Test Date	10/09/2021
Test Time	4:30 PM - 6:30 PM
Subject	TGT Maths-(Female)

Section : **General Ability**

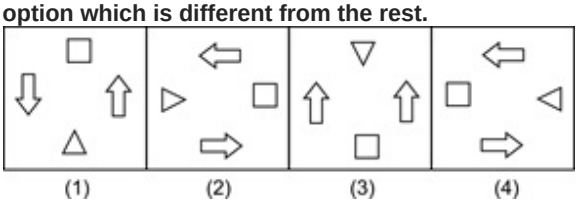
Q.1 **Out of the given options, three are similar in a certain manner. However, one option is NOT like the other three. Select the option which is different from the rest.**

Ans
- ✔ 1. JNQT
- ✘ 2. ZADI
- ✘ 3. QRUZ
- ✘ 4. GHKP

Q.2 **Out of the given options, three are similar in a certain manner. However, one option is NOT like the other three. Select the option which is different from the rest.**

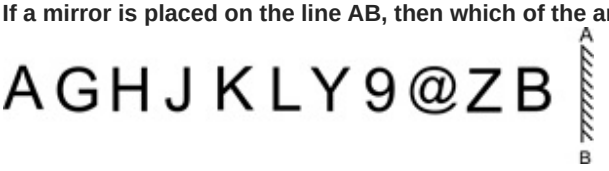
Ans
- ✘ 1. (3, 10, 101)
- ✘ 2. (5, 26, 677)
- ✔ 3. (6, 37, 1368)
- ✘ 4. (9, 82, 6725)

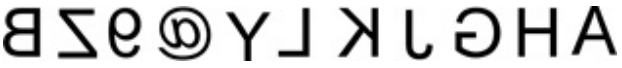
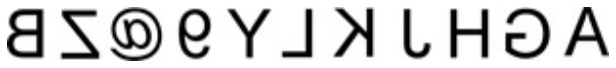
Q.3 **Out of the given options, three are similar in a certain manner. However, one option is NOT like the other three. Select the option which is different from the rest.**



Ans
- ✘ 1. Image 1
- ✘ 2. Image 4
- ✘ 3. Image 2
- ✔ 4. Image 3

Q.4 **If a mirror is placed on the line AB, then which of the answer figure is the correct mirror image of the given figure?**



Ans
- ✘ 1. 
- ✔ 2. 
- ✘ 3. 
- ✘ 4. 

Q.5 **There are five friends P, Q, R, S and T. P is heavier than Q. R is as heavy as Q. T is lighter than R. S is lighter than Q but heavier than T. Who is the lightest friend?**

Ans
- ✘ 1. Q
- ✘ 2. P
- ✔ 3. T
- ✘ 4. S

Q.6 **Select the most logical course of action for the following scenario.**

\You are playing a cricket match with your friend in your locality. When you hit the ball, it went high and breaks the windowpane of a nearby house. You would _____.

Ans

✗ 1. Demand your ball back from the house owner.

✓ 2. Apologize to the house owner and contribute to replacing the broken glass.

✗ 3. Say that it was no fault of yours.

✗ 4. Start fighting with the owner of the house to get your ball back.

Q.7 **J, I, L, M, N and P are sitting in a straight line facing north. N sits to the right of P, who is second to the left of L. M sits to the immediate right of J. There are two persons between I and P. If J sits at the left end of the line, then who sits at the right end of the line?**

Ans

✓ 1. I

✗ 2. M

✗ 3. L

✗ 4. N

Q.8 **In the question one statement is given, followed by two conclusions, I and II. You have to consider the statement to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statement.**
Statement:
T ≥ D; T ≥ K; Z = K
Conclusions:
I. D > Z
II. Z ≥ D

Ans

✓ 1. Either conclusion I or II follow

✗ 2. Only conclusion I follows

✗ 3. Only conclusion II follows

✗ 4. Both conclusion I and II follow

Q.9 **Select the option that is related to the third term on the same basis as the second term is related to the first term.**
Veterinarian : Animals :: Orthopaedic : ?

Ans

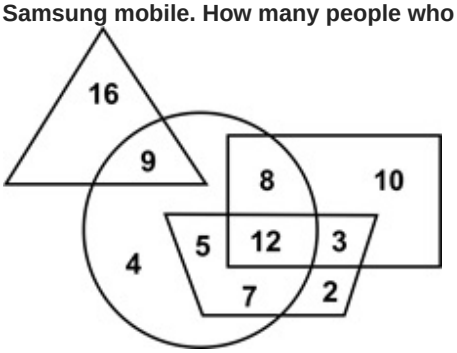
✓ 1. Bone

✗ 2. Brain

✗ 3. Eyes

✗ 4. Kids

Q.10 **In the following Venn Diagram, the triangle represents people who use Oppo mobile, the circle represents people who use Apple mobile, the trapezium represents people who use Asus mobile and the rectangle represents people who use Samsung mobile. How many people who use only Asus mobile?**



Ans

✓ 1. 2

✗ 2. 12

✗ 3. 3

✗ 4. 8

Q.11 **Find the missing number in the given series:**
15, 23, 32, 157, _, 1537

Ans

✗ 1. 500

✗ 2. 412

✓ 3. 206

✗ 4. 298

Q.12 **Sum of Age of A, B and C is 10 years more than B and C and 5 years more than A and C. If sum of age of A, B and C is 25 year, then find the age of C.**

Ans

✗ 1. 12 years

✗ 2. 7 years

✗ 3. 8 years

✓ 4. 10 years

Q.13 **How many pairs of letters are there in the word "BINOCULARS" each of which has as many letters between them as in the English alphabetical series in both forward and backward directions?**

Ans

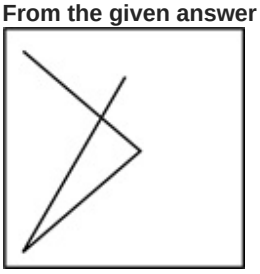
✗ 1. Two

✗ 2. One

✗ 3. Three

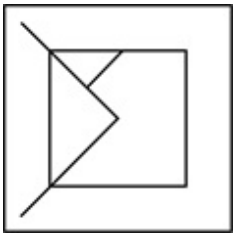
✓ 4. Four

Q.14 **From the given answer figures, select the one in which the question figure is hidden/embedded.**

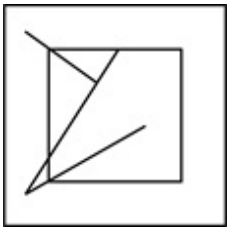


Ans

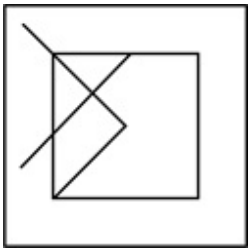
✗ 1.



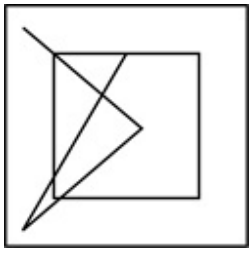
✗ 2.



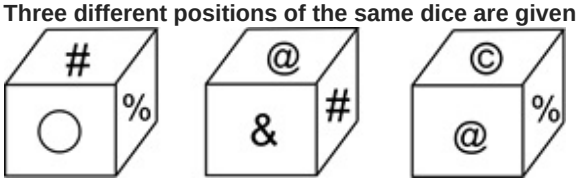
✗ 3.



✓ 4.



Q.15 **Three different positions of the same dice are given below. Which symbol is on the face opposite to face showing '@'?**



Ans

✗ 1. %

✓ 2. O

✗ 3. #

✗ 4. &

Q.16 **Study the following information carefully to answer the given questions:**
A Y 5 V U 3 N L 9 4 # 2 G $ E 8 F C * R 2 Q £ 6 KS
The elements only from N to C are written in the reverse order and other elements are kept unaltered, then which element is right of 14th element from the right?

Ans
✗ 1. G
✗ 2. E
✓ 3. #
✗ 4. 2

Q.17 **Complete the following letter series:**
ABC, CEG, EHK, GKO, _, KQW

Ans
✗ 1. UPO
✗ 2. TWZ
✗ 3. NST
✓ 4. INS

Q.18 **Select the most logical course of action for the following scenario.**

You are getting late for the exam but you saw a girl being unconscious on the road beside her scooty. You will _____.

Ans
✗ 1. Head towards exam venue as you are getting late.
✓ 2. Check for any major wound and sprinkle some water on her face and call an ambulance and then head towards the exam venue.
✗ 3. Look for others on the road to ask them for help and leave for the exam.
✗ 4. Escape from the place as it may lead to some legal trouble of road accident case and you may miss your exam.

Q.19 **Find the wrong term in the given series.**
19200, 4800, 1200, 400, 75, 18.75

Ans
✗ 1. 18.75
✓ 2. 400
✗ 3. 75
✗ 4. 1200

Q.20 **Read the following statements and answer the question on their basis.**
'A + B' means 'A is mother of B'.
'A - B' means 'A is husband of B'.
'A @ B' means 'A is sister of B'.
'A # B' means 'A is son of B'.
Which of the following expression indicates that S is daughter of U?

Ans
✗ 1. U + C @ G # S
✓ 2. S @ G # C — U
✗ 3. U + C @ S # G
✗ 4. S @ G # C + U

Section : **General Awareness**

Q.1 **Which among the following is not a vector quantity?**

Ans
✗ 1. Acceleration
✗ 2. Momentum
✓ 3. Speed
✗ 4. Force

Q.2 **When was the WHO (World Health Organisation) founded?**

Ans
✓ 1. 1948
✗ 2. 1951
✗ 3. 1950
✗ 4. 1949

Q.3 **Which among the following is the molecular formula of water?**

Ans
- ✔ 1. H_2O
- ✘ 2. H_3O
- ✘ 3. H_4O
- ✘ 4. HO

Q.4 **What will be the principle aim of the QUAD group?**

Ans
- ✔ 1. To enhance regional connectivity
- ✘ 2. To enhance trade
- ✘ 3. To enhance proper utilization of resources
- ✘ 4. To enhance industrial output

Q.5 **Ali Akbar Khan was an Indian Hindustani classical musician, known for his virtuosity in playing the _____.**

Ans
- ✘ 1. tambura
- ✘ 2. tabla
- ✔ 3. sarod
- ✘ 4. shenai

Q.6 **Where is 'The roof of the world'?**

Ans
- ✘ 1. Northern Asia
- ✘ 2. Eastern Asia
- ✘ 3. Western Asia
- ✔ 4. Central Asia

Q.7 **In which of the following Schedule of the Constitution, the 'State List' is given?**

Ans
- ✘ 1. 5th
- ✘ 2. 8th
- ✔ 3. 7th
- ✘ 4. 6th

Q.8 **From which of the following states, folk dance of 'Bohada' originated?**

Ans
- ✘ 1. Rajasthan
- ✘ 2. Bihar
- ✔ 3. Maharashtra
- ✘ 4. Gujarat

Q.9 **Which of the following trophies are associated with the game of Basketball?**

Ans
- ✘ 1. B.C.Raj Trophy
- ✘ 2. G.D.Birla Trophy
- ✔ 3. Basalat Jha Trophy
- ✘ 4. Begam Rasul Trophy

Q.10 **According to MoS Finance, which of the following rank India obtained in Forex Reserve Holder in the World as on 25th June 2021?**

Ans
- ✘ 1. 6th
- ✘ 2. 8th
- ✘ 3. 7th
- ✔ 4. 5th

Q.11 **Where is the headquarter of the World Bank?**

Ans
- ✘ 1. New York
- ✔ 2. Washington D.C.
- ✘ 3. Austin
- ✘ 4. Denver

Q.12 **Who is the author of 'A tale of two cities'?**

Ans
- ✔ 1. Charles Dickens
- ✘ 2. John Bunyan
- ✘ 3. Thomas Hardy
- ✘ 4. Alexander Solzhenitsyn

Q.13 **Who is nicknamed Indian Napoleon?**

Ans
- ✘ 1. Chandra Gupta Maurya
- ✘ 2. Akbar
- ✔ 3. Samudragupta
- ✘ 4. Chandragupta II

Q.14 **President is :**

Ans
- ✘ 1. The leader of the Lok Sabha
- ✔ 2. The constitutional head of country
- ✘ 3. Chairperson of the Rajya Sabha
- ✘ 4. The head of council of ministers

Q.15 **Which among the following is the symbol of Silver?**

Ans
- ✘ 1. Sn
- ✘ 2. Pb
- ✘ 3. Hg
- ✔ 4. Ag

Q.16 **Pele' is the professional player of which of the following games?**

Ans
- ✔ 1. Football
- ✘ 2. Cricket
- ✘ 3. Baseball
- ✘ 4. Boxing

Q.17 **Which among the following is the unit of Radiant Flux?**

Ans
- ✘ 1. Joule
- ✘ 2. Ohm
- ✔ 3. Watt
- ✘ 4. Tesla

Q.18 **Who among the following won Gold medal in the Tokyo Paralympics 2020 by winning the women's 10m Air Rifle Standing SH1 event?**

Ans
- ✘ 1. Anjali Bhagawat
- ✔ 2. Avani Lekhara
- ✘ 3. Bhavina Patel
- ✘ 4. Sumit Antil

Q.19 **Which among the following lines, the Germans retreated in 1917?**

Ans
- ✘ 1. Mannerheim Line
- ✘ 2. Durand Line
- ✔ 3. Hindenberg Line
- ✘ 4. Maginot Line

Q.20 **Who has written 'The Time Machine'?**

Ans
- ✘ 1. Victor Hugo
- ✘ 2. Oliver Goldsmith
- ✘ 3. T.S.Eliot
- ✔ 4. H.G.Wells

Section : **Arithmetic Ability**

Q.1 **A dozen socks of Rs. 70 are available at a discount of 10%. Find out how many socks can be bought for Rs. 21.**

Ans
- ✗ 1. 2
- ✓ 2. 4
- ✗ 3. 8
- ✗ 4. 6

Q.2 **What approximate value will come in the place of question mark(?) in the following question?**

199.98% of 54.98 + 24.99% of 799.99 = ? + 64.99% of 399.99

Ans
- ✗ 1. 20
- ✗ 2. 30
- ✓ 3. 50
- ✗ 4. 40

Q.3 **Rajan is older than Samara by 5 years. Five years from now, the respective ratio between Rajan's age and Samara's age will be 7:6. What was Rajan's age 10 years ago?**

Ans
- ✗ 1. 23 years
- ✗ 2. 22 years
- ✗ 3. 25 years
- ✓ 4. 20 years

Q.4 **What will come in the place of question mark(?) in the following question?**
32% of 250 + 68% of 600 = ?% of 175 + 369

Ans
- ✗ 1. 92
- ✗ 2. 98
- ✓ 3. 68
- ✗ 4. 34

Q.5 **A square shaped park with area 400 sq. km has a racing track surrounding it. The width of racing track is 4 km. What is the area of racing track?**

Ans
- ✓ 1. 384 sq. km
- ✗ 2. 784 sq. km
- ✗ 3. 176 sq. km
- ✗ 4. 284 sq. km

Q.6 **What will come in the place of question mark(?) in the following question?**
10(3/4) + 12(5/8) + 7(1/2) = ?/4 + 16

Ans
- ✗ 1. 60.5
- ✗ 2. 58.5
- ✗ 3. 56.5
- ✓ 4. 59.5

Q.7 **The H.C.F. of 0.84, 0.28 and 0.7 is:**

Ans
- ✗ 1. 0.7
- ✓ 2. 0.14
- ✗ 3. 1.4
- ✗ 4. 0.07

Q.8 **If A is 20% elder than B. C is 25% younger than B. D is 40% elder than C. The Difference between the age of eldest and youngest is 9 years. Find out their average age.**

Ans
- ✗ 1. 18 years
- ✗ 2. 22 years
- ✓ 3. 20 years
- ✗ 4. 24 years

Q.9 A student multiplied a number by (3/4) instead of (7/3). What is the percentage error in the calculation?

Ans
- ✔ 1. 67.85%
- ✘ 2. 60.75%
- ✘ 3. 65.75%
- ✘ 4. 61.75%

Q.10 A boat covers 45 km upstream in 5 hours and comes back same distance in 3 hours. Find the speed of the boat in still water.

Ans
- ✘ 1. 3 km/hr
- ✔ 2. 12 km/hr
- ✘ 3. 6 km/hr
- ✘ 4. 15 km/hr

Q.11 A and B contributes Rs. 5000 and Rs. 2000 respectively in a business. A is a sleeping partner and B gets 10% of the profit for management and the rest of the profit is divided in proportion of their capitals. If the profit of A is Rs. 900, then what is the share of B?

Ans
- ✘ 1. Rs. 460
- ✘ 2. Rs. 442
- ✘ 3. Rs. 440
- ✔ 4. Rs. 500

Q.12 A craft takes twice time in rowing a certain distance upstream than downstream. What is the ratio between the craft's speed of rowing in still water and speed of stream?

Ans
- ✔ 1. 3:1
- ✘ 2. 1:3
- ✘ 3. 1:2
- ✘ 4. 2:3

Q.13 The data from a village is collected regarding the weight of people. The average weight of men in the village is 60 kg and average weight of the women is 45 kg. If there are 50 more men than women and total population of the village is 300. What is the difference between the total weight of men and the total weight of women in the village?

Ans
- ✘ 1. 8670 kg
- ✘ 2. 4560 kg
- ✔ 3. 4875 kg
- ✘ 4. 5675 kg

Q.14 The following table shows the total NRI population, percentage of male NRI adults, and the percentage of female NRI adults of six states in the year 2020 who came back to India through Vande Bharat's mission of government.
Note: Total NRI population = Number of male NRI adult + Number of female NRI adult + Number of NRI children.
Find the ratio of the number of male NRI adults and female NRI adults together of Uttar Pradesh to the number of male NRI adults and female NRI adults of Gujarat.

State	NRI Population (in hundreds)	Percentage of Male NRI adults	Percentage of Female NRI adults
Himachal Pradesh	60	40	30
Uttar Pradesh	80	55	35
Bihar	50	45	30
Andhra Pradesh	70	65	20
Kerala	100	40	30
Gujarat	40	60	20

Ans
- ✘ 1. 4:3
- ✘ 2. 3:4
- ✘ 3. 4:9
- ✔ 4. 9:4

Q.15 **A vendor bought pencils at 7 for a rupee. How many for a rupee must he sell to gain 40%?**

Ans
- ✗ 1. 3
- ✗ 2. 6
- ✓ 3. 5
- ✗ 4. 4

Q.16 **Find the greatest number that will divide 53, 93 and 153 so as to leave the same remainder in each case.**

Ans
- ✗ 1. 10
- ✗ 2. 30
- ✓ 3. 20
- ✗ 4. 25

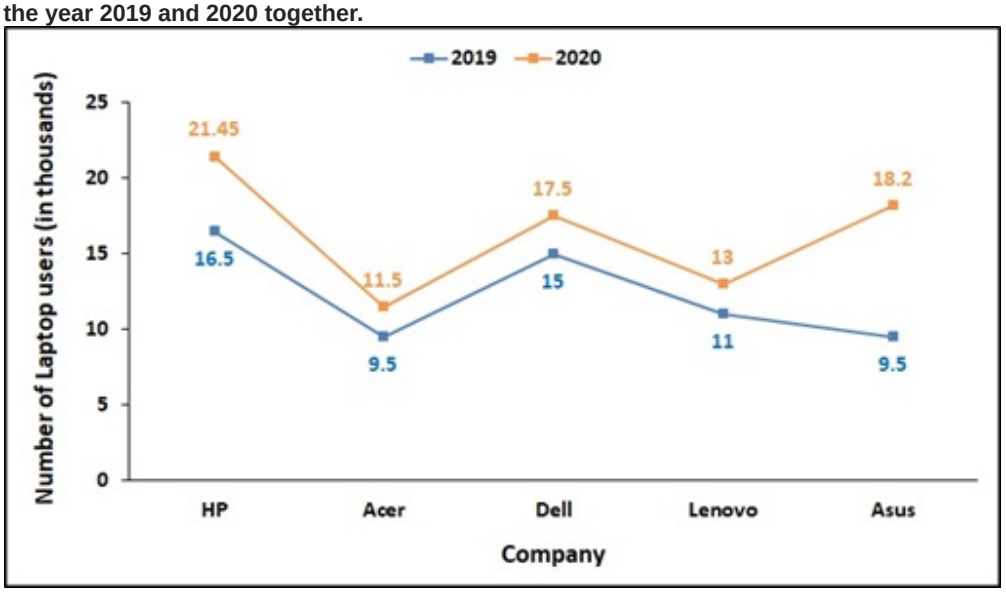
Q.17 **A man took a loan of Rs. 12000 from a bank. Rate of interest offered by the bank was equal to the time period for which on takes the loan. If he paid Rs. 4320 as interest after x years to clear his loan. Find the time for which he took the loan.**

Ans
- ✗ 1. 7 years
- ✓ 2. 6 years
- ✗ 3. 5 years
- ✗ 4. 6.5 years

Q.18 **In an organisation, average salary of all employees is Rs. 6000. The average salary of 7 engineers is Rs. 10000 and the average salary of the rest employees is Rs. 5000. What is the total number of employees in the organisation?**

Ans
- ✓ 1. 35
- ✗ 2. 26
- ✗ 3. 30
- ✗ 4. 25

Q.19 **The graph shows number of laptop users (in thousands) of different company in year 2019 and 2020.**
The total number of Acer users in the year 2019 and 2020 together is what percent of the total number of Lenovo users in the year 2019 and 2020 together.



Ans
- ✗ 1. 75%
- ✗ 2. 85%
- ✓ 3. 87.5%
- ✗ 4. 80%

Q.20 **Manoj and Nandan working together can do a certain amount of job in 45 days and are paid Rs. 12600 for the whole job. The efficiency ratio of Manoj and Nandan is 9 : 5. Find the daily wages of Nandan, if they get paid as per their efficiency.**

Ans
- ✗ 1. Rs. 105
- ✗ 2. Rs. 120
- ✓ 3. Rs. 100
- ✗ 4. Rs. 90

Section : **General English**

Q.1 **Four words are given, out of which only one word is spelt correctly. Choose the correctly spelt word.**

Ans
- ✗ 1. RACOONS
- ✓ 2. RACCOONS
- ✗ 3. RACAONS
- ✗ 4. RACCONS

Q.2 **The sentences below are not complete. There are four options for each question. Choose the best word to complete the sentence.**

The interface is appalling, requiring _____ use of the keyboard to do relatively simple tasks.

Ans
- ✗ 1. insipid
- ✗ 2. amateur
- ✗ 3. clumsy
- ✓ 4. dextrous

Q.3 **The question below consist of a set of labelled sentences. Out of four options given, select the most logical order of the sentences which form a paragraph.**

Agents of erosion majorly include rainfall; bedrock wear in rivers; coastal erosion by the sea and waves; glacial plucking, abrasion, and scour.

P. They also include areal flooding; wind abrasion; groundwater processes; and mass movement processes in steep landscapes like landslides and debris flows.

Q. The rates at which such processes act control how fast a surface is eroded.

R. Typically, physical erosion proceeds fastest on steeply sloping surfaces, and rates may also be sensitive to some climatically-controlled properties.

S. Feedbacks are also possible between rates of erosion and the amount of eroded material that is already carried by, for example, a river or glacier.

The transport of eroded materials from their original location is followed by deposition, which is arrival and emplacement of material at a new location.

Ans
- ✗ 1. QSRP
- ✗ 2. PSRQ
- ✓ 3. PQRS
- ✗ 4. SPRQ

Q.4 **Select the word that is opposite in meaning (ANTONYM) to the word given below.**

CHAUVINISM

Ans
- ✓ 1. UNBIASED
- ✗ 2. NARROWNESS
- ✗ 3. JINGOISM
- ✗ 4. HUMBLE

Q.5 **Select the word that is similar in meaning (SYNONYM) to the word given below.**

HUMDRUM

Ans
- ✗ 1. EVENTFUL
- ✓ 2. MUNDANE
- ✗ 3. EXCITING
- ✗ 4. FUNDAMENTAL

Q.6 **Select the most appropriate meaning of the given idiom.**

Cost an arm and a leg

Ans
- ✗ 1. To take risk.
- ✗ 2. To have met with an accident.
- ✓ 3. Very expensive.
- ✗ 4. To be near death.

Q.7 **Select the word that is similar in meaning (SYNONYM) to the word given below.**

BUNCO

Ans
- ✗ 1.
BUNKER
- ✗ 2.
TENSION
- ✗ 3.
HARMONY
- ✓ 4.
TREASON

Q.8 **Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. Select the option 'no correction required' if the sentence is correct as given.**

Haworth is the railway's headquarters, (boasting off a locomotive depot) where visitors can view the steam leviathans under repair or restoration.

Ans
- ✗ 1. boasting at a locomotive depot
- ✓ 2. boasting a locomotive depot
- ✗ 3. No correction required
- ✗ 4. boast for a locomotive depot

Q.9 **Select the most appropriate meaning of the given proverb.**

A golden key opens any door.

Ans
- ✓ 1. Anything can be accomplished with enough money.
- ✗ 2. To understand someone completely.
- ✗ 3. Work hard to become rich.
- ✗ 4. Sometimes one requires the master key to open locks.

Q.10 **The sentence below has been divided into three parts. Select the part of the sentence that has an error. If the sentence has no error, select the option 'No Error'.**

Heavy machines then / pounded and abrasion them to make / the surfaces smooth and uniform.

Ans
- ✗ 1. No Error
- ✗ 2. Heavy machines then
- ✓ 3. pounded and abrasion them to make
- ✗ 4. the surfaces smooth and uniform.

Q.11 **Select the word segment that substitutes (replaces) the bracketed word segment correctly and completes the sentence meaningfully. Select the option 'no correction required' if the sentence is correct as given.**

He gave the door a hefty kick (for good amount before turning on his) heel and striding back to his bed.

Ans
- ✗ 1. No correction required
- ✓ 2. for good measure before turning on his
- ✗ 3. for good quality before turning on his
- ✗ 4. for good quantity before turning on his

Q.12 **Some parts of a sentence have been jumbled up, and labelled P, Q, R and S. Select the option that gives the correct sequence in which these parts can be rearranged to form a meaningful and grammatically correct sentence.**

The water cycle,

P. biogeochemical cycle that describes

Q. the continuous movement of water on,

R. the hydrological cycle, is

S. also known as the hydrologic cycle or

above and below the surface of the Earth.

Ans

✗ 1. QSRP

✗ 2. PQSR

✓ 3. SRPQ

✗ 4. RPQS

Q.13 **The sentence below has been divided into three parts. Select the part of the sentence that has an error. If the sentence has no error, select the option 'No Error'.**

When we got married, / I have been thinking we maybe had 10 books / each, including novels by Sir Walter Scott.

Ans

✗ 1. each, including novels by Sir Walter Scott.

✗ 2.
When we got married,

✗ 3. No Error

✓ 4. I have been thinking we maybe had 10 books

Q.14 **Fill in the blank with the most appropriate choice.**

So it would appear that from now on I am going to have to be more tactful and _____ in my meanderings

Ans

✗ 1. obloquy

✗ 2. deceptive

✗ 3. rebuilt

✓ 4. diplomatic

Q.15 **Select the most appropriate meaning for the word given below.**

Connoisseur

Ans

✗ 1. A temporary police force.

✓ 2. A person with expert knowledge or training.

✗ 3. A closed political meeting.

✗ 4. A person who is indifferent to the pains and pleasures of life.

Comprehension:

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

The cosmetic industry describes the industry that manufactures and distributes cosmetic products. These include colour cosmetics, like foundation and mascara, skincare such as moisturisers and cleansers, haircare such as shampoos, conditioners and hair colours, and toiletries such as bubble bath and soap. The manufacturing industry is dominated by a small number of multinational corporations that originated in the early 20th century, but the distribution and sale of cosmetics is spread among a wide range of different businesses. The largest cosmetic companies are Johnson & Johnson, L'Oréal Paris, Gillette, Neutrogena, Nivea and Chanel, Inc. The market volume of the cosmetics industry in Europe and the United States is about EUR €70b per year, according to a 2005 publication. The worldwide cosmetics and perfume industry currently generates an estimated annual turnover of US$170 billion (according to Eurostaf – May 2007). Europe is the leading market, representing approximately €63 billion. Within the United States, the state of California has the largest concentration of beauty establishments in America at 25.5%, followed by New Jersey at 8.1% of American beauty establishments.

SubQuestion No : 16

Q.16 **The market volume of the cosmetics industry in Europe and United States is about _____ as per a 2005 publication.**

Ans

✓ 1. €70b per year

✗ 2. €90b per year

✗ 3. €60b per year

✗ 4. €70m per year

Comprehension:

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

The cosmetic industry describes the industry that manufactures and distributes cosmetic products. These include colour cosmetics, like foundation and mascara, skincare such as moisturisers and cleansers, haircare such as shampoos, conditioners and hair colours, and toiletries such as bubble bath and soap. The manufacturing industry is dominated by a small number of multinational corporations that originated in the early 20th century, but the distribution and sale of cosmetics is spread among a wide range of different businesses. The largest cosmetic companies are Johnson & Johnson, L'Oréal Paris, Gillette, Neutrogena, Nivea and Chanel, Inc. The market volume of the cosmetics industry in Europe and the United States is about EUR €70b per year, according to a 2005 publication. The worldwide cosmetics and perfume industry currently generates an estimated annual turnover of US$170 billion (according to Eurostaf – May 2007). Europe is the leading market, representing approximately €63 billion. Within the United States, the state of California has the largest concentration of beauty establishments in America at 25.5%, followed by New Jersey at 8.1% of American beauty establishments.

SubQuestion No : 17

Q.17 **In the United States which state has the highest concentration of beauty establishments?**

Ans

✗ 1. New Jersey

✗ 2. Florida

✗ 3. Lowa

✓ 4. California

Comprehension:

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

The cosmetic industry describes the industry that manufactures and distributes cosmetic products. These include colour cosmetics, like foundation and mascara, skincare such as moisturisers and cleansers, haircare such as shampoos, conditioners and hair colours, and toiletries such as bubble bath and soap. The manufacturing industry is dominated by a small number of multinational corporations that originated in the early 20th century, but the distribution and sale of cosmetics is spread among a wide range of different businesses. The largest cosmetic companies are Johnson & Johnson, L'Oréal Paris, Gillette, Neutrogena, Nivea and Chanel, Inc. The market volume of the cosmetics industry in Europe and the United States is about EUR €70b per year, according to a 2005 publication. The worldwide cosmetics and perfume industry currently generates an estimated annual turnover of US$170 billion (according to Eurostaf – May 2007). Europe is the leading market, representing approximately €63 billion. Within the United States, the state of California has the largest concentration of beauty establishments in America at 25.5%, followed by New Jersey at 8.1% of American beauty establishments.

SubQuestion No : 18

Q.18 **What is the meaning of 'market volume' from the given passage?**

Ans

✗ 1. Total number of shares.

✗ 2. Total income of the companies.

✗ 3. The total profit.

✓ 4. The total volume of transactions over a specific period.

Comprehension:

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

The cosmetic industry describes the industry that manufactures and distributes cosmetic products. These include colour cosmetics, like foundation and mascara, skincare such as moisturisers and cleansers, haircare such as shampoos, conditioners and hair colours, and toiletries such as bubble bath and soap. The manufacturing industry is dominated by a small number of multinational corporations that originated in the early 20th century, but the distribution and sale of cosmetics is spread among a wide range of different businesses. The largest cosmetic companies are Johnson & Johnson, L'Oréal Paris, Gillette, Neutrogena, Nivea and Chanel, Inc. The market volume of the cosmetics industry in Europe and the United States is about EUR €70b per year, according to a 2005 publication. The worldwide cosmetics and perfume industry currently generates an estimated annual turnover of US$170 billion (according to Eurostaf – May 2007). Europe is the leading market, representing approximately €63 billion. Within the United States, the state of California has the largest concentration of beauty establishments in America at 25.5%, followed by New Jersey at 8.1% of American beauty establishments.

SubQuestion No : 19

Q.19 **According to the passage, which of the following is not one of largest cosmetic company in the world?**

Ans

✗ 1. Johnson & Johnson

✗ 2. L'Oréal Paris

✗ 3. Chanel

✓ 4. Dolce & Gabbana

Comprehension:

A passage is given with 5 questions following it. Read the passage carefully and choose the best answer to each question out of the four alternatives.

The cosmetic industry describes the industry that manufactures and distributes cosmetic products. These include colour cosmetics, like foundation and mascara, skincare such as moisturisers and cleansers, haircare such as shampoos, conditioners and hair colours, and toiletries such as bubble bath and soap. The manufacturing industry is dominated by a small number of multinational corporations that originated in the early 20th century, but the distribution and sale of cosmetics is spread among a wide range of different businesses. The largest cosmetic companies are Johnson & Johnson, L'Oréal Paris, Gillette, Neutrogena, Nivea and Chanel, Inc. The market volume of the cosmetics industry in Europe and the United States is about EUR €70b per year, according to a 2005 publication. The worldwide cosmetics and perfume industry currently generates an estimated annual turnover of US$170 billion (according to Eurostaf – May 2007). Europe is the leading market, representing approximately €63 billion. Within the United States, the state of California has the largest concentration of beauty establishments in America at 25.5%, followed by New Jersey at 8.1% of American beauty establishments.

SubQuestion No : 20

Q.20 **What do you understand by 'California has the largest concentration of beauty establishments in America'?**

Ans

✗ 1. California has the maximum raw material required therefore the companies are based there.

✗ 2. California has the maximum sale of beauty products.

✓ 3. Largest number of cosmetic companies in America are based in California.

✗ 4. California has the highest number of customers.

Section : **General Hindi**

Q.1 **निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो शुद्ध वाक्य का सबसे अच्छा विकल्प है।**

Ans

✗ 1. प्रत्येक भारतवासी भारतीय एकता को सबसे बड़ा सिपाही है|

✗ 2. हर एक प्रत्येक भारतवासी भारतीय एकता का सबसे बड़ा सिपाही है|

✗ 3. प्रत्येक भारतवासी भारतीय एकता का पूरा सबसे बड़ा सिपाही है|

✓ 4. प्रत्येक भारतवासी भारतीय एकता का सबसे बड़ा सिपाही है|

Q.2 **निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो शुद्ध शब्द का सही विकल्प है।**

Ans

✗ 1. प्रवत्तियां

✓ 2. प्रवृत्तियाँ

✗ 3. पवृत्तियाँ

✗ 4. प्रवृतीयाँ

Q.3 **निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो क्रिया के भेद वाला सही विकल्प हो।**
पिता अपनी पुत्री से गीता पढ़वाते हैं।

Ans

✓ 1. प्रेरणार्थक

✗ 2. पूर्वकालिक

✗ 3. संयुक्त

✗ 4. नामधातु

Q.4 **निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो दिए गए शब्द के समानार्थी शब्द का विकल्प नहीं है।**
साधु -

Ans

✗ 1. यति

✗ 2. अवधूत

✗ 3. मुनि

✓ 4. रम्य

Q.5 **निम्नलिखित प्रश्न में, चार विकल्पों में से, उस सही विकल्प का चयन करें जो वाक्यांशों के लिए एक शब्द का विकल्प हो।**
रंगमंच पर पर्दे के पीछे का स्थान

Ans

✓ 1. नेपथ्य

✗ 2. धीवर

✗ 3. धुंध

✗ 4. स्थान

Q.6 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो भाववाचक संज्ञा का सही विकल्प नहीं है।

Ans
- ✔ 1. फैलाना
- ✘ 2. भिडंत
- ✘ 3. तेज़ी
- ✘ 4. महक

Q.7 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो सही वाक्य भेद का विकल्प हो।
वह संतुष्ट था इसलिए उसने कभी शिकायत नहीं की।

Ans
- ✘ 1. मिश्र वाक्य
- ✔ 2. संयुक्त वाक्य
- ✘ 3. सरल वाक्य
- ✘ 4. इच्छावाचक वाक्य

Q.8 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो विराम चिह्न युक्त वाक्य का सही विकल्प हो।

Ans
- ✔ 1. संज्ञा के मुख्य तीन भेद होते हैं:- व्यक्तिवाचक, जातिवाचक, भाववाचक|
- ✘ 2. संज्ञा के मुख्य तीन भेद होते हैं व्यक्तिवाचक, जातिवाचक, भाववाचक|
- ✘ 3. संज्ञा के मुख्य तीन भेद होते हैं:- व्यक्तिवाचक जातिवाचक भाववाचक|
- ✘ 4. संज्ञा के मुख्य तीन भेद होते हैं व्यक्तिवाचक, जातिवाचक, भाववाचक

Q.9 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो दिए गए वाक्य के लिए पक्ष के भेद का सबसे अच्छा विकल्प है।
अब तो भूख बढ़ती ही जा रही है!

Ans
- ✔ 1. प्रगतिद्योतक
- ✘ 2. नित्यताद्योतक
- ✘ 3. अभ्यासद्योतक
- ✘ 4. पूर्णताद्योतक

Q.10 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो दी गई मुहावरे का सही अर्थ वाला विकल्प है।
बेतरह टूट पड़ना -

Ans
- ✔ 1. बड़े जोर से आक्रमण करना
- ✘ 2. कुछ हानि न होना
- ✘ 3. बुरी आदत डालना
- ✘ 4. बचना

Q.11 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो अव्यय के भेद का सही विकल्प हो।
धन के बिना व्यवसाय चलाना कठिन है।

Ans
- ✘ 1. समुच्चयबोधक
- ✔ 2. संबंधबोधक
- ✘ 3. निपात
- ✘ 4. क्रियाविशेषण

Q.12 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो दिए गए लोकोक्ति का सही अर्थ वाला विकल्प है।
चोली दमन का साथ -

Ans
- ✘ 1. थोड़े समय का सुख
- ✘ 2. अपनी बुराई दिखाई न देना
- ✔ 3. परस्पर घनिष्ठ संबंध होना
- ✘ 4. आपसी फूट भयानक होता है

Q.13 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो दी गई मुहावरे का सही अर्थ वाला विकल्प है।
अपना सा मुँह लेकर रह जाना -

Ans
- ✘ 1. दुखी होना
- ✘ 2. युद्ध करना
- ✔ 3. लज्जित होना
- ✘ 4. परिश्रम करना

Q.14 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो विलोम शब्द का सबसे अच्छा विकल्प है।

अल्पज्ञ

Ans
- ✗ 1. वितर
- ✓ 2. बहुज्ञ
- ✗ 3. दीर्घायु
- ✗ 4. प्रवर

Q.15 निम्नलिखित प्रश्न में, चार विकल्पों में से, उस विकल्प का चयन करें जो दिए गए वाक्य के लिए वृत्ति के भेद का सबसे अच्छा विकल्प है।
दिया मधुर गीत गा रही है|

Ans
- ✗ 1. संदेहार्थ
- ✓ 2. निश्चयार्थ
- ✗ 3. संकेतार्थ
- ✗ 4. संभावनार्थ

Comprehension:

नीचे दिए गये गद्यांश के बाद 5 प्रश्न दिए गये हैं। इस गद्यांश को ध्यानपूर्वक पढ़ें और चार विकल्पों में से प्रत्येक प्रश्न का सर्वोत्तम उत्तर चुनें।
धर्म एक व्यापक शब्द है। मजहब, मत, पंथ, या संप्रदाय सीमित रूप हैं। संसार के सभी धर्म मूल रूप से एक ही हैं। सभी मनुष्य के साथ सद्व्यवहार सिखाते हैं। ईश्वर किसी विशेष धर्म या जाति का नहीं। सभी प्राणियों में एक प्राण स्पंदन होता है। उसके रक्त का रंग भी एक ही है। सुख- दुःख का भाव बोध भी उनमें एक जैसा है। आकृति और वर्ण, वेशभूषा और रीति-रिवाज तथा नाम ये सभी ऊपरी वस्तुएँ हैं। ईश्वर ने मनुष्य या इंसान को बनाया है और इंसान ने बनाया है धर्म या मजहब को| ध्यान रहे मानवता या इंसानियत से बड़ा धर्म या मजहब दूसरा कोई नहीं। वह मिलना सिखाता है, अलगाव नहीं। धर्म तो एकता का द्योतक है।

SubQuestion No : 16

Q.16 अनुच्छेद के अनुसार आकृति और वर्ण, वेशभूषा और रीति-रिवाज तथा नाम इन सभी को किसकी संज्ञा दी गई है?

Ans
- ✗ 1. खास वस्तु की
- ✗ 2. अत्यंत आवश्यकता की
- ✓ 3. ऊपरी वस्तुओं की
- ✗ 4. सद्व्यवहार की

Comprehension:

नीचे दिए गये गद्यांश के बाद 5 प्रश्न दिए गये हैं। इस गद्यांश को ध्यानपूर्वक पढ़ें और चार विकल्पों में से प्रत्येक प्रश्न का सर्वोत्तम उत्तर चुनें।
धर्म एक व्यापक शब्द है। मजहब, मत, पंथ, या संप्रदाय सीमित रूप हैं। संसार के सभी धर्म मूल रूप से एक ही हैं। सभी मनुष्य के साथ सद्व्यवहार सिखाते हैं। ईश्वर किसी विशेष धर्म या जाति का नहीं। सभी प्राणियों में एक प्राण स्पंदन होता है। उसके रक्त का रंग भी एक ही है। सुख- दुःख का भाव बोध भी उनमें एक जैसा है। आकृति और वर्ण, वेशभूषा और रीति-रिवाज तथा नाम ये सभी ऊपरी वस्तुएँ हैं। ईश्वर ने मनुष्य या इंसान को बनाया है और इंसान ने बनाया है धर्म या मजहब को| ध्यान रहे मानवता या इंसानियत से बड़ा धर्म या मजहब दूसरा कोई नहीं। वह मिलना सिखाता है, अलगाव नहीं। धर्म तो एकता का द्योतक है।

SubQuestion No : 17

Q.17 इस अनुच्छेद का कोई उपयुक्त शीर्षक-

Ans
- ✗ 1. अनेकता सबसे बड़ा धर्म
- ✓ 2. मानवता सबसे बड़ा धर्म
- ✗ 3. दिखावा सबसे बड़ा धर्म
- ✗ 4. एकाकीपन सबसे बड़ा धर्म

Comprehension:

नीचे दिए गये गद्यांश के बाद 5 प्रश्न दिए गये हैं। इस गद्यांश को ध्यानपूर्वक पढ़ें और चार विकल्पों में से प्रत्येक प्रश्न का सर्वोत्तम उत्तर चुनें।
धर्म एक व्यापक शब्द है। मजहब, मत, पंथ, या संप्रदाय सीमित रूप हैं। संसार के सभी धर्म मूल रूप से एक ही हैं। सभी मनुष्य के साथ सद्व्यवहार सिखाते हैं। ईश्वर किसी विशेष धर्म या जाति का नहीं। सभी प्राणियों में एक प्राण स्पंदन होता है। उसके रक्त का रंग भी एक ही है। सुख- दुःख का भाव बोध भी उनमें एक जैसा है। आकृति और वर्ण, वेशभूषा और रीति-रिवाज तथा नाम ये सभी ऊपरी वस्तुएँ हैं। ईश्वर ने मनुष्य या इंसान को बनाया है और इंसान ने बनाया है धर्म या मजहब को| ध्यान रहे मानवता या इंसानियत से बड़ा धर्म या मजहब दूसरा कोई नहीं। वह मिलना सिखाता है, अलगाव नहीं। धर्म तो एकता का द्योतक है।

SubQuestion No : 18

Q.18 इनमें से कौन-सा इंसान का विलोम शब्द है?

Ans
- ✓ 1. हैवान
- ✗ 2. व्यक्ति
- ✗ 3. ईश्वर
- ✗ 4. मनुष्य

Comprehension:

नीचे दिए गये गद्यांश के बाद 5 प्रश्न दिए गये हैं। इस गद्यांश को ध्यानपूर्वक पढ़ें और चार विकल्पों में से प्रत्येक प्रश्न का सर्वोत्तम उत्तर चुनें।
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SubQuestion No : 19

Q.19 **धर्म को किसने बनाया है?**

Ans
- ✔ 1. इन्सान
- ✘ 2. सोच
- ✘ 3. प्रकृति
- ✘ 4. ईश्वर

Comprehension:

नीचे दिए गये गद्यांश के बाद 5 प्रश्न दिए गये हैं। इस गद्यांश को ध्यानपूर्वक पढ़ें और चार विकल्पों में से प्रत्येक प्रश्न का सर्वोत्तम उत्तर चुनें।
धर्म एक व्यापक शब्द है। मजहब, मत, पंथ, या संप्रदाय सीमित रूप हैं। संसार के सभी धर्म मूल रूप से एक ही हैं। सभी मनुष्य के साथ सद्व्यवहार सिखाते हैं। ईश्वर किसी विशेष धर्म या जाति का नहीं। सभी प्राणियों में एक प्राण स्पंदन होता है। उसके रक्त का रंग भी एक ही है। सुख- दुःख का भाव बोध भी उनमें एक जैसा है। आकृति और वर्ण, वेशभूषा और रीति-रिवाज तथा नाम ये सभी ऊपरी वस्तुएँ हैं। ईश्वर ने मनुष्य या इंसान को बनाया है और इंसान ने बनाया है धर्म या मजहब को| ध्यान रहे मानवता या इंसानियत से बड़ा धर्म या मजहब दूसरा कोई नहीं। वह मिलना सिखाता है, अलगाव नहीं। धर्म तो एकता का द्योतक है।

SubQuestion No : 20

Q.20 **धर्म को किसका द्योतक कहा गया है?**

Ans
- ✘ 1. सुखी जीवन
- ✘ 2. एकाकी जीवन
- ✘ 3. अनेकता
- ✔ 4. एकता

Section : **Discipline1**

Q.1 **If A is a square matrix then which of the following is false -**

Ans
- ✘ 1. $|A^{\theta}| = |A|^{\theta}$
- ✘ 2. $|A^{-1}|^{T} = |A^{T}|^{-1}$
- ✘ 3. $|A^{T}| = |A|$
- ✔ 4. $(AB)^{-1} = A^{-1}B^{-1}$

Q.2 **If a, b ϵN and aRb if gcd(a, b) ≠1 then which of the following is true.**

Ans
- ✘ 1. R is not symmetric relation
- ✘ 2. R is Reflexive
- ✘ 3. R is an equivalence relation
- ✔ 4. R is not Reflexive

Q.3 **If 7^{100} is divided by 8 then remainder is**

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

Q.4 **If AB = A and BA = B then what can be said about A and B.**

Ans
- ✘ 1. Only B is Idempotent
- ✘ 2. Only A is Idempotent
- ✔ 3. Both are Idempotent
- ✘ 4. Both are not Idempotent

Q.5 **Number of zeros in, 1000! Is**

Ans
- ✘ 1. 248
- ✘ 2. 30
- ✔ 3. 249
- ✘ 4. 25

Q.6 **The area of the surface obtained by rotating the circle r = 2Sinθ about y - axis is -**

Ans
- ✗ 1. 3π
- ✗ 2. 2 π
- ✓ 3. 4 π
- ✗ 4. 5 π

Q.7 **If A and B is square real matrix then which of the following is correct.**

Ans
- ✓ 1. AB is not necessarily symmetric
- ✗ 2. $A-A^T$ is always symmetric
- ✗ 3. AB is always symmetric
- ✗ 4. $A+A^T$ is always skew-symmetric

Q.8 **The graph of r = a(1 +Sinθ) is -**

Ans
- ✗ 1. Symmetric about y = x
- ✗ 2. Not Symmetric
- ✓ 3. Symmetric about y - axis
- ✗ 4. Symmetric about x - axis

Q.9 **z= (7+ 2i)n + (7 - 2i)n, n ϵ N then which of the following option is correct.**

Ans
- ✓ 1. Z is Real for all Naturals
- ✗ 2. Z is Purely imaginary
- ✗ 3. Z is Real only for odd n
- ✗ 4. Z is Real only for even n

Q.10 **If A and B are two sets such that A∩B = m then number of two sided relation is-**

Ans
- ✗ 1. 2^m
- ✓ 2. $2^{m\times m}$
- ✗ 3. m^2
- ✗ 4. m

Q.11 **The least positive integer m for which $(\sqrt{3} - i)^m$ is real and positive.**

Ans
- ✗ 1. M = 4
- ✓ 2. M = 6
- ✗ 3. M = 1
- ✗ 4. M = 2

Q.12 **If derivative of <df/dx, df/dy> = <3+2xy, x^2-3y^2 > then value of f(x, y) is:**

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

Q.13 **Formula for arc length is -**

Ans
- ✗ 1. $\int_a^b\sqrt{[f'(x)]}dx$
- ✗ 2. $\int_a^b[f'(x)]dx$
- ✗ 3. $\int\sqrt{(1+x)}dx$
- ✓ 4. $\int_a^b\sqrt{1+[f'(x)]^2}dx$

Q.14 **The graph of the equation r = Sin4θ is**

Ans
- ✓ 1. Eight leaved Rose
- ✗ 2. Five leaved Rose
- ✗ 3. Four leaved Rose
- ✗ 4. Ten leaved Rose

Q.15 If S = {f|f : N→{0,1}} then cardinality of S is -

Ans
- ✗ 1. Finite
- ✓ 2. $2^{x_o}=c$
- ✗ 3. Xo
- ✗ 4. Countable

Q.16 Graph of the curve y = (x-1)(x-2) decreases when

Ans
- ✗ 1. x = 2
- ✗ 2. x < 1/2
- ✓ 3. x < 3/2
- ✗ 4. x > 3/2

Q.17 The number of solutions of 2cosx = |sinx| when x ϵ[0, 4π]

Ans
- ✓ 1. 4
- ✗ 2. 5
- ✗ 3. 6
- ✗ 4. 3

Q.18 The angle between the curves <t, 1-t, 3 + t^2> and <3 -t, t-2, t^2> is:

Ans
- ✗ 1. cosθ= (√3/2)
- ✓ 2. cosθ= (1/√3)
- ✗ 3. cosθ= (2/√3)
- ✗ 4. cosθ= √3

Q.19 The set of real number R is uncountable i.e., there is no bijection $N_o \rightarrow R$, is -

Ans
- ✗ 1. Mean value theorem
- ✓ 2. Cantor's theorem
- ✗ 3. Green's theorem
- ✗ 4. continuity theorem

Q.20 The second derivative of the graph tells you the _____ of the graph at a point.

Ans
- ✗ 1. parabolic properties
- ✗ 2. graphing
- ✗ 3. convexity
- ✓ 4. concavity

Section : **Discipline2**

Q.1 Any equation contains n-orbitary constants then the order of differential equation derived from it is -

Ans
- ✗ 1. 2
- ✗ 2. n+1
- ✓ 3. n
- ✗ 4. n-1

Q.2 Given functions f(x)=sin x, g(x)=cos x, h(x)= sin2x then The Wronskian of given equation is-

Ans
- ✗ 1. The Wronskian of given equation is 3cos(2x)
- ✗ 2. The Wronskian of given equation is sin(2x)
- ✓ 3. The Wronskian of given equation is 3sin(2x)
- ✗ 4. The Wronskian of given equation is identically zero.

Q.3 Given series $S_n= \sum \sin(n\pi/3)$ then which of the following is correct.

Ans
- ✓ 1. (Sn) is not convergent
- ✗ 2. limSup(Sn) =∞
- ✗ 3. liminf(Sn) = -∞
- ✗ 4. (Sn) is convergent

Q.4 **If the rate of growth is proportional to the amount x of the substance present and if dx/dt = kx then x is equal to (with C1 constant)**

Ans

✗ 1. C1 e^{2kt}

✗ 2. C1 e^{-2kt}

✗ 3. C1 e^{-kt}

✓ 4. C1 e^{kt}

Q.5 **Determine y_0 such that the solution of the differential equation. $y' - y = 1 - e^{-x}$, $y(0)=y_0$, has a finite limit as $x \to \infty$**

Ans

✗ 1. $y_0 = 2$

✓ 2. $y_0 = -1/2$

✗ 3. $y_0 = 1/2$

✗ 4. $y_0 = 0$

Q.6 **How many types of mathematical models are there-**

Ans

✗ 1. 1

✗ 2. 3

✗ 3. 4

✓ 4. 2

Q.7 **A system by a set of variables and a set of equations that establish relationships between the variables is-**

Ans

✗ 1. Algebra

✗ 2. Multivariate calculus

✗ 3. Theory of real functions

✓ 4. Mathematical model

Q.8 **If $< a_n > = < 2^{-n}.n^2 >$ then the limit of $< a_n >$ as $n \to \infty$ is:**

Ans

✗ 1. 1

✓ 2. 0

✗ 3. ∞

✗ 4. -1

Q.9 **If $\sum a_n$ is convergent series of positive terms then $\sum a_n/(1+a_n)$ is:**

Ans

✗ 1. None of these above

✓ 2. Convergent

✗ 3. Divergent

✗ 4. Sum is not finite

Q.10 **Which of the following is false**

Ans

✗ 1. Set of natural number N is countable

✗ 2. Close interval [0, 1] is uncountable

✗ 3. Set of Real number R is uncountable

✓ 4. Set of natural number N is Uncountable

Q.11 **The solution of the differential equation y" + 4y = 0 Subject to y(0) = 1, y'(0) = 2 is**

Ans

✗ 1. sin(2x)-cos(2x)

✗ 2. sin(2x)+ 1

✗ 3. cos (2x) + 2x

✓ 4. sin(2x) + cos(2x)

Q.12 **All real solutions of the differential equation y"+2ay'+by = cos(x) (Where a & b are real constants) are periodic if -**

Ans

✗ 1. a = 1 and b = 0

✗ 2. a = 0 and b = 1

✓ 3. a = 1 and b ≠ 0

✗ 4. a = 0 and b ≠ 1

Q.13 **If lim(x-x/x) then what can be said about limit as x $\to \infty$?**

Ans
- ✗ 1. Left hand limit is 0
- ✗ 2. Limit exist
- ✗ 3. Right hand limit is 2
- ✓ 4. Limit does not exist

Q.14 **Given IVP y'= 2√y, y (1) = 0 which one is correct in a neighbourhood of 0 ?**

Ans
- ✓ 1. Solution exist but not uniquely
- ✗ 2. None of these.
- ✗ 3. It has no solution.
- ✗ 4. It has unique solution.

Q.15 **Let $< a_n >$ = {-2, -3, -1, 0, 1, 2, 1, 0, 1, 0 ….} then which is true about $< a_n >$?**

Ans
- ✗ 1. is convergent.
- ✗ 2. 1' is only limit point of A.
- ✓ 3. Limit point of A is '0' and '1'
- ✗ 4. 0' is only limit point of A.

Q.16 **If y_1 & y_2 are two linearly independent solutions of second order differential equation then which is correct.**

Ans
- ✗ 1. $W(y_1, y_2) > 0$, for all x
- ✗ 2. $W(y_1, y_2) = 0$
- ✓ 3. $W(y_1, y_2) \neq 0$
- ✗ 4. $W(y_1, y_2) < 0$, for all x

Q.17 **If A=4, B= 3, then the number of onto relations from A to B is:**

Ans
- ✓ 1. 36
- ✗ 2. 81
- ✗ 3. 35
- ✗ 4. 12

Q.18 **The series $\sum(-1)^n.n$, (where $n \epsilon N$)**

Ans
- ✗ 1. convergent
- ✓ 2. not convergent
- ✗ 3. is bounded
- ✗ 4. finite

Q.19 **Let $< a_n >$ be sequence defined as $a_1 > 0$, $a_n+1 = \{ a_n+(2/ a_n)\}/2$, $n \geq 1$ then $\lim(a_n)$ as $n \to \infty$ is?**

Ans
- ✗ 1. 2
- ✗ 2. √3
- ✗ 3. 3
- ✓ 4. √2

Q.20 **If A be the set containing 6 elements and B be the set containing 2 elements. Then total number of functions from A to B is**

Ans
- ✓ 1. 64
- ✗ 2. 60
- ✗ 3. 16
- ✗ 4. 46

Section : **Discipline3**

Q.1 **Expand $f(x) = x^4 - 5x^3 + 5x^2 + x + 2$ in powers of (x - 2) then the coefficient of $(x-2)^4$ is**

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

Q.2 **If $f(x, y) = x^3 + y^3 - 3x - 12y + 40$ then which is true.**

Ans

✗ 1. (0, 0) is critical point.

✗ 2. (1, 2) is local maxima point.

✗ 3. (-1, -2) is local minima point.

✓ 4. (-1, 2) and (1, -2) are saddle points.

Q.3 **Let f: R→R defined by $f(x) = x^6-1$, if $x \in Q$, and $f(x)=1-x^6$, if $x \in Q^c$ then which is true about f(x).**

Ans

✗ 1. f(x) is continuous only at point x= -1

✓ 2. f(x) is continuous at x=1, -1 only.

✗ 3. f(x) is continuous for all R

✗ 4. f(x) is continuous only at point x=1

Q.4 **Value of the integral $\int x^2dx+(x+y^2)dy$. Where C is closed curve given y = 0, y = x and $y^2 = 2 - x$ in the first quadrant, oriented counter clockwise.**

Ans

✗ 1. 7/5

✗ 2. 1/6

✓ 3. 7/6

✗ 4. 6/7

Q.5 **If f(x) and g(x) defined as { f(x) =1, if $x \in Q$, f(x)= -1, if $x \in Q^c$ & { g(x) =-1, if $x \in Q$ and g(x)=1, if $x \in Q^c$ then which is false.**

Ans

✗ 1. f is not continuous

✗ 2. g is not continuous

✗ 3. fog is not continuous

✓ 4. fog and gof both are continuous

Q.6 **The area of cardioloide $r = a (1 - \cos\theta)$ is**

Ans

✗ 1. $a^2\pi/2$

✓ 2. $3a^2\pi/2$

✗ 3. $a^2\pi$

✗ 4. $5a^2\pi/2$

Q.7 **Let $f : R - \{1\} \rightarrow R$ be defined as f(x) = Sin(x). Then which is true**

Ans

✓ 1. f is not continuous at x = 1

✗ 2. f is continuous at x = 1

✗ 3. f is not continuous in its domain.

✗ 4. f is not continuous at x = 0

Q.8 **The correct value of $\lim (1-\cos x)/x$ as $x \rightarrow 0$ is**

Ans

✗ 1. $1/\sqrt{2}$

✓ 2. 0

✗ 3. $\sqrt{2}$

✗ 4. Does not exist

Q.9 **Gauss's theorem enables an integral taken over a_____ to be replaced by one taken over the surface bounding that volume and vice versa.**

Ans

✗ 1. height

✗ 2. surface area

✗ 3. area

✓ 4. volume

Q.10 **The graph of a function f of two variables is the set of all points [x,y,f(x,y)] where (x,y) is in the :-**

Ans

✗ 1. domain of y

✗ 2. domain of x and y

✗ 3. domain of x

✓ 4. domain of f

Q.11 **lim{Sin(ax)/Sin(bx)} (a ≠ 0, b ≠ 0) is**

Ans

✗ 1. a.b

✓ 2. a/b

✗ 3. b/a

✗ 4. Does not exist

Q.12 **Consider the function f: [0, 1] → R define by f(1/2) = 1 and f(x) = 0 for all x ϵ [0, 1]-{1/2} then which is true.**

Ans

✗ 1. f is not integrable

✗ 2. $\int_0^1 f(x)dx \neq 0$

✓ 3. f is integrable

✗ 4. Lower integral of f is non - zero.

Q.13 **Volume of the region enclosed by the paraboloid $(x-1)^2+y^2= z$ and the plane 2x+z = 2 is**

Ans

✓ 1. π/2

✗ 2. π

✗ 3. π/3

✗ 4. π/4

Q.14 **The theorem which allows us to translate difficult line integrals into more simple double integral is:-**

Ans

✗ 1. mean value theorem

✗ 2. cantor's theorem

✓ 3. Green's theorem

✗ 4. stoke's theorem

Q.15 **The law which enables an integral taken around a closed curve to be replaced by one taken over any surface bounded by that curve is:-**

Ans

✗ 1. Gauss's law

✓ 2. stoke's law

✗ 3. divergence law

✗ 4. closure law

Q.16 **Let S be the subset of real number R. If f is differentiable on S and g is not differentiable on S. Then which is true.**

Ans

✗ 1. f.g must be differentiable (Where f(x)≠ 0, for all xϵ S)

✗ 2. f-g must be differentiable.

✓ 3. f+g and f-g can not be differentiable

✗ 4. f+g must be differentiable.

Q.17 **Algebraic structures in which addition and multiplication are defined and have similar properties to those operation is study of -**

Ans

✓ 1. ring theory

✗ 2. mensuration

✗ 3. Riemann's integral

✗ 4. calculus

Q.18 **The Taylor series expansion of f(x) about a = 1 for the following function $f(x) = x^2 + 2x + 1$ is**

Ans

✗ 1. $4 + 6 (x-1) + 4 (x-1)^2 + 4 (x-1)^3$

✗ 2. $6 + 4 (x-1) + 4 (x-1)^2 + 4 (x-1)^3$

✓ 3. $4 + 4(x-1)+(x-1)^2$

✗ 4. $4 + 6 (x-1) + 6 (x-1)^2 + 4 (x-1)^3$

Q.19 **If f: $R^2 \rightarrow R$ given by $f(x, y)= 3x^4 - 4x^2 y + y^2$ for (x, y)ϵ R then which is true.**

Ans

✗ 1. Point (0, 0) is point of local minimum.

✗ 2. (0, 0) is point of maximum.

✓ 3. Point (0, 0) is neither point of maximum nor point of minimum.

✗ 4. Neighbourhood of point (0, 0) gives f(x, y) always positive.

Q.20 **The function f define by f(x) = {x²+ 3x +a, if x ≤ 1} and f(x)= {bx + 2, if x > 1} is differentiable for all x. Then which is true.**

Ans

✗ 1. a ≠3, b ≠ 5

✗ 2. a = 5, b = 3

✗ 3. a = 3, b = 0

✓ 4. a = 3, b = 5

Section : **Discipline4**

Q.1 **Let $g_n(y) = \{ny^{1-n}/(1+y)$, if $0 \le y < 1$, $g_n(y)=0$, if $y = 1\}$ then the value of $\lim \int g_n(y)\, dy$ as $n \to \infty$ is (where 0 is lower limit and 1 is upper limit of integration)**

Ans

✗ 1. 1/3

✓ 2. 1/2

✗ 3. 1/4

✗ 4. -1/2

Q.2 **Consider the sequence $\{f_n\}$ of functions defined on R by $f_n(x) = \{Sin(nx)\}/n$ then which is true**

Ans

✗ 1. The derivative of $f'_n(x)$ is pointwise convergent

✗ 2. The derivative of $f'_n(x)$ is uniformly convergent

✗ 3. can not say

✓ 4. The derivative of $f'_n(x)$ is not pointwise convergent

Q.3 **A bounded function f on [a,b] said to be Riemann integrable if:-**

Ans

✓ 1. L(f)=U(f)

✗ 2. L(f)=0

✗ 3. L(f)=1

✗ 4. U(f)-0

Q.4 **If f(x) = 1 if $x \epsilon$ Q and f(x) = 0 if $x \epsilon Q^c$ then**

Ans

✗ 1. None of these

✓ 2. f is not integrable over any [a, b]

✗ 3. f is integrable over [a, b]

✗ 4. f is unbounded

Q.5 **A metric space has a notion of distance , while a topological space only has a notion of :-**

Ans

✓ 1. closeness

✗ 2. Space

✗ 3. openness

✗ 4. distance

Q.6 **The value of integral $\int e^{-x} dx$. is, (where 0 is lower limit and ∞ is upper limit of integration)**

Ans

✗ 1. 2

✓ 2. 1

✗ 3. ∞

✗ 4. -2

Q.7 **A group isomorphism from a group to itself is:-**

Ans

✗ 1. Abelian

✓ 2. group automorphism

✗ 3. closure

✗ 4. homomorphism

Q.8 **A metric space is compact if every open cover of x has:-**

Ans

✗ 1. empty set

✗ 2. nonempty set

✗ 3. subgroup

✓ 4. finite subcover

Q.9 **Let S be an infinite subset of R such that S∩Q= φ. which of the following statement is true**

Ans

✓ 1. R\S must have a limit point which belongs to S.

✗ 2. limit point of R\S is finite

✗ 3. S must have a limit point which belongs to Q

✗ 4. S must have a limit point which belongs to R\Q

Q.10 **Radius of convergence of power series $\sum(-1)^{n+1}nx^{2n-2}$**

Ans

✗ 1. ∞

✗ 2. 2

✓ 3. 1

✗ 4. 0

Q.11 **Consider the sequence $\{f_n\}$ of functions defined by $f_n(x) = x^n$ for $0 \leq x \leq 1$ then which is true**

Ans

✗ 1. {fn(x)} is not pointwise convergent.

✗ 2. $\{f_n(x)\}$ is pointwise convergent as well as uniformly convergent.

✗ 3. {fn(x)} is uniformly convergent.

✓ 4. $\{f_n(x)\}$ is pointwise convergent but not uniformly convergent.

Q.12 **A function that defines a concept of distance between any two members of set which are usually called points is:-**

Ans

✗ 1. open set

✓ 2. metric space

✗ 3. determinant

✗ 4. a set

Q.13 **Let (X, d) and (Y, d) be two metric spaces, and f : X → Y . Then which is true**

Ans

✗ 1. None of these is true

✓ 2. f is a continuous function iff the pre-image of open sets is always open

✗ 3. f is a continuous function iff the pre-image of closed sets is always open

✗ 4. f is a continuous function iff the pre-image of open sets is always closed

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Q.14 **Let (X, d) be a metric space, and let A ⊆ X. Then which is false**

Ans

✓ 1. The interior of A, Int(A), is the smallest open subset of X contained in A

✗ 2. the interior of A is the union of all open subsets of X contained in A

✗ 3. The interior of A, Int(A), is the greatest open subset of X contained in A

✗ 4. the closure of A is the intersection of all closed subsets of X which contain A:

Q.15 **Let S and T are two bounded sets then which is false**

Ans

✗ 1. inf{x-y; xϵS, y ϵT}= infS-supT

✗ 2. sup{x+y; xϵS, y ϵT}= supS+supT

✓ 3. sup{x-y; xϵS, y ϵT}= supS-supT

✗ 4. inf{x+y; xϵS, y ϵT}= infS+infT

Q.16 **Let $\{f_n\}$ be the sequence of function on (0, ∞) defined by $f_n(x)= nx/(1+n^2x^2)$ then which is true**

Ans

✗ 1. $\{f_n(x)\}$ is uniformly convergent

✗ 2. {fn(x)} is not pointwise convergent

✗ 3. None of these above.

✓ 4. $\{f_n(x)\}$ is pointwise convergent but not uniformly convergent.

Q.17 **Let f: [0, 1] →R such that f(x) = {1/n, if x = 1/n, and f(x)= 0, otherwise} then which is true.**

Ans
- ✗ 1. f is not integrable
- ✓ 2. f is integrable
- ✗ 3. $\int_0^1 f(x)dx = 1$
- ✗ 4. $\int_0^1 f(x)dx \neq 0$

Q.18 **To verify that (s,d) is a metric space we should first check that if d(x,y)=0 then:-**

Ans
- ✓ 1. x=y
- ✗ 2. y=0
- ✗ 3. x=0
- ✗ 4. y=-1

Q.19 **_____is one of the principal topological properties that are used to distinguish topological spaces.**

Ans
- ✗ 1. openness
- ✗ 2. closeness
- ✓ 3. connectedness
- ✗ 4. compactness

Q.20 **If S=[0, 1] and T=[0, 2] then which is true**

Ans
- ✓ 1. $\sup(S \cap T) \neq \min\{\sup S, \sup T\}$
- ✗ 2. $\inf(S \cap T) = \min\{\sup S, \sup T\}$
- ✗ 3. $\min\{\sup S, \sup T\} = 0$
- ✗ 4. $\min\{\sup S, \sup T\} = 4$

Section : **Discipline5**

Q.1 **Every holomorphic function is :-**

Ans
- ✓ 1. analytic
- ✗ 2. complex
- ✗ 3. complex vector space
- ✗ 4. commutative

Q.2 **The external direct product of additive group of integer Z with itself is**

Ans
- ✓ 1. Not cyclic group
- ✗ 2. Cyclic group
- ✗ 3. Abelian as well as cyclic group
- ✗ 4. Cyclic but not abelian

Q.3 **Let P be a prime number. Let G be the group of all 2×2 matrices over Zp with determinant 1 under matrix multiplication. Then the order of G is**

Ans
- ✗ 1. p^3
- ✗ 2. $p^2(p-1)$
- ✗ 3. $p^2(p-1)+p$
- ✓ 4. $p(p+1)(p-1)^2$

Q.4 **Let G be a infinite cyclic group then which is true**

Ans
- ✗ 1. G is isomorphic to $(Z_3, +)$
- ✗ 2. G is isomorphic to $(Z_4, +)$
- ✓ 3. G is isomorphic to $(Z, +)$
- ✗ 4. G may not be isomorphic to $(Z, +)$

Q.5 **Number of one-one homomorphism from $Z_{10} \to Z_5$ is**

Ans
- ✗ 1. 5
- ✗ 2. 3
- ✗ 3. 8
- ✓ 4. 4

Q.6 **Let G be non abelian group of order p^3 (where p is prime) then which is false**

Ans
- ✗ 1. O(Z(G))= p
- ✗ 2. Number of conjugate classes of cardinality p are p^2-1
- ✓ 3. O(Z(G))≠ p
- ✗ 4. Number of conjugate classes of cardinality one are p

Q.7 **The external direct product of two cyclic group is**

Ans
- ✗ 1. Always cyclic group
- ✗ 2. must be cyclic group of finite order
- ✓ 3. Need not be cyclic group
- ✗ 4. Cyclic as well as abelian

Q.8 **Let G be group of order 21 then which is correct**

Ans
- ✗ 1. If G is abelian then G need not be cyclic
- ✗ 2. G is always cyclic
- ✗ 3. can not say
- ✓ 4. If G is abelian then G is cyclic

Q.9 **Number of homomorphism from $Z_3 \to Z_6$ is**

Ans
- ✗ 1. 1
- ✗ 2. 2
- ✗ 3. 8
- ✓ 4. 4

Q.10 **Let G be a group of order p.q.r, where p<q<r being primes then which is false**

Ans
- ✗ 1. sylow r-subgroup is normal in G
- ✓ 2. If q/(r-1) then sylow q-subgroup is normal in G
- ✗ 3. G is not simple
- ✗ 4. G has a normal subgroup of order qr.

Section : **Teaching Methodology**

Q.1 **_____ in research is the degree to which the results of a research can apply beyond the bounds of the project.**

Ans
- ✗ 1. Reliability
- ✓ 2. Transferability
- ✗ 3. Validity
- ✗ 4. Relevance

Q.2 **The hidden-curriculum concept is based on____.**

Ans
- ✓ 1. the recognition that students absorb lessons in school that may or may not be part of the formal course of study
- ✗ 2. perpetuate unequal power relations operating among gender
- ✗ 3. existing social and cultural ethos of the society
- ✗ 4. policies on gender equality in education and practices

Q.3 **Peace education involves which of the following.**

Ans
- ✗ 1. Values derived from the Indian Constitution
- ✗ 2. collaborative skills and respect for human rights
- ✓ 3. Self-reflection and listening to the inner voice
- ✗ 4. Language usages in diverse social households

Q.4 _____ is a technique by which the teacher gets the learners to give information rather than giving it to them.

Ans
- ✗ 1. Pomodoro
- ✗ 2. Display questions
- ✗ 3. Referential questions
- ✓ 4. Elicitation

Q.5 Most families coming under poor poverty line, chooses boy child to sent school and girl child is _____.

Ans
- ✓ 1. Sent to work
- ✗ 2. Sent to school with boy child
- ✗ 3. Forced to marry
- ✗ 4. Sent for work and school both

Q.6 As per the RPWD act, what is the minimum disability criteria to avail any government schemes?

Ans
- ✗ 1. 70 %
- ✗ 2. 50 %
- ✓ 3. 40 %
- ✗ 4. 60 %

Q.7 Which of the following is the slogan of naturalism?

Ans
- ✗ 1. Follow resources
- ✗ 2. Follow science
- ✗ 3. Follow rules
- ✓ 4. Follow Nature

Q.8 Which are the three components of educational process?

Ans
- ✗ 1. Activities , Study and Teacher
- ✗ 2. Students, Friends and Education
- ✗ 3. Friends, Teacher and Subject
- ✓ 4. Teacher, Students and Education

Q.9 Find the incorrect definition of "Belief".

Ans
- ✓ 1. Belief refers to ancient superstitions and religious patterns.
- ✗ 2. Belief is a common label for convictions, surmises, suppositions, expectations.
- ✗ 3. Belief is, it is a mental representation of an attitude positively oriented towards the likelihood of something being true.
- ✗ 4. Belief is the state of mind in which a person thinks something to be the case

Q.10 Which of the following is not an advantage to the Dramatization technique?

Ans
- ✗ 1. Great way to learn to express themselves
- ✓ 2. Used to Explore inferences and interpretations
- ✗ 3. Build story telling abilities
- ✗ 4. Helps the children to assume responsibility