Answer Key & Solution

1. Ans. D

Evaluation is concerned with the ability to judge the value of material for a given purpose. The judgments are on the basis of specific criteria which may be either internal criteria (organization) or external criteria (relevance to the purpose). Cognitive Ability is ability of an individual to perform the different mental activities mostly linked with learning and problem solving. So, Evaluation is the highest level of cognitive ability.

2. Ans. C

Socio-economic background of teachers and students have nothing to do with the impact on enhancing knowledge of the student. Teacher's knowledge, Classroom activities and learning through experience will have a positive impact on teaching, as it will help in improving the knowledge of students.

3. Ans. B

Teaching aids like charts, boards, projectors etc. make teaching-learning process interesting, which will further help the student to learn better and retain concepts for a longer duration. The student's retention power is increased through these different audio and video teaching aids.

4. Ans. A

Lecture, interactive lecture, Group study are the techniques used by the teacher to teach to give knowledge to students or enhance knowledge. Self-study technique is used by students not by teachers as there is no involvement of teachers.

5. Ans. D

A test of developed skills or knowledge is called an achievement test. It includes assessing the amount of learning after teaching. Standardized tests are developed to measure skills and knowledge acquired in a given grade level. This is the most common type of achievement and test is usually a through planned instruction, such as training or classroom instruction. Achievement tests are often contrasted with tests that measure aptitude, a more general and stable cognitive trait.

6. Ans. D

A good teacher is one who learns how to motivate and inspire students. Students who are not motivated will not learn effectively and in turn, they won't retain information or participate and may even become disruptive.

7. Ans. D

Research is an investigation which comprises creative work undertaken on a systematic and logical basis to increase the stock of knowledge, culture and society. It deals with the verification of hypothesis, data analysis, interpretation and formation of principles and by using this stock of knowledge (research) new applications are being devised. Research is also an intellectual enquiry towards truth.

8. Ans. A

A good thesis writing should have an abstract that should be clear and well written to give a complete overview of the topic with the minimum number of grammatical errors and consistency in writing. Also, references play an important role for thesis writing which should be carefully written with the required format.

9. Ans. A

Piaget's theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. Piaget theory is based on four stages i.e. sensorimotor stage, preoperational stage, concrete operational stage and formal operation stage. Fundamental Research aims to improve scientific theories for improved understanding of natural phenomena. Piaget's idea is based on his fundamental research.

10. Ans. B

A null hypothesis is a hypothesis used in statistics which refers that no statistical significance difference exists in a set of given observation or populations. So, 'Male and female students perform equally well in a numerical aptitude test' is a case of null hypothesis.

11. Ans. A

The Historical Research is to collect, verify, and synthesize evidence from the past to establish facts that defend the hypothesis. So, the conclusions or results of this research cannot be generalised to other situations.

Descriptive research is used to give characteristics of phenomenon and situation being studied. It addresses the "what" question.

Experimental Research: This type of research method involves the process of manipulation of one variable so as to determine if there are any changes in one variable which affects another variable.

Causal-comparative research attempts to determine the cause or reason of differences that already exist between groups of individuals.

12. Ans. D

The steps which are required to design a questionnaire includes the aim of the study i.e. writing primary and secondary aims of the study, to prepare a draft of questionnaire in which number of questions will be asked related to the topic, review the literature so as to frame the relevant questions and revision of the draft for making it error free.

13. Ans. C

Our knowledge is the collection of few stories that survive.

(**Reference Line in 2nd Paragraph:** Our history, knowledge and understanding are all the collections of few stories that survive.)

14. Ans. D

From 1st line of the 1st Paragraph, it is clear that Story telling is not in our genes. Neither it is an evolutionary history. It is the essence of what makes us Human.

(**Reference Line:** Story telling is not in our genes. Neither it is an evolutionary history. It is the essence of what makes us Human.)

15. Ans. A

The future will depend partly, possibly largely, on which stories we collectively choose to believe.

(**Reference line in 2nd Paragraph:** This includes the stories that we tell each other about the future. And how the future will turn out depends partly, possibly largely, on which stories we collectively choose to believe.)

16. Ans. A

Rational optimist tends to claim that it is human nature to compete and to succeed and also to profit at the expense of others clearly give the idea that they are sensible, cheerful and are selfishly driven and look for opportunities.

(**Reference line:** Currently, this trend is being led by those who call themselves "rational optimists". They tend to claim that it is human nature to compete and to succeed and also to profit at the expense of others. The rational optimists however, do not realize how humanity has progressed overtime through amiable social networks and how large groups works in less selfishness and in the process accommodate rich and poor, high and low alike.)

17. Ans. A

In the 3rd paragraph, it is given that how large groups work in less selfishness.

(**Reference line:** The rational optimists however, do not realize how humanity has progressed overtime through amiable social networks and how large groups works in less selfishness and in the process accommodate rich and poor, high and low alike.)

18. Ans. A

Practical Possibles are the ones who follow Midway Path. This aspect in story-telling is considered by the 'Practical Possibles', who sit between those who say all is fine and cheerful and be individualistic, it indicates they follow midway path.

(**Reference line:** This aspect in story-telling is considered by the 'Practical Possibles', who sit between those who say all is fine and cheerful and be individualistic in your approach to a successful future, and those who ordain pessimism and fear that we are doomed.)

19. Ans. B

Communication is an exchange of feelings, ideas, knowledge and information, either by speaking, writing, signals, or behaviours and for the success of organization, effective communication is an essential component at all levels. This effective communication can be traced or manged through performance records, student's attendance and communication channel.

20. Ans. D

Formal communication, a systematic and orderly flow of information tends to interchange or transmit the information officially in an organization. The flow of the formal communication is more in a controlled way. Formal communication, according to the direction or flow may be of two types-(a) Vertical, and (b) horizontal.

21. Ans. D

Communication is the continuous and circular process which involve an exchange of ideas, knowledge and opinions for understanding. Communication is a circular process because in the first stage it starts when one individual prepares the purpose of conveying a message to another individual and the next step is one in which, the conveying process happens. Finally, the other individuals receive the message and process the information in the correct manner and respond and the process repeats itself.
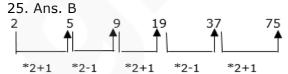
22. Ans. B

Grapevine communication is also known as informal communication because communication is performed without maintaining the formalities/guidelines prescribed by the organization and moreover, there is no particular route for sharing the relevant information.
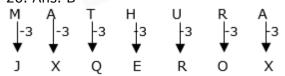
23. Ans. C

Effective communication is a way of transferring information, thoughts and ideas to create understanding between sender and receiver. Communication is a persuasive and convincing dialogue which involves the participation of the audience through the strategic use of informal communication, also known as grapevine communication. Communication cannot be possible in one-way because it includes dispensing of information to another person.

24. Ans. A

In communication, the language is verbal code, as verbal communication uses spoken and written words for expressing and transferring views and ideas.
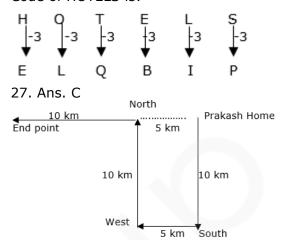
25. Ans. B

Hence, the next term in the series is 75.
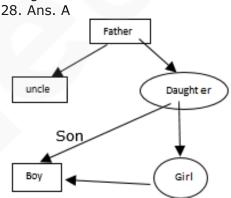
26. Ans. B

Here in MATHURA,

Place value of M=13 and place value of J=10 so difference in place value is 3.

Place value of A=1 and place value of X=24 so difference in place value is 3.

Therefore, fixed pattern is followed in which coded letter place value is 3 less. Code of HOTELS is:

27. Ans. C

From above figure, it is clear that Prakash has to walk 15 km to reach his home straight.

28. Ans. A

Hence from above figure it is clear that boy and girl are brother and sister.

29. Ans. A

Total no of student=10000

Total number of students passed in all five subjects=5583

Total number of students passed in four subjects = total number of students failed in one subject only =75+145+140+200+157=**717**

Therefore, number of students passed in at least four subjects is 5583 + 717 = 6300.

30. Ans. D

3 years hence, son's age=15

Therefore, present age of son=15-3 =**12 years**

Person present age= present age of son * 4 =12*4=**48 years**

Wife present age= Person present age -3 = 48-3=**45 years**

After 5 years' person wife's age = 45 + 5 = 50 years.

3

31. Ans. A

Inductive reasoning is the one in which the premises seek to supply strong evidence for the truth of the conclusion. The truth of the conclusion of an inductive argument is probable, based upon the provided evidence. Inductive reasoning is known as hypothesis construction because the conclusions derived are based on the current knowledge and predictions. So, if we want to seek new knowledge of facts about the world, we must rely on inductive reasoning.
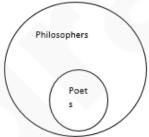
32. Ans. B

A deductive argument is invalid if its premises are true and its conclusion is false. A deductive argument is an argument which is given by the arguer to be deductively valid, i.e., to provide a surety of the truth of the conclusion provided that the argument's premises are also true. Premises should provide strong support for conclusion.

33. Ans. C

Inductive reasoning is grounded on the uniformity of nature. This reasoning involves logical process in which multiple premises, all are believed true or found true, are combined together to get a specific conclusion. Inductive reasoning is often used in applications that involves prediction, forecasting, or behaviour.
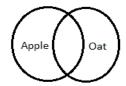
34. Ans. C

From above figure it is clear that (a) and (c) are contradictory to each other.

35. Ans. B

Venn diagrams are an effective way of representing and analysing sets and performing operations. Problems that are solved by using Venn diagrams are problems based on sets and set operations. Venn diagram represents the arguments graphically.

The Venn diagrams include an ideal representation of the standard form to enhance our understanding. They provide a clear method of notation.

36. Ans. C

A lexical definition is the meaning of the term in common usage or it simply reports the way in which a term is used within a language community. Lexical definition is descriptive, which report actual usage of language used by speakers and vary with the usage of the term, rather than prescriptive. When the purpose of a definition is to explain the use or to eliminate ambiguity the definition is called Lexical.

37. Ans. D

In 35-40 years:

$$Average\ Salary = \frac{(40+35)}{2} = 37,500\ per\ month$$

In 40-45 years:

$$Average\ salary = \frac{35+35+50+30+45+45}{6}$$

$$= \frac{240}{6} = 40,000\ per\ month$$

In 45-50 years:

$$Average\ salary = \frac{50+50}{2}$$

$$= \frac{100}{2} = 50,000\ per\ month$$

In 50-55 years:

Average salary

$$= \frac{45+60+55}{2} = 53,300\ per\ thousand$$

Hence, people in the 50-55 class interval have the maximum average salary.

38. Ans. D

Just count the number of people who have age in between 30-35 years

$$frequency(\%) = \frac{7}{20} * 100 = 35\%$$

39. Ans. A

$$Average$$
$$= \frac{44+32+54+42+31+53+42+51+34+41+33+31+30+37+44+36+34+49+43+45}{20}$$
$$= \frac{806}{20} = 40.3\ years$$

40. Ans. A

(%) of employees getting

$$(\geq 40,000) = \frac{9}{20} * 100 = 45\%$$

41. Ans. B

$$Average\ salary = \frac{35 + 35 + 50 + 30 + 45 + 45 + 50 + 50}{8} = \frac{340}{8}$$
$$= 42,500\ per\ month$$

42. Ans. C

$$Average\ salary = \frac{775}{20} = 38,750\ per\ month$$

So, 11 employees have salary less than 38,750/-. So, 11/20 = 55%

43. Ans. C

Encoding or scrambling data for transmission across a network is known as Encryption.

To transfer data securely, encryption is an effective way. In the encryption process, information to be transferred is encoded securely so that only authorized parties can access it. To decrypt information authorized party should have a secret key or password. The data when unencrypted is known a plain text while the encrypted test is called as cipher text. In Encryption, information is encrypted packet-by-packet basis. There are two types of Encryption: asymmetric encryption (public key) and symmetric encryption (private key). In symmetric encryption same key is used to encrypt and decrypt data in order to keep the key secret. In asymmetric one key is used for encoding and other key is used for decoding.

44. Ans. D

Printer, speaker, monitor are output devices of computer. Keyboard is input devices.

45. Ans. C

1 Gigabyte = 2^30 which is nearly one billion characters.

46. Ans. A

Open source refers to something which one can modify, study, reuse, enhance or redistribute and share because it is accessible publicly. Therefore, Open source software (OSS) is software with source code that anyone can inspect, modify, and enhance. So, Linux, open office and apache http server all are open source software.

Major Web browsers like Mozilla Firefox, Google Chrome, Opera and Safari are open-source components. Presently, Internet Explorer is the only one of the big 5 browsers to remain entirely "closed source".

47. Ans. C

To get total of 25, 1 should be multiplied with 16, 8, 1.

16	8	4	2	1
1	1	0	0	1

So, 11001= 1x16 + 1x8 + 0x4 + 0x2 + 1x1= 25
∴ $(25)_{10} = (11001)_2$

48. Ans. D

Google Talk provides an instant messaging service which includes both text and voice communication. The instant messaging service is popularly known as "gtalk", "gchat", or "gmessage" to its users.

49. Ans. B

The European Union (EU) is a political and economic union of 28-member states that are located primarily in Europe. So, per capita use of water is highest in European Union.

50. Ans. B

In India contribution of Carbon dioxide (CO_2) emissions is due to following sources

1. Electricity production: 29% percent gas emissions.
2. Transportation: 27% percent gas emissions.
3. Industry: 21% percent gas emissions.
4. Commercial and Residential: 12% percent gas emissions.
5. Agriculture: 9% percent gas emissions.
6. Land Use and forestry: 11.8% percent gas emissions.

Overall contribution of India is around 6%.

51. Ans. C

Relation of energy to magnitude of earthquake is:

$$log_{10}\ E = 4.4 + 1.5M$$

Let energy of earthquake A is E_1 and magnitude is M_1.
Similarly, energy of earthquake B is E_2 and magnitude is M_2.
Here,
$M_2 = M_1 + 1$
$log_{10}E_1 = 4.4 + 1.5\ M_1$ .... (i)
$log_{10}E_2 = 4.4 + 1.5\ (M_1 + 1)$
$= 4.4 + 1.5\ M_1 + 1.5$
......(ii)
From above 2, equations we can say that

$log_{10}E_2 - log_{10}E_1 = 1.5$

$$log_{10}\frac{E_2}{E_1} = 1.5$$

We then have,
$E_2/E_1 = 10^{1.5} = 31.623$
From above it is clear that $E_B/E_A = 32$.

52. Ans. C
Renewable Resources: Resources replenished or restored through rapid natural cycles are renewable natural resources. Common examples of such resources are:
● Oxygen in the air is renewable natural resources that is replenished through photosynthesis.
● Fresh water restored by water cycle.
● Food, Fishes, Timber are biological product that is replenished through the reproduction and growth.
● Fertile soil can also be renewed through natural processes.

53. Ans. D
Air Quality Index (AQI) is categorized into six categories, namely: Good, Satisfactory, Moderately polluted, Poor, Very poor and Severe.
The AQI is proposed for eight pollutants like (Particulate Matter) PM_{10}, (Particulate Matter) $PM_{2.5}$, (Nitrogen dioxide) NO_2, (Sulphur dioxide) SO_2, (Carbon monoxide) CO, (Ozone) O_3, (Ammonia) NH_3, and (Lead) Pb. So, Chlorofluorocarbons (CFC) is not included.

54. Ans. B
Anthropogenic impact on the environment includes impacts on biodiversity, population and other resources. The anthropogenic reflects an effect resulting from human activity. The applications of technology also result in unavoidable and unexpected impacts on environment. Technologies can help in providing order in the human economy at the expense of increasing disorder in the environment.

55. Ans. A
The Parliament has President of India and the houses, i.e. Rajya Sabha and Lok Sabha. As head of the legislature, the President has full powers to summon and suspend either house of Parliament or to dissolve Lok Sabha.

56. Ans. A
The Civil Service day is celebrated on 21th April. "Civil Service Day" is observed by all Civil Services to re-dedicate and re-commit themselves to the cause of the people.

57. Ans. C
South Asian University (SAU) is an International University established by the eight Member States of the South Asian Association for Regional Cooperation (SAARC) in 2010. The eight countries are: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The University current campus is Akbar Bhawan Campus in Chanakyapuri, New Delhi.

58. Ans. B
The University Grants Commission was established in the year 1956. UGC is the statutory organization which was established with the aim for the determination and maintenance of standards of teaching, different examination and research in Universities/Colleges. It is formed to regulates and transform higher education in India.

59. Ans. C
Gross Enrolment Ratio is a statistical measure used in the education sector to determine the number of students enrolled in school at several different grade levels. The Gross Enrolment Ratio (GER) in institutions of higher education in India at present (2015) is about 19%.

60. Ans. D
A Central University in India is established by Act of Parliament and comes under the purview of the Department of Higher Education with the Union Human Resource Development Ministry at the top level. Universities in India are recognized or authorised by the University Grants Commission (UGC). The number of central universities published by the UGC includes 43 central universities as on April 2015.

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