 2. 7.2×10^{-11} m
 - ☐ 3. 4.5×10^{-10} m
 - ☐ 4. 4.5×10^{-12} m

Question ID : 97675510762

Q.15 What will be the angle of projection to find the maximum horizontal range by a projectile?

- Ans
- ☐ 1. 60°
 - ☐ 2. 30°
 - ☒ 3. 45°
 - ☐ 4. 90°

Question ID : 97675510773

Q.16 Which statement is false for nuclear force?

- Ans
- ☐ 1. the nuclear force between neutron -neutron is same
 - ☐ 2. The nuclear force between two nucleons falls rapidly to zero as their distance is more than a few femtometers
 - ☐ 3. the nuclear force is independent on the electric charge
 - ☒ 4. the nuclear force is much less than the coulomb force

Question ID : 97675510766

Q.17 Which diode is used as voltage regulator?

- Ans
- ☐ 1. Photovoltaic devices
 - ☐ 2. Light emitting diode
 - ☐ 3. Photodiode
 - ☒ 4. Zener diode

Question ID : 97675510771

Q.18 The absolute magnitude (M_B) of a giant galaxy as suggested by Hubble is-

- Ans
- ☒ 1. $M_B \leq -20$
 - ☐ 2. $M_B \geq -40$
 - ☐ 3. $M_B \geq -20$
 - ☐ 4. $M_B < -20$

Question ID : 97675510779

Q.19 One of the types of normal galaxies is:

- Ans
- ☒ 1. septicular
 - ☒ 2. lenticular
 - ☒ 3. ventricular
 - ☒ 4. vavioler

Question ID : 97675510778

Q.20 Which statement is false for LED ?

- Ans
- ☒ 1. Fast on-off switching capability
 - ☒ 2. Fast action and no warm up time required
 - ☒ 3. High operational voltage and less power
 - ☒ 4. Long life and ruggedness

Question ID : 97675510772

Section : Discipline6

Q.1 The measured latent heat of water is 2256 J/g .At atmospheric pressure ,1 g of water has a volume 1cm^3 in liquid phase and 1671cm^3 in vapour phase .Then the value of ΔU is:

- Ans
- ☒ 1. 2086.8 J
 - ☒ 2. 1086.8 J
 - ☒ 3. 2069.2 J
 - ☒ 4. 1069.2 J

Question ID : 97675510787

Q.2 If a function $f(z)$ is analytic and its derivative is continuous at each point within a simply connected region R , then for every closed path C in R the line integral of $f(z)$ around C is zero. This sentence3 describes:

- Ans
- ☒ 1. Fourier's Integral Theorem
 - ☒ 2. Contours Integral Theorem
 - ☒ 3. Cauchy's integral Theorem
 - ☒ 4. Laplace's integral Theorem

Question ID : 97675510797

Q.3 Which one is false for extensive variable?

- Ans
- ☒ 1. Extensive variable indicates the size of the system.
 - ☒ 2. The product of an intensive variable like P and an extensive quantity ΔV is extensive
 - ☒ 3. Pressure,temperature ,and density are extensive variable
 - ☒ 4. The variable whose values get halved in each part are extensive .

Question ID : 97675510789

Q.4 Suppose we have a spherical system consisting of N particles that are interacting gravitationally. If the position of the i^{th} particle be r_i and its velocity V_i then total kinetic energy is :

Ans

☐ 1. $T = m \sum_{i=1}^N V_i^2$

☐ 2. $T = \sum_{i=1}^N m_i V_i^2$

☐ 3. $T = \frac{1}{2} \sum_{i=1}^N m_i V_i^2$

☒ 4. $T = \frac{1}{2} m \sum_{i=1}^N V_i^2$

Question ID : 97675510784

Q.5 An isotherm is

Ans

☐ 1. The volume-temperature curve for a fixed pressure

☐ 2. The pressure-temperature curve for a fixed volume .

☐ 3. Specific heat-pressure curve for a fixed volume

☒ 4. The pressure-volume curve for a fixed temperature

Question ID : 97675510788

Q.6 The real and imaginary parts $u(x, y)$ and $v(x, y)$ of an analytic function $f(z)$ separately satisfy the two dimensional Laplace equation and are known as _____.

Ans

☒ 1. Harmonic functions

☐ 2. Logarithmic function

☐ 3. Memorphic function

☐ 4. Differentiable function

Question ID : 97675510799

Q.7 What will be the dispersive power for wavelength 2λ , if dispersive power is 'D' for wavelength λ ?

Ans

☒ 1. $\frac{D}{8}$

☐ 2. $\frac{D}{2}$

☐ 3. $\frac{D}{4}$

☐ 4. D

Question ID : 97675510795

Q.8 An active galaxy produces energy at the rate of _____.

Ans

☐ 1. $10^{40} - 10^{42} \text{ ergs S}^{-1}$

☒ 2. $10^{44} - 10^{47} \text{ ergs S}^{-1}$

☐ 3. $10^{42} - 10^{44} \text{ ergs S}^{-1}$

☐ 4. $10^{47} - 10^{50} \text{ ergs S}^{-1}$

Question ID : 97675510783

Q.9 A group of elements can be split into subsets such that all the elements are conjugate to each other, the similarity transformation being done by some element of the group itself, but no two elements belonging to two different subsets are conjugate to each other. Such subsets are called :

Ans

☐ 1. Symmetric group

☒ 2. Classes of the group

☐ 3. Cyclic group

☐ 4. Permutation group

Question ID : 97675510801

Q.10 Which statement is false for a quasi-static process?

Ans

☐ 1. The system remains in mechanical equilibrium with the surroundings

☐ 2. It is an infinitely slow process

☒ 3. The pressure and temperature of the process are same with the environment

☐ 4. The system remains in thermal equilibrium with surrounding

Question ID : 97675510793

Q.11 Laplace integral is represented as _____.

Ans

☐ 1. $e^{-px} = \frac{2p}{\pi} \int_0^{\infty} \frac{\cos x dx}{p^2 + k^2}, x \geq 0, p > 0$

☐ 2. $e^{-px} = \frac{2\pi}{p} \int_0^{\infty} \frac{\cos kx dx}{p^2 + k^2}, x \geq 0, p > 0$

☒ 3. $e^{-px} = \frac{2p}{\pi} \int_0^{\infty} \frac{\cos kx dx}{p^2 + k^2}, x \geq 0, p > 0$

☐ 4. $e^{-px} = \frac{p}{\pi} \int_0^{\infty} \frac{\cos kx dx}{p^2 + k^2}, x \geq 0, p > 0$

Question ID : 97675510796

Q.12 Which classification of active galaxy have no prominent emission lines and the spectrum is dominated by a continuum?

- Ans
- ☒ 1. BL Lacertae object
 - ☐ 2. Star Burst Galaxies
 - ☐ 3. Optically violent variable
 - ☐ 4. Seyferet Galaxies

Question ID : 97675510786

Q.13 When the value of spectral index, $\alpha \leq 0.4$, the spectrum is called _____.

- Ans
- ☐ 1. High spectrum
 - ☒ 2. Flat spectrum
 - ☐ 3. Low spectrum
 - ☐ 4. Steep spectrum

Question ID : 97675510785

Q.14 In complex Fourier series, the value of coefficients a_0 is _____.

- Ans
- ☐ 1. $\int_{T/2}^{-T/2} f(x)dx$
 - ☒ 2. $\frac{1}{T} \int_{-T/2}^{T/2} f(x)dx$
 - ☐ 3. $\frac{1}{T} \int_{T/2}^{-T/2} f(x)dx$
 - ☐ 4. $\int_{-T/2}^{T/2} f(x)dx$

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Question ID : 97675510794

Q.15 Which statement is true for carnot engine?

- Ans
- ☐ 1. The efficiency of carnot engine is one
 - ☐ 2. Working between hot and cold reservoirs, other engine can have more efficiency than a carnot engine
 - ☒ 3. The efficiency of the carnot engine is independent of the nature of the working substance
 - ☐ 4. A carnot engine is an irreversible engine

Question ID : 97675510792

Q.16 In case of a refrigerator the working substance does not go through which of the following steps?

- Ans
- ☒ 1. Heat is absorbed by the surrounding and change liquid to vapour
 - ☐ 2. Sudden expansion of the gas from high to low pressure which cools it and converts it into a vapour-liquid mixture
 - ☐ 3. Release of heat by the vapour to the surroundings bringing it to the initial state and completing the cycle .
 - ☐ 4. Heating up the vapour due to external work done on the system .

Question ID : 97675510791

Q.17 Euler identity is represented as _____.

- Ans
- ☐ 1. $i\theta = \cos\theta + i \sin\theta$
 - ☐ 2. $e^{i\theta} = \sin\theta + i\cos\theta$
 - ☒ 3. $e^{i\theta} = \cos\theta + i\sin\theta$
 - ☐ 4. $e^{\theta} = \sin\theta + \cos\theta$

Question ID : 97675510798

Q.18 How many globular cluster are associated within our galaxy?

- Ans
- ☐ 1. about 100
 - ☐ 2. about 400
 - ☐ 3. about 1000
 - ☒ 4. about 150

Question ID : 97675510782

Q.19 The complete group of symmetry for diatomic molecules do not contain the element of the following?

- Ans
- ☐ 1. Reflection symmetry in a horizontal plane passing through the centre of the molecule .
 - ☒ 2. The reflection symmetry in any plan other than vertical passing through the line of atoms
 - ☐ 3. Axial rotational symmetry about the line joining the atoms
 - ☐ 4. Two fold rotational symmetry about any horizontal axis passing the centre of the molecule

Question ID : 97675510800

Q.20 In which process no work is done on or by the gas?

- Ans
- ☐ 1. Isobaric process
 - ☐ 2. Isothermal process
 - ☐ 3. Adiabatic process
 - ☒ 4. Isochroic process

Question ID : 97675510790

Section : Discipline7

Q.1

The operator $\int \varphi^* (D_{op} \Psi) d\tau = \int (D_{op} \varphi)^* \Psi d\tau$ is known as-

- Ans
- ☐ 1. Orthonormal
 - ☐ 2. Hamiltonian
 - ☒ 3. Hermitian
 - ☐ 4. Parity

Question ID : 97675510817

Q.2 Which of the following is not a notable consequence of the uncertainty principle?

- Ans
- ☒ 1. The position of particle is defined in quantum physics
 - ☐ 2. The path of particle is not defined in quantum physics
 - ☐ 3. Atomic oscillators pass a certain amount of energy known as Zero point energy, even at absolute zero temperature
 - ☐ 4. Electrons do not exist inside the nucleus .

Question ID : 97675510814

Q.3 According to the second law of thermodynamics the entropy of the universe :

- Ans
- ☐ 1. Can decrease
 - ☒ 2. Can never decrease
 - ☐ 3. Can be infinity
 - ☐ 4. Can be zero

Question ID : 97675510808

Q.4 The sum of the diagonal element of a matrix is called the _____ of the matrix.

- Ans
- ☐ 1. Inverse
 - ☐ 2. Transpose
 - ☒ 3. Trace
 - ☐ 4. Eigen value

Question ID : 97675510804

Q.5 The principle of relativity is :

- Ans
- ☐ 1. The laws of physics are different in all inertial frames of reference
 - ☒ 2. The laws of physics are the same in all inertial frames of reference
 - ☐ 3. The speed of light should be the same in all uniformly moving systems
 - ☐ 4. The speed of light has same constant value in all inertial frames of reference

Question ID : 97675510810

Q.6 The time independent Schrodinger equation is

- Ans
- ☒ 1. $-\frac{h^2}{2m} \Psi''(x) + v(x) \Psi(x) = E \Psi(x)$
 - ☐ 2. $-\frac{h^2}{2m} \Psi(x) + v(x) \Psi(x) = E \Psi''(x)$
 - ☐ 3. $-\frac{h^2}{2m} \Psi''(x) + v(x) \Psi''(x) = E \Psi''(x)$
 - ☐ 4. $\frac{h^2}{2m} \Psi''(x) + v(x) \Psi(x) = E \Psi(x)$

Question ID : 97675510815

Q.7 Which statement is false for a spherically symmetric potential?

- Ans
- ☒ 1. It depends only upon the radial coordinate r
 - ☒ 2. It is independent of the polar coordinate ϕ
 - ☒ 3. It depends on the polar coordinate
 - ☒ 4. It depends only upon the radial coordinate r and It is independent of the polar coordinate ϕ

Question ID : 97675510818

Q.8 Which of the following is an example of a particle that travels at the speed of a light?

- Ans
- ☒ 1. Proton
 - ☒ 2. Positron
 - ☒ 3. Photon
 - ☒ 4. Electron

Question ID : 97675510811

Q.9 Which one of the following is not the boundary condition for the wave function $\Psi(x)$?

- Ans
- ☒ 1. $\Psi(x)$ should be square-integrable
 - ☒ 2. $\Psi(x)$ should be single valued everywhere
 - ☒ 3. both $\Psi(x)$ and $d\Psi/dx$ should be continuous everywhere
 - ☒ 4. $\Psi(x)$ should be infinite

Question ID : 97675510816

Q.10 The alpha radiation is not used in radiotherapy because:

- Ans
- ☒ 1. It is unable to penetrate human skin
 - ☒ 2. It is toxic to human tissues
 - ☒ 3. It is not easily available
 - ☒ 4. It is extremely costly

Question ID : 97675510805

Q.11 The temperature range covered by an Iron -constantan thermocouple is _____ to _____.

- Ans
- ☒ 1. -220°C to 1300°C
 - ☒ 2. -200°C to 760°C
 - ☒ 3. 0°C to 1700°C
 - ☒ 4. 100°C to 500°C

Question ID : 97675510806

Q.12 Which is not a basic property of similar matrix?

- Ans
- ☒ 1. If A is similar to B and B is similar to C then, A may not be similar to C
 - ☒ 2. Similar matrices have the same characteristic polynomial and hence exactly the same eigen values including multiplicities .
 - ☒ 3. A matrix is similar to itself
 - ☒ 4. A is similar to B if and only if B is similar to A

Question ID : 97675510802

Q.13 What is the normal frequency of L-C circuit?

Ans

☐ 1. $\frac{1}{2\pi} \sqrt{\frac{1}{C}}$

☐ 2. $\frac{1}{2\pi} \sqrt{\frac{C}{L}}$

☒ 3. $\frac{1}{2\pi} \sqrt{\frac{1}{LC}}$

☐ 4. $\frac{1}{2\pi} \sqrt{LC}$

Question ID : 97675510807

Q.14 If the lightest nucleus of hydrogen whose mass is 1.673×10^{-27} kg and radius is 1.2×10^{-15} m, then the density of nuclear matter is -

☐ 1. 2.3×10^{16} kg/m³

☐ 2. 2.3×10^{17} kg/m

☐ 3. 23×10^{17} kg/m

☒ 4. 2.3×10^{17} kg /m³

Question ID : 97675510820

Q.15 Quasars can be observed in many parts of the electromagnetic spectrum except

Ans ☒ 1. Visible ray

☐ 2. Infrared

☐ 3. Gamma rays

☐ 4. Radio

Question ID : 97675510813

Q.16 The relativistic linear momentum of a particle of rest mass m_0 moving with velocity V is defined by:

Ans

☐ 1. $P = m_0 v / (1 + v^2/c^2)^{1/2}$

☒ 2. $P = m_0 v / (1 - v^2/c^2)^{1/2}$

☐ 3. $P = m_0 v / (1 - v^2/c^2)$

☐ 4. $P = -m_0 v / (1 + v^2/c^2)^{1/2}$

Question ID : 97675510812

Q.17 Which is the frame of reference in which Newton's first law holds true?

- Ans
- ☒ 1. Inertial frame
 - ☐ 2. Uniform frame
 - ☐ 3. Internal frame
 - ☐ 4. Interstitial frame

Question ID : 97675510809

Q.18 Complete the following nuclear fission reaction. ${}^1_0\text{n} + {}^{235}_{92}\text{U} \rightarrow {}^{141}_{56}\text{Ba} + \text{_____} + 3{}^1_0\text{n} + 200 \text{ MeV}$

- Ans
- ☐ 1. Ge
 - ☒ 2. Kr
 - ☐ 3. La
 - ☐ 4. Xe

Question ID : 97675510821

Q.19 An electron of mass μ of the atom has an angular momentum L . Since this electron has a charge e and is moving inside the atom then the magnetic moment of the electron is:

- Ans
- ☐ 1. $\mu_L = \frac{e}{\mu} L$
 - ☐ 2. $\mu_L = -\frac{e}{\mu} L$
 - ☐ 3. $\mu_L = \frac{e}{2\mu} L$
 - ☒ 4. $\mu_L = -\frac{e}{2\mu} L$

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Question ID : 97675510819

Q.20 When the two operations of complex conjugation and transposition are carried out one after another on a matrix, the resulting matrix is called :

- Ans
- ☒ 1. Hermitian conjugate
 - ☐ 2. Transposition conjugate
 - ☐ 3. Complex conjugate
 - ☐ 4. Simple conjugate

Question ID : 97675510803

Q.1 The relation between centripetal force and radius of the circle is

Ans

☐ 1. $F_c \propto r^2$

☐ 2. $F_c \propto 1/r$

☒ 3. $F_c \propto 1/r^2$

☐ 4. $F_c \propto r$

Question ID : 97675510828

Q.2 The relation between number density of electron (n) and the Fermi energy (E_F) of metal at $T = 0$ K is given by :

Ans

☐ 1. $n = \frac{2\pi}{3} (8m/h^2)^{3/2} (E_F)^{3/2}$

☒ 2. $n = \frac{\pi}{3} (8m/h^2)^{3/2} (E_F)^{3/2}$

☐ 3. $n = \frac{\pi}{3} (4m/h^2)^{3/2} (E_F)^{3/2}$

☐ 4. $n = \frac{\pi}{4} (8m/h^2)^{3/2} (E_F)^{3/2}$

Question ID : 97675510841

Q.3 The relation between air drag and velocity of the object is :

Ans

☐ 1. Air drag $\propto V$

☐ 2. Air drag $\propto \sqrt{V}$

☒ 3. Air drag $\propto V^2$

☐ 4. Air drag $\propto \frac{1}{V}$

Question ID : 97675510827

Q.4 Lorenz number for sodium metal is

Ans

☐ 1. $2.34 \times 10^{-8} \text{ W } \Omega \text{K}^{-2}$

☐ 2. $2.25 \times 10^{-8} \text{ W } \Omega \text{K}^{-2}$

☒ 3. $2.17 \times 10^{-8} \text{ W } \Omega \text{K}^{-2}$

☐ 4. $2.37 \times 10^{-8} \text{ W } \Omega \text{K}^{-2}$

Question ID : 97675510840

Q.5 The relative strength of electromagnetic force is in the order of _____.

- Ans
- ☐ 1. (10^{-2})
 - ☐ 2. (10^{-3})
 - ☐ 3. (10^{-4})
 - ☒ 4. (10^{-5})

Question ID : 97675510826

Q.6 Which one is not a fundamental force in nature?

- Ans
- ☐ 1. Electroweak force
 - ☐ 2. Strong force
 - ☒ 3. Frictional force
 - ☐ 4. Gravitational force

Question ID : 97675510825

Q.7 The relative biological effectiveness (RBE) of fast neutron is _____.

- Ans
- ☐ 1. 8
 - ☒ 2. 10
 - ☐ 3. 4
 - ☐ 4. 5

Question ID : 97675510823

Q.8 What will be the ratio of acceleration of an electron and a proton, if they are placed in a uniform electric field?

- Ans
- ☒ 1. In a ratio of proton and electron masses
 - ☐ 2. One
 - ☐ 3. zero
 - ☐ 4. In a ratio of electron and proton masses

Question ID : 97675510822

Q.9 If the eccentricity is less than one, then the conic section is

- Ans
- ☐ 1. Hyperbola
 - ☐ 2. Circle
 - ☐ 3. Parabola
 - ☒ 4. Ellipse

Question ID : 97675510831

Q.10 Which method is particularly useful in determining the orientation of a single crystal ?

- Ans
- ☐ 1. Ewald method
 - ☒ 2. Laue method
 - ☐ 3. Bragg method
 - ☐ 4. Powder method

Question ID : 97675510837

Q.11 What will happen, if proton is projected perpendicular to magnetic field?

- Ans
- ☒ 1. It will turn in semicircle
 - ☐ 2. No magnetic field effect on the motion of proton
 - ☐ 3. Proton will move in same direction but will get momentum
 - ☐ 4. Proton will continue to move in the same direction but will never gain momentum

Question ID : 97675510830

Q.12 AVF cyclotrons produce energies beyond _____ for protons .

- Ans
- ☐ 1. 800 MeV
 - ☐ 2. 1000 MeV
 - ☒ 3. 600 MeV
 - ☐ 4. 400 MeV

Question ID : 97675510824

Q.13 Which of the following is an example of non-ohmic resistance?

- Ans
- ☐ 1. Copper wire
 - ☐ 2. Wire of tungsten
 - ☐ 3. Carbon resistor
 - ☒ 4. Diode

Question ID : 97675510832

Q.14 Which type of crystal system is present in potassium dichromate?

- Ans
- ☐ 1. Monoclinic
 - ☒ 2. Triclinic
 - ☐ 3. Orthorhombic
 - ☐ 4. Trigonal

Question ID : 97675510835

Q.15 The relation between crystal scattering factor (f_c), geometrical structure factor (F) and lattice structure factor (S_c) is :

- Ans
- ☐ 1. $F = f_c \times S_c$
 - ☐ 2. $S_c = 2F/f_c$
 - ☐ 3. $S_c = F \times f_c$
 - ☒ 4. $F = f_c/S_c$

Question ID : 97675510836

Q.16 The dimension of the damping factor is:

- Ans
- ☐ 1. $[M^1L^1T^{-1}]$
 - ☒ 2. it's a dimensionless quantity
 - ☐ 3. $[M^2L^1T^{-1}]$
 - ☐ 4. $[M^1L^2T^{-1}]$

Question ID : 97675510833

Q.17 When an object is inverted in space with respect to a point (within it) and still remains invariant is known as _____ symmetry

- Ans
- ☒ 1. Reflection
 - ☒ 2. Inversion
 - ☒ 3. Rotational
 - ☒ 4. Translational

Question ID : 97675510834

Q.18 At high temperatures heat capacity is independent of temperature and for all solid it is equal to: [R- equal to universal gas constant]

- Ans
- ☒ 1. 5R
 - ☒ 2. 3 R
 - ☒ 3. 2R
 - ☒ 4. 4R

Question ID : 97675510838

Q.19 Which one of the following is not an assumption of Drude -Lorentz theory about metals ?

- Ans
- ☒ 1. The interaction between free electrons themselves is too small and can be ignored
 - ☒ 2. Valance electrons behave as free electrons and can move all around the volume of the metal
 - ☒ 3. Free electrons behave as molecules of an ideal gas and obey kinetic theory of gases and the Maxwell Boltzmann distribution law
 - ☒ 4. Negatively charged ions located at the lattice sites offers a uniform potential and influence the motion of free electrons

Question ID : 97675510839

Q.20 Which one is not a feature of motion under central conservative forces?

- Ans
- ☒ 1. The particle always moves in a plane perpendicular to the direction of the angular momentum
 - ☒ 2. The total potential energy is not constant
 - ☒ 3. The total kinetic energy is constant
 - ☒ 4. The angular momentum about the centre of force is constant both in magnitude and direction

Question ID : 97675510829

Section : Discipline9

Q.1 The Michelson interferometer is used as _____

- Ans
- ☒ 1. Extended Monochromatic source
 - ☒ 2. Monochromatic source
 - ☒ 3. Light source
 - ☒ 4. Common light source

Question ID : 97675510857

Q.2 The area of each Fresnel half period zone is nearly equal to _____.

- Ans
- ☐ 1. πb
 - ☐ 2. $\pi \lambda$
 - ☒ 3. $\pi b \lambda$
 - ☐ 4. $b \lambda$

Question ID : 97675510859

Q.3 For a wave motion the relation between total energy (TE) and amplitude (a) of wave is :

- Ans
- ☐ 1. $TE \propto a$
 - ☒ 2. $TE \propto a^2$
 - ☐ 3. $TE \propto 1/a^2$
 - ☐ 4. $TE \propto 1/a$

Question ID : 97675510853

Q.4 Which statement is false for the sclera of the eyeball of human?

- Ans
- ☐ 1. It is an opaque, fibro-elastic capula
 - ☒ 2. It is soft
 - ☐ 3. It withstands the intraocular pressure in the eye
 - ☐ 4. It protects the inner part of the eye

Question ID : 97675510849

Q.5 Which one of the following is not a characteristic of IC LM 380?

- Ans
- ☐ 1. It has internally fixed gain of 50
 - ☐ 2. Output is also short circuit proof
 - ☐ 3. It can work on a wide range of supply voltage from 5 to 22v
 - ☒ 4. Total harmonic distortion is higher than 0.2%

Question ID : 97675510846

Q.6 What is the refractive index of cornea?

- Ans
- ☐ 1. 1.33
 - ☒ 2. 1.38
 - ☐ 3. 1.4
 - ☐ 4. 1.34

Question ID : 97675510851

Q.7 Resolving power of Fabry-Perot interferometer is given by

Ans

☒ 1. $\frac{\lambda}{\Delta\lambda} = 4\pi \cos r \sqrt{F}/4.147\lambda$

☒ 2. $\frac{\lambda}{\Delta\lambda} = \pi h \cos r \sqrt{F}/4.147\lambda$

☒ 3. $\frac{\lambda}{\Delta\lambda} = 4\pi h \cos r \sqrt{F}/4.147\lambda$

☒ 4. $\frac{\lambda}{\Delta\lambda} = \pi h \cos r \sqrt{F}/4.147$

Question ID : 97675510858

Q.8 The differentiator circuit is obtained by replacing R_i (Input Resistance) of an inverting amplifier by a _____.

Ans

☒ 1. Capacitor

☒ 2. Transistor

☒ 3. Rectifier

☒ 4. Diode

Question ID : 97675510845

Q.9 The intensity of the polarised light reaching the detector is given by

Ans

☒ 1. $I(\theta) = I(0) \sin^2\theta$

☒ 2. $I(\theta) = \cos^2\theta$

☒ 3. $I(\theta) = I(0) \cos^2\theta$

☒ 4. $I(\theta) = \sin^2\theta$

Question ID : 97675510852

Q.10 A Lloyd's mirror produces a/an:

Ans

☒ 1. Chromatic fringe

☒ 2. Multichromatic fringe

☒ 3. Double chromatic fringe

☒ 4. Achromatic fringe

Question ID : 97675510855

Q.11 Which is not a suitable difference between Biprism and Lloyd's mirror fringes?

Ans

☒ 1. In biprism, the fringes are circular but in Lloyd's mirror fringes are oval in shape.

☒ 2. The central fringe in biprism is less sharp than that in Lloyd's mirror.

☒ 3. In biprism, the complete pattern of fringes is obtained. In Lloyd's mirror ordinarily, only a few fringes on one side of the central fringe are visible

☒ 4. In biprism, the central fringe is bright, while in Lloyd's mirror it is dark.

Question ID : 97675510854

Q.12 At the very centre of the retina is a small yellowish depression, called fovea which contains_____.

- Ans
- ☐ 1. neither rods nor cones
 - ☐ 2. Rods and cones both
 - ☒ 3. only cones
 - ☐ 4. only rods

Question ID : 97675510850

Q.13 The Hall coefficient of copper at room temperature is:

- Ans
- ☐ 1. $(-1.70 \text{ Vm}^3 \text{ A}^{-1} \text{ Tesla}^{-1})$
 - ☐ 2. $(+0.33 \text{ Vm}^3 \text{ A}^{-1} \text{ Tesla}^{-1})$
 - ☐ 3. $(-0.30 \text{ Vm}^3 \text{ A}^{-1} \text{ Tesla}^{-1})$
 - ☒ 4. $(-0.55 \text{ Vm}^3 \text{ A}^{-1} \text{ Tesla}^{-1})$

Question ID : 97675510842

Q.14 Which is not a performance parameter associated with voltage regulator?

- Ans
- ☒ 1. Load stability
 - ☐ 2. Temperature stability
 - ☐ 3. Ripple rejection
 - ☐ 4. Input regulation

Question ID : 97675510847

Q.15 _____ is not a type of amplifier according to circuit configuration.

- Ans
- ☐ 1. Ground collector
 - ☐ 2. Grounded emitter
 - ☒ 3. Base emitter
 - ☐ 4. Grounded base

Question ID : 97675510843

Q.16 In metal, relaxation time of electron:

- Ans
- ☒ 1. decreases with increase in temperature
 - ☐ 2. Increases with temperature
 - ☐ 3. suddenly changes at 400 K
 - ☐ 4. does not depend upon temperature

Question ID : 97675510848

Q.17 Which of the following is not an advantage of negative feedback?

- Ans
- ☐ 1. It reduces distrotion
 - ☐ 2. It increases the input impedance
 - ☒ 3. It decreases the band width
 - ☐ 4. It improves the stability of amplifier gain

Question ID : 97675510844

Q.18 The central maximum in double slit pattern is _____ times brighter than that in single slit pattern .

- Ans
- ☒ 1. Double
 - ☒ 2. fourth
 - ☒ 3. fifth
 - ☒ 4. thrice

Question ID : 97675510861

Q.19 The diffraction pattern of a circular aperture consists of concentric rings with a central bright disc. The first dark ring appears when :

- Ans
- ☒ 1. $\sin\theta = 2.12\lambda/D$
 - ☒ 2. $\sin\theta = 1.22\lambda/D$
 - ☒ 3. $\sin\theta = 1.34 \lambda/D$
 - ☒ 4. $\sin\theta = 2.22 \lambda/D$

Question ID : 97675510860

Q.20 The diameter of the nth bright ring of Newton's ring is:

- Ans
- ☒ 1. $D_n \propto \sqrt{2n-1}$
 - ☒ 2. $D_n \propto \sqrt{n^2-1}$
 - ☒ 3. $D_n \propto \sqrt{n^2+1}$
 - ☒ 4. $D_n \propto \sqrt{n-1}$

Question ID : 97675510856

Section : Teaching Methodology

Q.1 Which of the following is a characteristic of Learner-centred Performance-Based Assessment?

- Ans
- ☒ 1. Focus is on knowing learning deficit of the learner
 - ☒ 2. Continuous and comprehensive assessment
 - ☒ 3. Assessment of learning
 - ☒ 4. Focus is on learning product and outcome

Question ID : 97675510877

Q.2 Which is not a suitable-criteria for evaluation of a physics textbook?

- Ans
- ☒ 1. Correctness of the content
 - ☒ 2. Paper quality should be better
 - ☒ 3. Appropriateness of language
 - ☒ 4. Promoting students thinking about phenomena experience and knowledge

Question ID : 97675510869

Q.3 Which of the following is not a technique which could be adopted for presenting and introducing of any new concept related to physics?

- Ans
- ☒ 1. Involving students in their homework
 - ☐ 2. Carrying out activities and experiment and raising question
 - ☐ 3. Presenting a problem to the student
 - ☐ 4. Narration stories incident etc

Question ID : 97675510879

Q.4 Which of the following is not included in Dr. Madeline Hunter's research about what effective teachers usually include in their lessons?

- Ans
- ☐ 1. Input
 - ☒ 2. Detailed introduction
 - ☐ 3. Independent practice
 - ☐ 4. Purpose

Question ID : 97675510865

Q.5 What is the topmost level in the Cone of Experience?

- Ans
- ☐ 1. Watch still pictures
 - ☐ 2. Listen to lecture
 - ☒ 3. Participate in a hands-on workshop
 - ☐ 4. Read text

Question ID : 97675510875

Q.6 _____ is known as 'father of observation astronomy'.

- Ans
- ☒ 1. Galileo
 - ☐ 2. Aryabhatta
 - ☐ 3. Aristotle
 - ☐ 4. Kepler

Question ID : 97675510868

Q.7 Which of the following is not a feature of continuous and comprehensive evaluation process in Physics?

- Ans
- ☐ 1. It does not mean more frequent tests and examination
 - ☐ 2. Since teaching learning in a school is a continuous process and assessment is an integral part of this process, so it is essential
 - ☒ 3. Teacher uses only a fixed technique of evaluation
 - ☐ 4. Teacher provides feedback on different aspect of learning

Question ID : 97675510876

Q.8 निम्नलिखित में से कौन सा कार्य शिक्षक को कभी नहीं करना चाहिए?

- Ans
- ☐ 1. मित्रवत होते हुए भी अपने छात्रों से दूरी बनाए रखनी चाहिए
 - ☐ 2. छात्रों के प्रति सहानुभूति रखना
 - ☒ 3. अपने विद्यार्थियों का विश्वास अर्जित करने के लिए अपने विद्यार्थियों की उपस्थिति में उनके सहयोगियों का मज़ाक उड़ाएँ
 - ☐ 4. विद्यार्थी की योग्यताओं/अच्छे कार्यों के लिए बार-बार उसकी प्रशंसा करनी चाहिए।

Question ID : 97675510870

Q.9 निम्नलिखित में से कौनसी एक भौतिकी-शिक्षक की जिम्मेदारी नहीं है?

- Ans
- ☐ 1. छात्रों का निर्धारण और ग्रेडिंग मूल्यांकन।
 - ☐ 2. प्रेरणादायक पाठ तैयार करना।
 - ☐ 3. छात्र की जरूरतों को पहचाना और उनका विश्लेषण करना।
 - ☒ 4. छात्र की शारीरिक शक्ति और कमजोरी को नोटिस करना

Question ID : 97675510863

Q.10 निम्नलिखित में से कौन शिक्षण विधियों के बीच परियोजना पद्धति से जुड़ा है?

- Ans
- ☐ 1. हिल्डा तबा
 - ☐ 2. राल्फ डब्ल्यू टायलर
 - ☐ 3. लॉरेस स्टेनहाउस
 - ☒ 4. विलियम हर्ड किलपैट्रिक

Question ID : 97675510874

Q.11 एक भौतिकी-शिक्षक कक्षा में दृश्य-श्रव्य सामग्री/सहायक सामग्री का उपयोग कर सकता है। यह छात्रों की मदद कैसे कर सकता है?

- 1. यह छात्रों की विषय में जिज्ञासा को बढ़ाएगा
- 2. यह छात्रों का ध्यान विषय से हटा देगा
- 3. यह धीमी गति से सीखने वाले छात्रों की मदद करेगा

- Ans
- ☐ 1. केवल 2 और 3
 - ☐ 2. 1, 2 और 3
 - ☒ 3. केवल 1 और 3
 - ☐ 4. केवल 1 और 2

Question ID : 97675510873

Q.12 निम्नलिखित को ध्यान में रखते हुए -

- 1. सहयोगात्मक शिक्षा
- 2. विचार मंथन
- 3. गृहकार्य

निम्नलिखित में से कौनसी जीवन भर सीखने के लिए शिक्षण अधिगम रणनीतियाँ हैं?

- Ans
- ☐ 1. केवल 2 और 3
 - ☒ 2. केवल 1 और 2
 - ☐ 3. केवल 1 और 3
 - ☐ 4. 1, 2 और 3

Question ID : 97675510881

Q.13 प्रगतिशील शिक्षण सुनिश्चित करने के लिए भौतिकी का शिक्षक निम्नलिखित में से कौन-सी विधि अपना सकता है?

1. पाठ्यपुस्तकों के नए संस्करण का उपयोग करना
2. शिक्षकों के लिए आयोजित कई संगोष्ठियों में भाग लेना

Ans

- ☒ 1. केवल 1
- ☒ 2. दोनों 1 और 2
- ☒ 3. केवल 2
- ☒ 4. न तो 1 और न ही 2

Question ID : 97675510866

Q.14 Which of the following approaches is NOT adopted in taking up a project of physics?

1. Performing experiments
2. Using an interesting available data
3. Engagement in exploration

Ans

- ☒ 1. Only 3
- ☒ 2. Only 1 and 2
- ☒ 3. Neither 1 nor 2 nor 3
- ☒ 4. Only 2

Question ID : 97675510878

Q.15 According to the Blooms's Mastery Learning Strategy students who score _____ marks or more are considered at mastery level.

Ans

- ☒ 1. 0.8
- ☒ 2. 0.75
- ☒ 3. 0.85
- ☒ 4. 0.7

Question ID : 97675510867

Q.16 निम्नलिखित में से कौनसा भौतिकी के परियोजना कार्य के लाभों में से एक है?

Ans

- ☒ 1. वे सीधे जांच योग्य नहीं हैं
- ☒ 2. यह अधिक समय लेने वाली है
- ☒ 3. शिक्षक के लिए पुरस्कारों की कमी
- ☒ 4. यह अंतःविषय गतिविधियों को बढ़ावा देता है

Question ID : 97675510864

Q.17 निम्नलिखित कौशल पर विचार करें -

1. संचार कौशल
 2. सुरक्षा कौशल
 3. साइकोमोटर कौशल
- भौतिकी के शिक्षक के लिए उपरोक्त में से कौन सा आवश्यक है?

Ans

- ☒ 1. केवल 1 और 3
- ☒ 2. 1, 2 और 3
- ☒ 3. केवल 2 और 3
- ☒ 4. केवल 1 और 2

Question ID : 97675510871

Q.18 Which of the following is not a type of project-work in Physics?

Ans

- ☒ 1. Fun
- ☐ 2. Experimental
- ☐ 3. Survey
- ☐ 4. Observational

Question ID : 97675510872

Q.19 Which one is not one of the Pillars of Learning given by the International Commission of Education?

Ans

- ☒ 1. learning individually
- ☐ 2. learning to be
- ☐ 3. learning to do
- ☐ 4. Learning to know

Question ID : 97675510880

Q.20 निम्नलिखित में से कौनसा एक अच्छे भौतिकी शिक्षक का गुण नहीं है?

Ans

- ☒ 1. गणित में औसत ज्ञान
- ☐ 2. विवरण के प्रति चौकस
- ☐ 3. सहनशील और साधन संपन्न
- ☐ 4. खोजी, रचनात्मक और जिज्ञासु

Question ID : 97675510862

