

Roll No:

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Name:

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Examination: 1. Course Code - Ph.D.

2. Field of Study - REGIONAL DEVELOPMENT: GEOGRAPHY (GEOH)

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SECTION 1 - SECTION 1

Question No.1 (Question Id - 93)

The central tendencies of a distribution is calculated to study its characteristics. If the mean is 281.4, median is 280.7 and mode 279, which of the following statement is correct ?

(A) ☐ Moderate Negatively skewed

(B) ☒ Moderate Positively skewed (Correct Answer)

(C) ☐ High negatively skewed

(D) ☐ High positively skewed

Question No.2 (Question Id - 50)

On a vertical aerial photograph, an agricultural field measures 8.65 cm long and 5.13 cm wide. The photo scale was 1 : 20,000. What is the size of area of the field on the ground ?

(A) ☐ 1.026 km<sup>2</sup>

(B) ☐ 1.730 km<sup>2</sup>

(C) ☒ 1.775 km<sup>2</sup> (Correct Answer)

(D) ☐ 1.030 km<sup>2</sup>

Question No.3 (Question Id - 52)

GPS technology has successful applications to achieve positional accuracies ranging from 100 m to few millimeters based on the equipment and procedure used.

A. Navigation

B. Surveying

C. Integration with GIS

D. Integration with RS

Choose the **correct** GPS applications from the options given below :

(A) ☐ B, C and D only

(B) ☐ A, B and C only

(C) ☐ A, B and D only

(D) ☒ A, B, C and D (Correct Answer)

Question No.4 (Question Id - 96)

Which of the following measures of central tendency can have more than one value in a single sample ?

(A) ☐ Arithmetic mean

(B) ☐ Median

(C) ☒ Mode (Correct Answer)

(D) ☐ Geometric mean

Question No.5 (Question Id - 9)

The thesis supporting a Second Demographic Transition by Dutch Demographers in 1986 was based on the rationale :

(A) ☐ consideration of family size

(B) ☒ consideration of the rights and self-fulfilment of individuals (Correct Answer)

(C) ☐ consideration of better infant and child care

(D) ☐ consideration for ensuring good life for the next generation

Question No.6 (Question Id - 98)

There is a difference of 8 m in water level between two wells that are located about 0.7 km apart in Hassan district of Karnataka. The subsurface material between these two places have a hydraulic conductivity of 105 m/hour. The well logs determined that the aquifer is 65 m thick and has a cross sectional width of 90 m. What will be the rate of flow through this aquifer ?

(A) ☒ 7020 m<sup>3</sup>/hour (Correct Answer)

(B) ☐ 7020 m<sup>3</sup>/second

(C) ☐ 7020000 m<sup>3</sup>/hour

(D) ☐ 108 m<sup>3</sup>/hour

Question No.7 (Question Id - 80)

Given below are two statements : one is labelled as **Assertion A** and other is labelled as **Reason R**.

Assertion A:

The distribution of *Palmae* (palm family) is mainly limited to the tropical and subtropical regions.

Reason R:

The *Palme* have only a single growing point at the apex of their stems.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

- (A) ☐ Both **A** and **R** are true and **R** is the correct explanation of **A**
- (B) ☐ **Both A and R are true but R is NOT the correct explanation of A (Correct Answer)**
- (C) ☐ **A** is true but **R** is false
- (D) ☐ **A** is false but **R** is true

**Question No.8 (Question Id - 99)**  
The impermeable materials, such as thick clay or unfractured igneous rock, which hinder the free flow of groundwater are called :

- (A) ☐ aquifers
- (B) ☐ aquitards
- (C) ☐ aquifuges
- (D) ☐ **aquicludes (Correct Answer)**

**Question No.9 (Question Id - 16)**  
In the nine-fold classification of Land Use by the Government of India, “all lands which were taken up for cultivation, but are temporarily out of cultivation for a period of not less than one year and not more than five years” are called :

- (A) ☐ Current Fallows
- (B) ☐ **Fallow Lands other than Current Fallows (Correct Answer)**
- (C) ☐ Recent Fallows
- (D) ☐ Current Unculturable Lands

**Question No.10 (Question Id - 35)**  
Earth is considered to be a plane in the plane surveying than the geodetic surveying. Plane surveying is used for small areas of which control points are established by geodetic surveying. Which of the following is/are the type/s of plane surveying ?

- A. Plane table surveying
- B. Prismatic compass surveying
- C. Theodolite surveying
- D. Chain surveying

Choose the **correct** answer from the options given below :

- (A) ☐ A only
- (B) ☐ B, C and D only
- (C) ☐ **A, B, C and D (Correct Answer)**
- (D) ☐ A, C and D only

**Question No.11 (Question Id - 2)**  
Which of the following statements regarding Kerala are correct, when compared to the other states of India ?

- A. The state ranks first in HDI
- B. The state has the lowest fertility rate
- C. The state has highest female labour force participation
- D. The state has highest proportion of elderly population

Choose the **correct** answer from the options given below :

- (A) ☐ Statements A, B, and C are correct
- (B) ☐ Statements A, C and D are correct
- (C) ☐ **Statements A, B and D are correct (Correct Answer)**
- (D) ☐ Statements A, B, C and D are correct

**Question No.12 (Question Id - 4)**  
Rural spaces marked by green belts, national parks, game parks and where mechanisms of control are contested by social groups on the basis of their economic and environmental interests are known as :

- (A) ☐ **Preserved rural spaces (Correct Answer)**
- (B) ☐ Contested rural spaces
- (C) ☐ Paternalist rural spaces
- (D) ☐ Clientilist rural spaces

**Question No.13 (Question Id - 94)**  
The following data is an analysis of monthly production by workers in firms X, Y and Z of a manufacturing industry.

	Firm X	Firm Y	Firm Z
Number of workers	550	460	700
Monthly total production (Quantity)	7975	9900	9450
Variance in production (Quantity)	100	196	225

Which of the above firm/firms has/have more consistency in production by workers ?

- (A) ☐ Firm X
- (B) ☐ **Firm Y (Correct Answer)**
- (C) ☐ Firm Z
- (D) ☐ Firm Y and Z

**Question No.14 (Question Id - 61)**  
Given below are two statements :

**Statement I :**

The correlation between monthly discharges of two adjacent river basins is 0.734.

Statement II :

- (1) There is high correlation between discharges of two adjacent river basins.
- (2) The stated correlation is spurious.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

- (A) ☐ **Statement I** and Statement **II-1** and **II-2** are correct
- (B) ☐ **Statement I** and Statement **II-1** and **II-2** are incorrect
- (C) ☒ **Statement I and Statement II-2 are correct while Statement II-1 is incorrect (Correct Answer)**
- (D) ☐ **Statement I** and Statement **II-1** are correct while Statement **II-2** is incorrect

Question No.15 (Question Id - 64)

A violent convective storm, accompanied by thunder and lightning, usually localized and short-lived which is always associated with vertical air motion and considerable humidity is known as :

- (A) ☐ storm
- (B) ☐ hurricane
- (C) ☐ tropical cyclone
- (D) ☒ **thunderstorm (Correct Answer)**

Question No.16 (Question Id - 31)

Each map is distinctive on the basis of design, content and construction. Maps can be classified onto several types. Which among the following are based on relief representation?

- A. Hypsometric maps
- B. Topographic maps
- C. Planimetric maps
- D. Thematic maps

Choose the **correct** answer from the options given below :

- (A) ☐ A and D only
- (B) ☐ B, C and D only
- (C) ☐ A and C only
- (D) ☒ **A, B and C only (Correct Answer)**

Question No.17 (Question Id - 89)

The low part of the ridges separating ocean basins from one another or from the adjacent sea-floor is known as :

- (A) ☐ sea-floor
- (B) ☒ **sill (Correct Answer)**
- (C) ☐ seamount
- (D) ☐ trench

Question No.18 (Question Id - 63)

Halocline is a zone near the ocean surface :

- (A) ☐ where only salinity of water rapidly changes with depth
- (B) ☐ where only density of water increases with depth
- (C) ☒ **where salinity and density of water increases with depth (Correct Answer)**
- (D) ☐ where salinity and pressure of water changes with depth

Question No.19 (Question Id - 7)

Which one of the following map projections minimizes the sum of distortions to area, distance and directions ?

- (A) ☐ Mercator Projection
- (B) ☐ Conical with one standard parallel
- (C) ☐ Sinusoidal Projection
- (D) ☒ **Winkel Tripel Projection (Correct Answer)**

Question No.20 (Question Id - 84)

The green revolution has resulted in food security for India. However, it also resulted in many environmental problems. Which one of the following is the second-generation environmental problem of green revolution in India ?

- (A) ☐ excessive use of canal irrigation
- (B) ☐ excessive use of electricity for pumping of groundwater
- (C) ☐ excessive use of water
- (D) ☒ **excessive drawdown of water table (Correct Answer)**

Question No.21 (Question Id - 69)

Ocean tides are produced as a results of balance between :

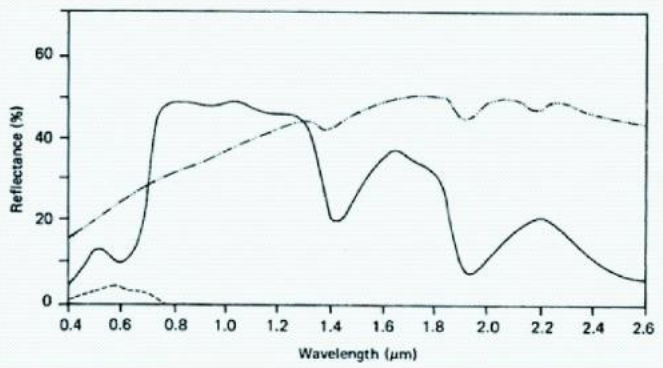
- A. centrifugal force
- B. corolis forces
- C. gravitational force
- D. hydraulic gradient

Choose the **correct** answer from the options given below :

- (A) ☐ A and B
- (B) ☒ **A and C (Correct Answer)**
- (C) ☐ C and D
- (D) ☐ B and C

Question No.22 (Question Id - 56)

Spectral reflectance curves for three basic type of Earth features are healthy green vegetation, dry bare soil (gray-brown loam) and clear lake water. Average reflectance curves compiled by measuring a large sample of features is shown in the graph below :



- A. Healthy green vegetation shows distinct characteristics in energy reflection
- B. Soil reflectance curve shows less peak-and-valley variation
- C. Water has the most distinct characteristic in energy absorption
- D. Dry bare soil manifest high peak-and-valley configuration

Choose the **correct** combination of average reflectance curves from the option given below :

- (A) ☒ **A, B and C only (Correct Answer)**
- (B) ☐ B, C and D only
- (C) ☐ A, B, C and D
- (D) ☐ A, C and D only

Question No.23 (Question Id - 95)

The average age of 10 women is 50 and their average blood pressure is 137.7 mmHg. The standard deviation of age and blood pressure of these women are 11.508 and 15.203. The age and blood pressure are strongly correlated with a value of 0.894. What will be average blood pressure of these women when they attain an average age of 60 ?

- (A) ☒ **149.5 mmHg (Correct Answer)**
- (B) ☐ 137.5 mmHg
- (C) ☐ 143.6 mmHg
- (D) ☐ 155.4 mmHg

Question No.24 (Question Id - 32)

Based on existing knowledge about historical development of cartography, there are four distinctive phases mentioned as follows :

List – I (phases)	List – II (periods)
A. Recent period	I. 1500 to 1900 AD
B. Ancient period	II. 1900 AD to date
C. Early modern period	III. 400 to 1500 AD
D. Medieval period	IV. up to 400 AD

Choose the **correct** answer from the options given below :

- (A) ☐ A-I, B-II, C-IV, D-III
- (B) ☐ A-II, B-III, C-I, D-IV
- (C) ☒ **A-II, B-IV, C-I, D-III (Correct Answer)**
- (D) ☐ A-III, B-IV, C-I, D-II

Question No.25 (Question Id - 30)

'Pseudo-urbanisation' describing developing countries urbanisation marked by retarding economic growth was given by :

- (A) ☒ **McGee (Correct Answer)**
- (B) ☐ Breese
- (C) ☐ Dwyer
- (D) ☐ Sovani

Question No.26 (Question Id - 67)

Arrange the following rivers in descending order of the per capita water availability :

- A. Tapti
- B. Narmada
- C. Mahanadi
- D. Ganga

Choose the **correct** answer from the options given below

- (A) ☐ D, B, C, A
- (B) ☐ **B, C, D, A (Correct Answer)**
- (C) ☐ D, C, B, A
- (D) ☐ D, B, A, C

**Question No.27 (Question Id - 25)**  
Arrange in descending order, the Urban Agglomerations of India by their population size (2011 Census) :

- (A) ☐ **Bangalore; Hyderabad; Ahmedabad; Pune (Correct Answer)**
- (B) ☐ Hyderabad; Bangalore; Ahmedabad; Pune
- (C) ☐ Hyderabad; Bangalore; Pune; Ahmedabad
- (D) ☐ Bangalore; Hyderabad; Pune; Ahmedabad

**Question No.28 (Question Id - 38)**  
The real world of geographical variation is infinitely complex and uncertain. Geographic information shown on maps is populated by features which comprise the elements of the vector data model. Select the correct geographic feature types from the following list :

- A. Benchmark
- B. Lake / pond
- C. Road centerline
- D. No shape

Choose the **correct** answer from the options given below :

- (A) ☐ B, C and D only
- (B) ☐ A, B and D only
- (C) ☐ **A, B and C only (Correct Answer)**
- (D) ☐ A, C and D only

**Question No.29 (Question Id - 42)**  
RADAR remote sensing is one of the active sensors for imaging of the Earth which works in all weather conditions. The applications of radar remote sensing are given below :

- A. Geological and geomorphological mapping
- B. Soil moisture assessment
- C. Ice cover monitoring
- D. Oil spill monitoring

Choose **correct** answer for physical resource cover mapping from options given below :

- (A) ☐ A, C and D only
- (B) ☐ B, C and D only
- (C) ☐ **A, B and C only (Correct Answer)**
- (D) ☐ A, B and D only

**Question No.30 (Question Id - 13)**  
Which of the following is the correct sequence of the Core Periphery Model as given by Friedman ?

- (A) ☐ Core-periphery, dispersion of economic activity, localized economies, spatial integration
- (B) ☐ **Localized economies, core-periphery, dispersion of economic activity, spatial integration (Correct Answer)**
- (C) ☐ Core-periphery, localized economies, dispersion of economic activities, spatial integration
- (D) ☐ Localized economies, dispersion of economic activities, spatial integration, core-periphery.

**Question No.31 (Question Id - 53)**  
Wide Area Augmentation System (WAAS) enabled GPS spatially covers United States and some parts of Canada and Mexico. What is the WAAS capable receiver's accuracy ranges ?

- A. WAAS capable receiver's accuracies ranging 3 to 5 metres horizontally
- B. WAAS capable receiver's accuracies ranging 3 to 7 metres in altitude
- C. WAAS capable receiver's normal accuracy ranging within 3 metres
- D. WAAS capable receiver's normal accuracy more than 6 meters

Choose the **correct** WAAS enabled GPS accuracy from the options given below :

- (A) ☐ B, C and D only
- (B) ☐ A, B, C and D
- (C) ☐ **A, B and C only (Correct Answer)**
- (D) ☐ A, B and D only

**Question No.32 (Question Id - 71)**

Match **List-I** with **List-II** to relate rain gauge with its characteristics :

List - I	List - II
(Rain gauge type)	(Characteristics)
A. Standard manual	I. Relatively most accurate
B. Self-recording	II. Variation in rainfall overtime is not recorded
C. Tipping bucket	III. Variation in rainfall overtime is recorded
	IV. Evaporative losses are more

Choose the **correct** answer from the options given below :

- (A) ☐ A-II, B-III, and C-I only  
(B) ☒ **A-II, B-III, C-I and A-IV (Correct Answer)**  
(C) ☐ A-IV, B-I and C-II only  
(D) ☐ A-II, B-I and C-IV only

**Question No.33 (Question Id - 12)**

The concept of 'rurban communities' was given in 1915 by

- (A) ☒ **C.J. Galpin (Correct Answer)**  
(B) ☐ K.H. Stone  
(C) ☐ C.A. Doxiadis  
(D) ☐ J.C. Hudson

**Question No.34 (Question Id - 97)**

The standard deviation indicates the departure of individual observations from the mean value. If this statement is correct, which of the following is true about the standard deviation ?

- A. The standard deviation can be calculated if variance of a distribution is known.  
B. Standard deviation gives less weight to the values near to mean while extreme values get more weight.  
C. It is possible to calculate the combined standard deviation of two or more groups.

Choose the **correct** answer from the options given below :

- (A) ☐ A only  
(B) ☐ B only  
(C) ☐ B and C only  
(D) ☒ **A, B and C (Correct Answer)**

**Question No.35 (Question Id - 14)**

Which of the following categories exhibit the largest total number of migrants by 'Last Residence' in India according to Census 2011 (all durations) ?

- (A) ☐ Migrants from within the district  
(B) ☐ Migrants from other districts of the State  
(C) ☐ Migrants from other states of India  
(D) ☒ **Migrants within the state of enumeration (Correct Answer)**

**Question No.36 (Question Id - 57)**

The mapping of physical surface features and resource mapping from satellite imagery is performed on the basis of accuracy assessment. Calculate the error of commission for forests and the error of omission for agriculture on the basis of data given in the table below :

Classified Image	Real world reference data			Total
	Forest	Agriculture	Urban	
Forests	62	5	0	67
Agriculture	2	18	0	20
Urban	0	1	12	13
Total	64	24	12	100

Choose the **correct** answer from the options given below :

- (A) ☒ **8 per cent and 25 per cent (Correct Answer)**  
(B) ☐ 8 per cent and 3 per cent  
(C) ☐ 10 per cent and 25 per cent  
(D) ☐ 10 per cent and 3 per cent

**Question No.37 (Question Id - 34)**

The simple cylindrical projection is useful for geographical areas, which extend along or near the equator; for instance Africa and South America. For the graphical construction of the world map, the length of the equator will be calculated using which one of the formula?

- (A) ☐  $2\pi R^2$   
(B) ☐  $2\pi R \times \text{interval} / 360^\circ$   
(C) ☐  $2\pi R \times \text{interval} / 180^\circ$   
(D) ☒  **$2\pi R$  (Correct Answer)**

**Question No.38 (Question Id - 75)**

For a station located at an altitude 288 m above MSL, the gravitational acceleration is  $9.81 \text{ ms}^{-2}$  and air density is  $1.01 \text{ kg}$



m<sup>-3</sup>. What will be the increase in pressure if the station would have been at the MSL ?

- (A) ☐ 2.853 hPa
- (B) ☐ 2853.532 hPa
- (C) ☐ 285.353 hPa
- (D) ☐ **28.535 hPa (Correct Answer)**

**Question No.39 (Question Id - 87)**  
Along the coastal areas where the coastal sand supplies are abundant and the sea floor slopes gently, the mainland separated by water bodies, is commonly bordered by :

- (A) ☐ atoll
- (B) ☐ lagoons
- (C) ☐ **barrier island (Correct Answer)**
- (D) ☐ back-island

**Question No.40 (Question Id - 49)**  
A vertical aerial photograph was taken by a camera with a lens of 152-mm focal length. The flying height of the aircraft was 2780 m above mean sea level. The terrain was flat with an elevation of 500 m. What is the scale of the aerial photograph ?

- (A) ☐ **1 : 15,000 (Correct Answer)**
- (B) ☐ 1 : 10,000
- (C) ☐ 1 : 20,000
- (D) ☐ 1 : 25,000

**Question No.41 (Question Id - 48)**  
Black and white photography for topography mapping is acquired by aircraft flying over an area which is photographed in zig-zag pattern of adjacent flight line flown over a mapping project area. The resulting vertical photographs are on scale ranges from 1 : 20,000 to 1 : 24,000 have overlapping photograph proportions as follows. Which of the following is the correct overlaps ?

- A. Adjacent flight lines are spaced to have 30 per cent sidelap
- B. Along flight line between successive exposures have 60 per cent endlap
- C. Adjacent flight lines are spaced to have 40 per cent sidelap
- D. Along flight line between successive exposures have 80 per cent endlap

Choose the **correct** answer from the options given below :

- (A) ☐ A and D only
- (B) ☐ **A and B only (Correct Answer)**
- (C) ☐ C and D only
- (D) ☐ B and C only

**Question No.42 (Question Id - 76)**  
A well in which the water level rises above the top of the local aquifer is known as :

- (A) ☐ borewell
- (B) ☐ spring
- (C) ☐ water table
- (D) ☐ **artesian well (Correct Answer)**

**Question No.43 (Question Id - 39)**  
In GIS, attribute data for thematic mapping can be geographically referenced by hierarchical referencing system which is also denoted as the discrete system. For GIS users such system contain a wealth of information associated with some aspects of geography as mentioned below :

- A. Land administration and title systems
- B. Municipal addresses
- C. Postal codes
- D. Census enumeration areas

Choose the **correct** GIS attributes from the options given below :

- (A) ☐ A, C and D only
- (B) ☐ A, B and C only
- (C) ☐ **A, B, C and D (Correct Answer)**
- (D) ☐ B, C and D only

**Question No.44 (Question Id - 55)**  
Large-scale digital databases having two special applications are Land Information System (LIS) and Automated Mapping/Facilities Management (AM/FM) which are consolidated into multipurpose cadastral map. The basic content of these maps are given below :

- A. Parcel boundaries, dimensions and area
- B. Block and lot numbers and parcel identifiers
- C. Boundaries of political and governmental sub-divisions
- D. Right of way and easement boundaries

Choose the **correct** content of cadastral maps from the options given below :

- (A) ☐ A, B and C only
- (B) ☐ B, C and D only
- (C) ☐ A, C and D only
- (D) ☐ **A, B, C and D (Correct Answer)**

Question No.45 (Question Id - 82)

Arrange the following green house gases in descending order according to their respective global warming potential over a 100 years period if equal quantities of these gases are released to the atmosphere almost simultaneously.

- A. Carbon dioxide
- B. Nitrous oxide
- C. Methane

Choose the **correct** answer from the options given below

- (A) ☐ C, A and B
- (B) ☐ A ,B and C
- (C) ☐ A, C and B
- (D) ☒ **B, C and A (Correct Answer)**

Question No.46 (Question Id - 5)

Soils associated with sub-humid, mid-latitude grasslands are known as :

- (A) ☒ **Mollisols (Correct Answer)**
- (B) ☐ Aridisols
- (C) ☐ Gelisols
- (D) ☐ Vertisols

Question No.47 (Question Id - 40)

In GIS a network analysis is closely related to spatial interaction modelling. Network is “a set of geographic locations interconnected in a system by a number of routes”. A network denotes to a system of lines topologically structured. In this context, a topological measures of network structure characteristics are mentioned below :

- (A) Diameter (d) = maximum dij
- (B) Dispersion index =  $\sum_{i=1}^v \sum_{j=1}^v dij$
- (C) Accessibility index =  $\sum_{j=1}^v dij$
- (D) Alpha index ( $\alpha$ ) =  $[(e - v + g) / (2v - 5)]$

Choose the **correct** measures of shortest-path network from the options given below :

- (A) ☐ B, C and D only
- (B) ☒ **A, B and C only (Correct Answer)**
- (C) ☐ A, B and D only
- (D) ☐ A, C and D only

Question No.48 (Question Id - 72)

Which one of the following statements is correct with reference to hygrometer ?

- (A) ☒ **Wet bulb thermometer records lower temperature than dry bulb thermometer. (Correct Answer)**
- (B) ☐ Dry bulb thermometer records lower temperature than wet bulb thermometer.
- (C) ☐ Wet bulb and dry bulb thermometers records same temperature initially, but dry bulb temperature decreases with increase in humidity.
- (D) ☐ In wet bulb thermometer, the temperature decreases with increase in atmospheric humidity.

Question No.49 (Question Id - 86)

In most soils, the individual particles tend to aggregate into clumps. They are called \_\_\_\_\_.

- (A) ☒ **peds (Correct Answer)**
- (B) ☐ colloids
- (C) ☐ crumbs
- (D) ☐ separates

Question No.50 (Question Id - 66)

Given below are two statements : one is labelled as **Assertion A** and other is labelled as **Reason R**.

**Assertion A :**

Along the longitudinal profile, the valley width of the rivers increase.

**Reason R :**

It is concomitant with increase in sediment load.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

- (A) ☐ Both **A** and **R** are true and **R** is the correct explanation of **A**
- (B) ☐ Both **A** and **R** are true but **R** is NOT the correct explanation of **A**
- (C) ☒ **A is true but R is false (Correct Answer)**
- (D) ☐ **A** is false but **R** is true

Question No.51 (Question Id - 15)

Match **List-I** with, **List-II** and select correct combination :

List-I	List-II
(Types of Resource Scarcity)	(Concern)
A. Physical scarcity supplies	I. Needs exceed the ability to pay for resource
B. Geo-political scarcity	II. Depletion of renewable resources
C. Economic scarcity	III. Shift in the location of low cost mineral sources to hostile blocs of nations
D. Renewable and environmental	IV. Distribution of essential bio-geographical cycles and threatening sustainability of



Choose the **correct** answer from the options given below :

- (A) ☐ A-I, B-IV, C-II, D-III
- (B) ☒ **A-II, B-III, C-I, D-IV (Correct Answer)**
- (C) ☐ A-III, B-IV, C-II, D-I
- (D) ☐ A-II, B-III, C-IV, D-I

**Question No.52 (Question Id - 28)**  
The concept of ‘Dynapolis’ was expounded by :  
(A) ☒ **C.A. Doxiadis (Correct Answer)**  
(B) ☐ Jean Gottman  
(C) ☐ Patrick Geddes  
(D) ☐ Alexander Leman

**Question No.53 (Question Id - 60)**  
There are two types of sampling, probability and non-probability sampling. The types of sampling are given below :  
A. Simple random sampling  
B. Stratified random sampling  
C. Systematic or interval sampling  
D. Systematic quota sampling  
Choose the **correct** probability sampling techniques from the options given below :  
  
(A) ☐ D, C and A only  
(B) ☐ C, B and D only  
(C) ☒ **A, B and C only (Correct Answer)**  
(D) ☐ A, B and D only

**Question No.54 (Question Id - 44)**  
Remote sensing satellite sensors have varying spectral and spatial resolutions.

List-I	List-II
(Remote sensing systems/sensors)	(Sensor’s resolution)
A. Landsat ETM +	I. 23.5 m resolution
B. IRS 1-D LISS III	II. 20 m resolution
C. SPOT 4 HRVI – M	III. 04 m resolution
D. IKONOS PAN	IV. 30 m resolution

Match the **correct** sequence of satellite/sensors and their resolution from the options given above :  
(A) ☐ A-I, B-II, C-IV, D-III  
(B) ☐ A-II, B-IV, C-III, D-I  
(C) ☒ **A-IV, B-I, C-II, D-III (Correct Answer)**  
(D) ☐ A-I, B-II, C-III, D-IV

**Question No.55 (Question Id - 47)**  
There are many ways to express the scale of an aerial photograph which may be expressed as a verbal scale or as a representative fraction. Suppose, 1-inch on an aerial photograph represents 2,000 ft on the ground, then the calculated scale is expressed as follows :  
A. Verbal scale 1-inch = 2,000 ft  
B. Representative fraction 1 : 24,000  
C. Verbal scale 1-inch = 4,000 ft  
D. Representative fraction 1 : 40,000  
Choose the **correct** answer from the options given below :  
  
(A) ☐ B and C only  
(B) ☐ A and C only  
(C) ☒ **A and B only (Correct Answer)**  
(D) ☐ C and D only

**Question No.56 (Question Id - 65)**  
In aeolian process the lifting of soil particles results from :  
(A) ☒ **changes in wind speed and direction (Correct Answer)**  
(B) ☐ changes in particle size and wind direction  
(C) ☐ an increase in wind speed and particle size  
(D) ☐ change in wind direction and cohesion

**Question No.57 (Question Id - 77)**  
In the deep-ocean basin, relatively steep sided, long and narrow depression or basin that is 3 to 5 kms deeper than the surrounding ocean floor is known as :  
(A) ☐ submarine canyon

- (B) ☐ ocean basin rift valley
- (C) ☐ abyssal plain
- (D) ☐ **deep-sea trench (Correct Answer)**

**Question No.58 (Question Id - 51)**

While using Global Positioning System (GPS), there are many observational errors as mentioned below :

- A. Satellite clock error
- B. Multipath error
- C. Orbital error
- D. Receiver clock error

Choose the **correct** set of errors from the options given below :

- (A) ☐ B, C and D only
- (B) ☐ A, B and C only
- (C) ☐ **A, B, C and D (Correct Answer)**
- (D) ☐ A, B and D only

**Question No.59 (Question Id - 26)**

Match **List-I** with **List-II** and select correct combination, based on the Total Fertility Rate and Contraceptive Prevalence Rate of different countries in 2002 :

List-I	List-II
(Country)	(Total Fertility Rate and Contraceptive Prevalence Rate)
A. Hong Kong	I. 2.1 and 65 percent
B. Sri Lanka	II. 1.0 and 86 percent
C. Namibia	III. 5.4 and 29 percent
D. Nigeria	IV. 6.0 and 5 percent

Choose the **correct** answer from the options given below :

- (A) ☐ A-I, B-II, C-III, D-IV
- (B) ☐ A-IV, B-III, C-I, D-II
- (C) ☐ **A-II, B-I, C-III, D-IV (Correct Answer)**
- (D) ☐ A-IV, B-II, C-I, D-III

**Question No.60 (Question Id - 23)**

A larger compact settlement surrounded by a few hamlets is a village pattern named :

- (A) ☐ **Mixed village (Correct Answer)**
- (B) ☐ Migratory village
- (C) ☐ Nucleated village
- (D) ☐ Dispersed village

**Question No.61 (Question Id - 43)**

Land cover classification procedure is to automatically categorize all pixels in an image into classes or themes. Some of the commonly used image classification methods for image processing are given below :

- A. Unsupervised classification
- B. Supervised classification
- C. Hybrid classification
- D. Fuzzy classification

Choose **correct** answer for multispectral image classification from options given below :

- (A) ☐ A, C and D only
- (B) ☐ A, B and C only
- (C) ☐ B, C and D only
- (D) ☐ **A, B, C and D (Correct Answer)**

**Question No.62 (Question Id - 37)**

Digital Elevation Model (DEM) data consist of an array of regularly spaced elevations. USGS DEM products are similar in logical data structure for different geographic coverages and available for units as given below :

- A. 7.5-minutes
- B. 15-minutes
- C. 30-minutes
- D. 01-degree

Choose the **correct** geographic coordinate extent of USGS DEM from the options given below :

- (A) ☐ A, C and D only
- (B) ☐ **A, B, C and D (Correct Answer)**
- (C) ☐ A, B and D only
- (D) ☐ B, C and D only

**Question No.63 (Question Id - 88)**

The most thoroughly weathered and leached of all soils that invariably displays a high degree of mineral alteration and profile development is known as :

- (A) ☐ **oxisol (Correct Answer)**
- (B) ☐ entisol

- (C) ☐ vertisol  
(D) ☐ inceptisol

**Question No.64 (Question Id - 62)**  
The vertical motion of an aeroplane while passing through cumulus cloud is because of the :  
(A) ☐ approaching jet stream against aeroplane's direction of movement  
(B) ☐ air pressure variation inside the cabin area of aeroplane  
(C) ☐ presence of high moisture content in the atmosphere  
(D) ☐ **upward and downward draft in the cloud (Correct Answer)**

**Question No.65 (Question Id - 8)**  
Match **List-I** with **List-II** and select the correct combination :

List-I	List-II
A. Urbanisation	I. when the commuter's belt grows at the cost of the urban core
B. Suburbanisation	II. the rate of population loss of the urban core tapers off
C. Counter-urbanisation	III. when certain settlements grow at the cost of their surrounding countryside
D. Re-urbanisation	IV. when the population loss of the urban core exceeds the population growth of the commuter's belt

Choose the **correct** answer from the options given below :  
  
(A) ☐ A-III, B-II, C-I, D-IV  
(B) ☐ A-II, B-I, C-IV, D-III  
(C) ☐ **A-III, B-I, C-IV, D-II (Correct Answer)**  
(D) ☐ A-III, B-IV, C-II, D-I

**Question No.66 (Question Id - 58)**  
Surveying principles are applied for both two and three-dimensional positionings using different methods. Such surveying methods are designed to give horizontal position of points in the environment for making planimetric maps. The methods are given below :  
  
A. Traverse  
  
B. Triangulation  
  
C. Trilateration  
  
D. Trigonometric  
  
Choose the **correct** methods of surveying from the options given below :

- (A) ☐ B, C and D only  
(B) ☐ A, C and D only  
(C) ☐ A, B and D only  
(D) ☐ **A, B and C only (Correct Answer)**

**Question No.67 (Question Id - 6)**  
The Nearest Neighbour Statistic ranging 'from uniform grid to uniform triangular',in settlement analysis vary in value from :  
  
(A) ☐ 0 to 2.149  
(B) ☐ 1.0 to 2.0  
(C) ☐ **2.0 to 2.149 (Correct Answer)**  
(D) ☐ 1.0 to 2.149

**Question No.68 (Question Id - 21)**  
A green village type found primarily in Eastern Germany characterized by open fields is called :  
  
(A) ☐ **Angerdorf (Correct Answer)**  
(B) ☐ Dusseldorf  
(C) ☐ Haufendorf  
(D) ☐ Marschhufendorf

**Question No.69 (Question Id - 3)**  
Match **List-I** with **List-II** and select the correct combination :  

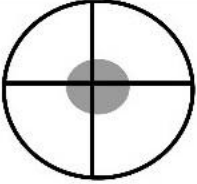
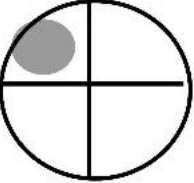
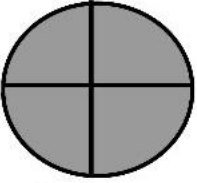
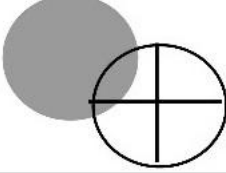
List-I	List-II
A. ASEAN	I. Nepal, Bhutan, Maldives
B. CIS	II. China, Brazil, Russia
C. BRICS	III. Belarus, Georgia, Moldova
D. SAFTA	IV. Indonesia, Malaysia, Vietnam

  
Choose the **correct** answer from the options given below :  
  
(A) ☐ **A-IV, B-III, C-II, D-I (Correct Answer)**  
(B) ☐ A-II, B-I, C-III, D-IV  
(C) ☐ A-I, B-II, C-III, D-IV  
(D) ☐ A-II, B-IV, C-I, D-III

**Question No.70 (Question Id - 54)**

The GPS Positioning accuracy measurement is significant for quantification for the degree of certainty that it is accurate from meters to sub-meters. Accuracy and precision are diagrammatically presented below

Match **List I** with **List II**

List I	List II
(Diagrams)	(Description)
A. 	I. Low accuracy and high precision
B. 	II. Low accuracy and low precision
C. 	III. High accuracy and high precision
D. 	IV. High accuracy and low precision

Choose the **correct** combination of accuracy and precision from the option given below :

- (A) ☐ A - II, B - III, C - I, D - IV
- (B) ☒ **A - III, B - I, C - IV, D - II (Correct Answer)**
- (C) ☐ A - I, B - II, C - IV, D - III
- (D) ☐ A - II, B - I, C - III, D - IV

**Question No.71 (Question Id - 19)**  
Which one of the following order of Indian States and Union Territories exhibit highest literacy (in descending order) according to Census 2011 :

- (A) ☐ Mizoram; Kerala; Lakshadweep; Goa
- (B) ☒ **Kerala; Lakshadweep; Mizoram; Goa (Correct Answer)**
- (C) ☐ Mizoram; Kerala; Goa; Lakshadweep
- (D) ☐ Kerala; Mizoram; Goa; Lakshadweep

**Question No.72 (Question Id - 10)**  
Match **List-I** with, **List-II** and select correct combination :

List-I	List-II
(Tribes of India)	(States)
A. Bhils	I. Meghalaya
B. Tharus	II. Tamil Nadu
C. Todas	III. Madhya Pradesh
D. Khasis	IV. Uttar Pradesh

Choose the **correct** answer from the options given below :

- (A) ☐ A-III, B-IV,C-I,D-II
- (B) ☐ A-II, B-I, C-IV, D-III
- (C) ☒ **A-III, B-IV, C-II, D-I (Correct Answer)**
- (D) ☐ A-II, B-IV, C-I, D-III

**Question No.73 (Question Id - 68)**  
A knick point in the course of a river occur because of \_\_\_\_\_ and results in \_\_\_\_\_.

- A. soft rock
- B. hard rock
- C. rapids
- D. waterfalls

Choose the correct answer from the options given below :

- (A) ☐ A, C
- (B) ☐ A, D
- (C) ☐ B, C
- (D) ☒ **B, D (Correct Answer)**

Question No.74 (Question Id - 46)

Photogrammetry is defined as “the art and science of making accurate measurements by means of aerial photography”.

Method 1 : Analog photogrammetry is performed using aerial photograph format size of 9" x 9" print or positive transparency.

Method 2 : Digital photogrammetry is performed using computer and digital aerial photography.

In the light of the above methods, choose the **correct** answer from the options given below :

(A) ☐ Neither methods are superior

(B) ☐ Method 1 is superior

(C) ☐ **Each method has an approach depending upon analysis goals (Correct Answer)**

(D) ☐ Method 2 is superior

Question No.75 (Question Id - 45)

Satellite imagery comprises by unwanted disturbance due to sensing, signal digitization or data recording process. Image noise degrade the true radiometric information by encountering a line drop in a digital imagery. Calculate the DN's values for the pixels occurring in the line drop for the digital imagery given below :

14	20	28	21
22	28	26	19
26	26	19	24
28	21	18	22
16	21	24	26
20	26	22	19
16	22	19	16

Choose the correct DN's values for a line drop for above imagery from the options given below :

(A) ☐ DN's Values 26, 21, 24 and 22

(B) ☐ DN's Values 22, 16, 21 and 28

(C) ☐ **DN's Values 22, 21, 21 and 24 (Correct Answer)**

(D) ☐ DN's Values 18, 26, 21 and 24

Question No.76 (Question Id - 24)

Migration, which flows from prosperous to less prosperous regions, is known as :

(A) ☐ **Perverse migration (Correct Answer)**

(B) ☐ Step Migration

(C) ☐ Forced Migration

(D) ☐ Reverse Migration

Question No.77 (Question Id - 90)

In Optically-Stimulated Luminescence (OSL) dating technique the dates are determined based on :

(A) ☐ **the time lapse of quartz grain's last exposure to sunlight (Correct Answer)**

(B) ☐ the time lapse of quartz grain's first exposure to sunlight

(C) ☐ the time lapse since quartz grain's sufficient exposure to sunlight

(D) ☐ the quartz grain's exposure to sunlight during pre-quaternary

Question No.78 (Question Id - 92)

The relative percentage distribution of workers in a region are 50% agricultural, 20% industrial and 30% service sector. The mean annual income of agricultural workers is ₹ 0.8 lakhs, industrial workers is ₹ 1.5 lakhs and that of service sector workers is ₹ 2 lakhs. The mean annual income of total workers will be :

(A) ☐ ₹ 1.43 lakhs

(B) ☐ ₹ 4.3 lakhs

(C) ☐ ₹ **1.3 lakhs (Correct Answer)**

(D) ☐ ₹ 2.15 lakhs

Question No.79 (Question Id - 18)

A belief or policy which supports the right of different social and ethnic groups to retain distinctive identities is known as :

(A) ☐ Nationalism

(B) ☐ Neoliberalism

(C) ☐ **Multiculturalism (Correct Answer)**

(D) ☐ Postmodernism

Question No.80 (Question Id - 83)

The soils can be classified according to the particle size. The Argillite soils contain particles that are :

(A) ☐ **fine grained (Correct Answer)**

(B) ☐ coarse grained

(C) ☐ medium grained

(D) ☐ very coarse grained

Question No.81 (Question Id - 78)

In the classification of the ocean sediments, fine and coarse grains that are produced by the weathering and erosion of the rocks on land are termed as :

- (A) ☐ hydrogenous sediments
- (B) ☐ marine sediments
- (C) ☒ terrigenous sediments (Correct Answer)
- (D) ☐ biogenous sediments

**Question No.82 (Question Id - 33)**  
The international date line is a unanimous agreement that the day begins at longitude of 180° which passes through the Pacific Ocean; but it is not followed while passing through the land. Suppose, if it is 6 a.m. on January 10 on eastern side of the line, what will be the time and day on other side ?

- (A) ☐ 5 a.m. on January 11
- (B) ☐ 6 p.m. on January 11
- (C) ☐ 5 p.m. on January 11
- (D) ☒ 6 a.m. on January 11 (Correct Answer)

**Question No.83 (Question Id - 36)**  
In geospatial data mining and mapping, three constituting components are data quality, spatial referencing and errors. There are measures of location errors on maps. Which of the following combinations of measures of location errors is correct?

- A. Root mean square error
- B. Accuracy tolerance
- C. Epsilon band
- D. Uncertainty in spatial data

Choose the **correct** answer from the options given below :

- (A) ☐ B, C and D only
- (B) ☐ A, B and C only
- (C) ☒ A, B, C and D (Correct Answer)
- (D) ☐ A, B and D only

**Question No.84 (Question Id - 74)**

Match **List-I** with **List-II** to relate cloud type with its characteristics :

List - I	List - II
(Cloud type)	(Cloud character)
A. Stratus	I. Extensive sheet of cloud, usually precipitating and thick to block out sun
B. Cumulus	II. Featureless, extensive cloud, just deep enough to produce cloud
C. Nimbostratus	III. Large, usually showering, having a cirriform character at high levels
	IV. Scattered, hill shaped upper part with flat base

Choose the **correct** answer from the options given below :

- (A) ☒ A-II, B-IV and C-I only (Correct Answer)
- (B) ☐ A-IV, B-III, C-I and C-II
- (C) ☐ A-II, B-I and C-IV
- (D) ☐ A-II, B-IV and C-III only

**Question No.85 (Question Id - 100)**  
The streams are described according to their relationship with the initial surface upon which they are developed. Accordingly, a stream developed subsequent to the initial surface along the lines of weakness, such as weak strata or faults running along the strikes of the rocks, which carves out new valleys and creates new slopes and flows in the opposite direction to consequent stream is termed as :

- (A) ☐ resequent stream
- (B) ☐ consequent stream
- (C) ☒ obsequent stream (Correct Answer)
- (D) ☐ subsequent stream

**Question No.86 (Question Id - 17)**  
Given below are two statements : one is labelled as **Assertion A** and the other is labelled as **Reason R**.

**Assertion A :**

Ecofeminism also called ecological feminism examines the connections between women and nature.

**Reason R :**

This philosophy does not include the ways both nature and women are treated by patriarchal society.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

- (A) ☐ Both **A** and **R** are false
- (B) ☐ Both **A** and **R** are true and **R** is the correct explanation of **A**
- (C) ☐ Both **A** and **R** are true but **R** is not the correct explanation of **A**
- (D) ☒ **A is true but R is false** (Correct Answer)

**Question No.87 (Question Id - 41)**  
Vegetation indices have been developed and modeled for vegetation and biophysical mapping derived from remote sensing data. Vegetation indices provides functionally equivalent information; but some provide unique biophysical information as



mentioned  
below :

- A. Normalized Difference Vegetation Index (NDVI)
- B. Enhanced Vegetation Index (EVI)
- C. Normalized Difference Moisture Index (NDMI)
- D. Normalized Difference Water Index (NDWI)

Choose the **correct** vegetation indices that help to determine the biophysical conditions of vegetation from the options given below :

- (A) ☐ A, B and C only
- (B) ☐ B, C and D only
- (C) ☐ A and B only
- (D) ☒ **A, B, C and D (Correct Answer)**

Question No.88 (Question Id - 59)

Hypothesis can be formed either in describing events or establishing relations between variables. Hypothesis can be relevant or irrelevant to the research topic. In this context, match the **List - I** with **List - II** given below :

List - I	List - II
(Kinds of hypothesis)	(Explanation of hypothesis)
A. Working hypothesis	I. Set of two hypotheses which states opposite of null hypothesis
B. Scientific hypothesis	II. Preliminary assumption about research topic
C. Alternative hypothesis	III. Statement based on or derived from theoretical/empirical data
D. Null hypothesis	IV. It is hypothesis of no relationship

Choose the **correct** answer from the options given below :

- (A) ☐ A-I, B-III, C-IV, D-II
- (B) ☒ **A-II, B-III, C-I, D-IV (Correct Answer)**
- (C) ☐ A-I, B-IV, C-II, D-III
- (D) ☐ A-IV, B-II, C-III, D-I

Question No.89 (Question Id - 73)

The solarimeter measures :

- (A) ☐ only direct radiation
- (B) ☐ only diffused radiation
- (C) ☒ **both direct and diffused radiation (Correct Answer)**
- (D) ☐ direct, diffused, scattered and reflected radiation

Question No.90 (Question Id - 91)

Interpret the following block diagram in which different stages of landform development is depicted.



A



B



C

Which of the following sequence is the correct representation of the Davisian cycle of landform development?

- (A) ☐ A, B and C
- (B) ☒ **B, C and A (Correct Answer)**
- (C) ☐ C, A and B
- (D) ☐ C, B and A

Question No.91 (Question Id - 22)

Given below are two statements : one is labelled as Assertion A and the other is labelled as Reason R.

**Assertion A :**

Hamlets, Villages, Towns and Cities constitute the basic structural elements of India’s Cultural Landscape.

**Reason R :**

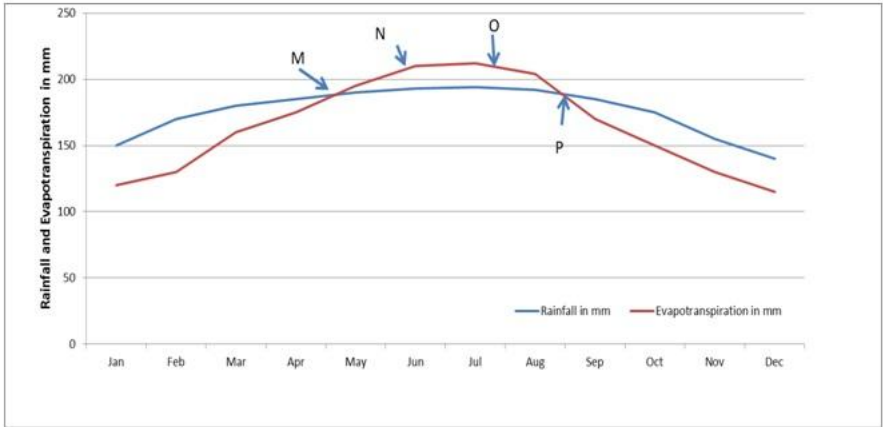
Settlements large and small form a continuum and there is hardly any qualitative difference between them.

In the light of the above statements, choose the **most appropriate** answer from the options given below :

- (A) ☐ Both **A** and **R** are false
- (B) ☒ **Both A and R are true and R is the correct explanation of A (Correct Answer)**
- (C) ☐ Both **A** and **R** are true but **R** is not the correct explanation of **A**
- (D) ☐ **A** is true but **R** is false

Question No.92 (Question Id - 85)

Identify the correct position of wilting point in the graph



- (A) ☐ M
- (B) ☐ N
- (C) ☒ O (Correct Answer)
- (D) ☐ P

Question No.93 (Question Id - 70)

In dendrochronology, the complacent tree-ring series arise when the environmental conditions are such that there is :

- (A) ☒ adequate moisture supply in growing season (Correct Answer)
- (B) ☐ inadequate moisture supply in growing season
- (C) ☐ very low temperature in growing season
- (D) ☐ very high temperature in growing season

Question No.94 (Question Id - 20)

Match List-I with List-II and select correct combination :

List-I	List-II
(Regional Planner)	(Year of proposed Planning Region in India)
A. C.S. Chandrasekhar (13 regions)	I. 1964
B. P. Sengupta (7 regions)	II. 1965
C. Bhat and Rao (7 regions)	III. 1968
D. V. Nath (15 regions)	IV. 1972

Choose the **correct** answer from the options given below :

- (A) ☐ A - IV, B - I, C - III, D - II
- (B) ☒ A - IV, B - III, C - I, D - II (Correct Answer)
- (C) ☐ A - III, B - IV, C - II, D - I
- (D) ☐ A - IV, B - II, C - I, D - III

Question No.95 (Question Id - 81)

Which of the following statements are **correct** about the ectothermic organisms ?

- A. Regulate their body temperature largely by behavioural means.
- B. Regulate the body temperature largely by the use of external heat source.
- C. Have evolved high levels of metabolism.
- D. They are cold-blooded animals.

Choose the **correct** answer from the options given below

- (A) ☐ A, B and C only
- (B) ☐ A, C and D only
- (C) ☐ B, C and D only
- (D) ☒ A, B and D only (Correct Answer)

Question No.96 (Question Id - 29)

‘Jojoba’ is an example of :

- (A) ☐ Fodder crop
- (B) ☐ Fiber crop
- (C) ☐ Subsistence crop
- (D) ☒ Bio-diesel crop (Correct Answer)

Question No.97 (Question Id - 1)

Which one of the following options compares the ability of women and men to participate in economic and political decision-making ?

- (A) ☐ Gender Related Development Index
- (B) ☒ Gender Empowerment Measure (Correct Answer)
- (C) ☐ Human Development Index
- (D) ☐ Reproductive Health Index

Question No.98 (Question Id - 79)

In ecology, the allochthones means :

- (A) ☒ organic carbon which is washed into an area from other areas (Correct Answer)
- (B) ☐ primary production is the main source of organic carbon
- (C) ☐ primary production and washed into an area from other areas are the sources of organic carbon

(D) ☐ organic carbon obtained from other organisms

**Question No.99 (Question Id - 27)**

Which of the following statements are true about the ‘Place of Last Residence’ introduced by the Indian Census ?

- A. ‘Place of Birth’ data does not capture the return migrants
- B. ‘Place of Last Residence’ data is able to capture additional migration patterns
- C. ‘Place of Birth’ data is not a direct measure of migration
- D. ‘Place of Last Residence’ data is a direct measure of internal migration

In the light of the above statements, choose the **correct** answer from the options given below :

- (A) ☐ A and B are correct, but C and D are wrong
- (B) ☐ A, B and C are correct, but D is wrong
- (C) ☐ **A, B and D are correct, but C is wrong (Correct Answer)**
- (D) ☐ B, C and D are correct, but A is wrong

**Question No.100 (Question Id - 11)**

Which of the following aspects marked the beginning of a whole series of urban literature ?

- (A) ☐ Functional study of towns and cities
- (B) ☐ **Site and situation of towns and cities (Correct Answer)**
- (C) ☐ Morphology of towns and cities
- (D) ☐ Hierarchy of towns and cities