

# **Solutions**

## 1. Ans. C

The nature and objectives of teaching are explained as under:

- The two fundamental aspects of education process are teaching and learning. Teaching helps the students to learn and acquire relevant skills. Learning involves acquisition of habits, knowledge and attitudes. Since teaching and learning is integrally related to each other, good teaching means maximum learning.
- Teaching ensure some kind of transformation in students because with the help of good teacher, a student acquire good habits, knowledge and attitudes. Teaching is a social act because it can be done with number of students or helps in the social development of students while learning is a personal act because it depends upon a student that how much he/she want to learn through teaching process.

#### 2. Ans. A

Prior knowledge of learner is highly related to effectiveness of teaching in the following ways:

- a) If students do not get correct information, or did not understand the study material in previous classes, they may have some trouble learning the recent material.
- As, the students who understand the correct information, has a better chance of success learning the recent material.

#### 3. Ans. C

Lecturing – It is the process of delivering lectures in understandable languages.

- Discussion in groups -It is the action or process of talking about a theme in groups in order to reach a conclusion or to exchange ideas.
- Brainstorming Brainstorming is a group creativity technique through which efforts are made to find a conclusion for a particular problem by collecting a list of relevant ideas contributed by its members.

Programmed instruction Programmed instruction is a
 method of presenting new subject
 matters to students in a graded
 sequence of controlled steps.

#### 4. Ans. D

Formative evaluation helps students in the following ways:

- It provides constant feedback to both teacher and student concerning learning successes and failure while instruction is in process.
- It often happens during the course of instruction. Teacher clarifies the doubts of students in the class itself.
- Feedback to candidates reinforces successful learning and locates the particular learning errors that need correction.
- The teacher raises learner's motivation through a questionanswer session.

#### 5. Ans. C

Teaching ensures positive transformation in students because with the help of teaching a student acquires good habits, knowledge and attitudes.

#### 6. Ans. A

**Fundamental Research** is concerned with the generalizations and with the formulation of theory building.

**Applied Research** is a socially useful application of knowledge generated to social concern. It is a form of systematic inquiry involving practical application.

**Action Research** is used by teachers, supervisors etc. to improve the quality of decision and actions. It lays stress on developing the present situations to make these better.

**Evaluative Research** determines the impact of social intervention. It analyses the effect of a particular program on a certain problem the program is trying to solve.

# 7. Ans. D

Action research strategy is a strategy to solve an immediate problem through various steps.

The cyclical process of research has the following sequence:

Plan  $\rightarrow$  Act  $\rightarrow$  Observe  $\rightarrow$  Reflect (To remember, Use the acronym **PAOR**)





## 8. Ans. B

The correct sequence of scientific research is as follows:

- Perceiving the problem situation First we represent, what is the problem or what problem we want to study.
- b) Locating the actual problem and its definition Define the problem with locating its causes.
- c) Hypothesizing Formulate the hypothesis. Hypothesis is a proposed explanation on the basis of some limited evidence.
- d) Deducing the consequences of the suggested solution.
- e) Testing the hypothesis in action.

## 9. Ans. D

Options A, B and C represents mainly the guidelines for research, but evidence-based research reporting is a part of research ethics in which consent should be taken from the participants, and proper evidence & sources should be mentioned in research. If it's not followed, then there can be a problem which is against ethics.

## 10. Ans. C

The research conference is a meeting for researchers to present and discuss their creative ideas and work at a large level. The conference inculcates creativity and critical thinking among the participants more than the seminars, workshop, research summary.

# 11. Ans. C

As mentioned in the passage, "We believe that technological strengths are especially crucial in dealing with this fourth dimension underlying continuous change in the **aspirations of the people, the economy in the global context and the strategic interests.**" Thus, the highlighted elements are indicative of the fourth dimension. Option 2 is incorrect as the passage states that

the fourth dimension is an offshoot or an extension of "modern day dynamism" and not one of its indicators. Thus, option C is the correct answer.

# 12. Ans. A

According to the passage, "Technological strengths are the key creating more productive employment in an increasingly competitive market place and continually upgrade human skills." Thus, option A is the correct answer.

## 13. Ans. B

According to the passage, "The absence of greater technological impetus could lead to lower productivity and wastage of precious natural resources." which will hurt the poorest most. Hence, option B is the correct answer.

# 14. Ans. D

According to the passage, "For peopleoriented actions as well, whether for the creation of large-scale productive employment or for **ensuring nutritional and health security for people, or for better living conditions**, technology is the only vital input." From this sentence, it can be inferred that the advantage of technological inputs will enhance the living standard of the people, hence lifting people to a life of dignity. Thus, option D is the correct answer.

## 15. Ans. D

According to the last few lines of the passage, "Even while being alive to the short-term realities, medium and long-term strategies to develop core technological strengths within our industry are vital for envisioning a developed India." Thus, option D is the correct answer. The other options are irrelevant in the context of the passage.

## 16. Ans. C

Differentiation between acceptance and non-acceptance of certain stimuli in classroom communication is the basis of selective attention. Selective attention is the process of focusing on a specific object in the environment for some period of time.

#### 17. Ans. D

The fundamental aspect to teacher and student's success is the teacher's ability to communicate with students, parents and colleagues. Teachers must have quality communication skills to assist



their students achieve success in their academic studies. More control over the communication process means more control over what the students are learning.

18. Ans. D

Effective teaching demands knowledge of the communication in the following ways:

- Effective communication can be maintained using different audio video techniques in classroom.
- Effective communication demands careful use of nonverbal cues in the classroom.
- Using an honest and tactful tone, will also add to the effective communication in the classroom.

#### 19. Ans. C

Classroom communication is а transactional process. This model continuous requires change and transformation in which every component is variable such as the people, their environment and the medium. Due to this model, it presumes the communicators to be independent and act the way they wish to. Since both the sender and receiver are essential to keep the communication going in transactional model, the communicators are also interdependent to each other.

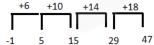
## 20. Ans. C

Human communication is the process of creating a meaning between two or more people. Following are the statement that describes human communication process:

- Non-verbal communication can stimulate ideas.
- Communication is a learnt ability.
- Communication is not a universal panacea.
- Communication cannot breakdown or stop working.

# 21. Ans. B

The pattern followed here is:



 $\rightarrow$  -**1** + 6 = **5** (We have to add '6' to get '5' from '-1')

 $\rightarrow$  5 + 10 = 15 (6 + 4 = 10) (We have to add '10' to get '15' from '5')

 $\rightarrow$  15 + 14 = 29 (10 + 4 = 14) (We have to add '14' to get '29' from '15')

 $\rightarrow$  29 + 18 = 47 (14 + 4 = 18)

Hence, next term in the series is '47'.

# 22. Ans. C

The pattern followed here is:

$$\Rightarrow$$
 A + 1 = B; B + 2 = D

$$\Rightarrow$$
 D + 3 = G; G + 4 = K

$$\Rightarrow$$
 H + 5 = M; M + 6 = S

$$\Rightarrow$$
 M + 7 = T; T + 8 = B

$$\Rightarrow$$
 S + 9 = B; B + 10 = L

$$\Rightarrow$$
 Z + 11 = K; K + 12 = W

Hence, next term in the series is "ZKW".

23. Ans. D

If VARANASI is coded as WCUESGZQ,

$$V + 1 = W$$

$$A + 2 = C$$

$$R + 3 = U$$

$$A + 4 = E$$

$$N + 5 = S$$

$$A + 6 = G$$

$$S + 7 = Z$$

$$I + 8 = Q$$

$$K + 1 = L$$

$$0 + 2 = 0$$

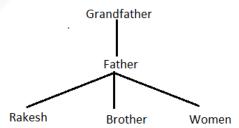
$$L + 3 = 0$$

$$K + 4 = 0$$

$$A + 5 = F$$

$$T + 6 = Z$$
$$A + 7 = H$$

Hence, KOLKATA is coded as "LQOOFZH". 24. Ans. C



As shown in above diagram, Women is sister of Rakesh.

$$\frac{A}{B} = \frac{2}{5}$$

$$\frac{A + 16}{B + 16} = \frac{1}{2}$$

# From 1,

$$A = 2B/5$$

$$2(2B/5) + 32 = B + 16 - - 3$$

$$4B/5 + 32 = B + 16 - 4$$

Solve 4, to get  $\mathbf{B} = \mathbf{80}$ .

And, 
$$A = 2B/5 = 2 * 80 / 5 = 32$$

Hence, value of A and B is 32 and 80.



26. Ans. C

It is the analogical reasoning. Analogy here is:

Intellect superiority: Concentration Power :: Concave Mirror: Rays Concentration at one point.

27. Ans. B

Options 2 and 3 seem to be more valid than the other two options 1 and 4. We can draw conclusions 2 and 3 from the premises up to some extent.

Statement a) Most of the dancers are physically fit.

Statement b) Most of the singers are dancers.

It can be concluded that most of the dancers are singers. (From statement 2). Now if we consider Statement (a) then we can draw that most of the physically fit are dancers. So, conclusions 2 and 3 follows.

28. Ans. D

Inductive Reasoning refers to generalizing about properties for the class of objects based on number of observations.

It presupposes that a sequence of events in future will occur as it always has in the past. This phenomenon is known as uniformity of nature.

29. Ans. A

The proposition 'domestic animals are hardly ferocious' implies Domestic animals are not ferocious. It is false, then statement having No will also be false. This eliminates the option 3 & 4 straight away. The opposite of this statement would be domestic animals are ferocious. Only option 1 & 2 can be claimed to be certainly true.

30. Ans. C

In categorical syllogism using Venn Diagram, an argument consists of three categorical propositions in which there are two premises and one is conclusion, in which there appear a total of exactly three terms, each of which is used exactly twice.

E.g. All trees are white

All white is black

Some black is dull

So, there are three terms used twice in this type of syllogism.

# 31. Ans. B

Consumption = Production - Export 2012, consumption = 186.5 - 114 million kg = 72.5 million kg

2013, consumption = 202 - 114 million kg = 88 million kg

2014, consumption = 238 - 130 million kg = 108 million kg

2015, consumption = 221 - 116 million kg = 105 million kg

2016, consumption = 215 -88 million kg = 127 million kg

Now, find out the percentage increase,

% increase in 2013 = (previous year value - recent year value) =  $\frac{88 - 72.5}{72.5}$  \* 100 % = 21.38%

% increase in 2014 = (previous year value - recent year value) =  $\frac{.108 - 88}{88}$  \* 100 % = 22.72%

% increase in 2015 = (previous year value - recent year value) =  $\frac{105 - 108}{\cdot 105} * 100 \%$  = Decrease (So, discard)

% increase in 2016 = (previous year value - recent year value)  $= \frac{127 - 105}{105} * 100 \% = 20.95\%$ 

32. Ans. C

Per capita consumption = Consumption

Population

Population = Consumption
Per capita consumption

Population = 
$$\frac{108}{38.7}$$
 = 2.79 million

## 33. Ans. A

Consumption = Production - Export

2012, consumption = 186.5 - 114 million kg = 72.5 million kg

2013, consumption = 202 - 114 million kg = 88 million kg

2014, consumption = 238 - 130 million kg = 108 million kg

2015, consumption = 221 - 116 million kg = 105 million kg

 $\frac{\text{2012, Exports}}{\text{Consumption}} = \frac{114}{72.5} = 1.57$ 

 $\frac{2013 \text{ Exports}}{\text{Consumption}} = \frac{114}{88} = 1.3$ 

 $\frac{\text{Exports}}{\text{Consumption}} = \frac{130}{108} = 1.2$ 

 $\frac{\text{2015 Exports}}{\text{Consumption}} = \frac{116}{105} = 1.1$ 



34. Ans. D

Consumption = Production - Export

2013, consumption = 202 - 114 million kg = 88 million kg

2014, consumption = 238 - 130 million kg = 108 million kg

2015, consumption = 221 - 116 million kg = 105 million kg

2016, consumption = 215 -88 million kg = 127 million kg

Population = Consumption

Per Capita consumption

2013, Population = 
$$\frac{88}{35.2}$$
 = 2.5 million

2013, Population = 
$$\frac{105}{40.5}$$
 = 2.59million

Thus, Population in 2016 is max. 35. Ans. D

> Consumption=Production - Export Consumption in the following years are as following:

2012: 72.5 million Kg 2013: 88 million kg

2014: 108 million Kg

2015: 105 million Kg

2016: 127 million Kg

Average = (72.5 + 88 + 108 + 105 +127) 500.5 / 5 = 100.1 million kg 36. Ans. B

ICT stands for Information Communications Technology.

The converging technologies that Information exemplify and Communications Technology include the merging of audio-visual, telephone and computer networks through a common cabling system.

37. Ans. D

A new Laptop has been produced that weight less, is smaller and uses power than previous Laptop models that might be using solid state hard drive. This device store data on the flash memory.

38. Ans. B

As bcc stands for blind carbon copy and cc stands for carbon copy. So, we will receive all the sender's details and the persons attached in cc (carbon copy). The email ids of bcc are not visible to everyone.

39. Ans. C

Smallest to Largest unit of storage:

Bit - Smallest unit of storage

Byte - 8 bits

Kilobyte - 1000 bytes

Megabyte - 1000000 bytes

Gigabyte – 10<sup>9</sup> bytes Terabyte - 10<sup>12</sup> bytes

So, the correct order is 6,2,1,3,5,4.

40. Ans. B

Read Only Memory (ROM) is a nonvolatile memory.

Random Access Memory (RAM) 'volatile' memory.

Secondary Memory is 'non-volatile' memory.

41. Ans. D

Fly ash can be used in:

- Construction of the Roman structure.
- Manufacturing of building bricks.
- Manufacture of cement.
- Used as fertilizers.
- In a dam and water holding structures.
- As a replacement of white cement.
- Used in road construction.

42. Ans. D

Among the Earthquakes, Landslides, Hurricanes and Droughts, only Droughts has no definite beginning and end. No one can define when it began and when it ended. Rest all the other disasters might not have a specific beginning but have a definite end.

43. Ans. A

Indoor Air pollution causes serious health problems such as respiratory problems and even cancer. There, it is a serious hazard. The dispersal of air pollutants is limited because it does not get space in the indoor environment.

44. Ans. A

The contribution of energy sources (as per official sources):

Energy source	MW	%of total
Thermal Power Plants	2,21,803	64.3%
Renewable Energy	70,649	20.5%
Hydropower	45,457	13.2%
Nuclear Energy	6780	2.0%



So, Thermal Power Plant > Renewable Energy > Hydropower > Nuclear Energy. 45. Ans. B

The major concern of pollution in rivers of India is water pollution. Untreated sewage is the largest source of water pollution in India. Other different sources of pollution include agricultural runoff and unregulated small-scale industry.

46. Ans. D

The higher education system of India is the third largest in the world after China and United States of America.

47. Ans. D

Prime Minister Research Fellowship has been promoting research and cutting-edge technologies. This scheme has been designed particularly for those who are willing to pursue Ph.D. course in Indian Institute of Technology (IIT) and Indian Institute of Science (IISc).

48. Ans. B

The Committee for appointment of Chief Information Commissioner is headed by the Prime Minister; comprises of leader of the Opposition, a Cabinet Minister (nominated by the Prime Minister).

- The Central Vigilance Commissioner shall be appointed by the President on recommendation of a Committee consisting of the Prime Minister, the Minister of Home Affairs and the Leader of the Opposition.
- The Chairperson of NHRC is appointed by the President of

India, on the recommendation of a committee consisting of Prime Minister, Home Minister, Leader of Opposition, Speaker of Lok Sabha and other members.

 The Chairperson of National Commission for Women is appointed by the Central Govt. on the recommendation of committee. The committee is headed Minister-in Charge of the Ministry of Women and Child Development along with other members.

49. Ans. A

Gender Budgeting is a powerful and innovative tool for achieving gender mainstreaming to safeguard that the benefits of development should reach women. It is not a separate budget for women. The reason behind this is budget is women lags behind man, so they warrant special attention. It is not and accounting exercise.

50. Ans. D

Following are the main barriers to Citizen Centric Administration:

- Attitudinal Problems of the Civil Servants
- Lack of Accountability
- Redtapism
- Low levels of Awareness of the Rights and Duties of Citizens
- Ineffective Implementation of Laws and Rules