World Geography (Physical) – Landforms

FOCUS ON:

- **A general idea about Continental Drift Theory, Plate Tectonics Theory, Sea Floor Spreading**
- **Geomorphic process**
- **Exogenic and Endogenic process, geomorphic agents – its impact.**
- **Volcanoes – why and how are they formed?**
- **Weathering and its significance**
- **Mass Movements – creep, avalanche, landslides**
- **Erosion and Deposits.**
- **Basic ideas on other landforms like deltas, valleys, meanders, alluvial fans, caves, glaciers, cliffs, terraces, dunes**
- **Earth's movements like folding, faulting, warping and its impact on Landforms**
- **Earthquakes – their origin, why and how are they formed, Earthquake Waves like P waves, S Waves, L Waves**
- **Geographical features – Atlas mountains, Highlands and the regions they are found in; Desert regions across the world**

PRELIMS MCQ's:

Q.1) Which among the below given pairs is/are correct?

1. Dykes : : horizontal intrusion of magma
2. Sills : : vertical intrusion of magma
3. Phacolith : : lens shaped mass of igneous rocks

Choose the correct answer using the codes given below:

a) 1 and 2 only
b) 3 only
c) 1, 2 and 3
d) None

Q.1) Solution (b)

Dykes : : vertical intrusion of magma
Sills : : horizontal intrusion of magma
Laccolith : : dome-shaped mass of igneous rocks

Lapolith : : saucer shaped igneous intrusion
Phacolith : : lens shaped mass of igneous rocks

Q.2) Consider the below statements in regard to different seismic waves:

1. Earth quake are the zone of seismicity where surface waves are the most destructive.
2. P and S waves both forms shadow zones and shadow zone of P waves is larger than that of S wave.
3. Shadow zones forms due to varying refractive indexes of different layers of earth.

Which of the statements given above are correct?

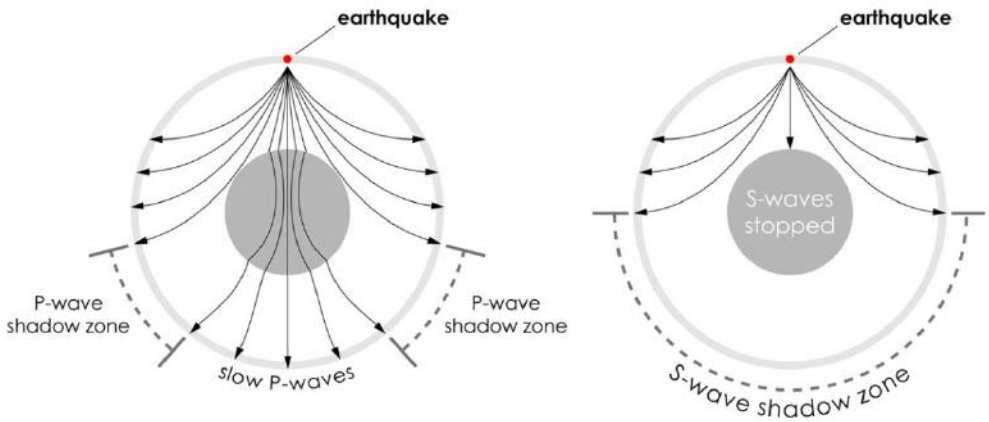
a) 1 and 3 only
b) 1 and 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.2) Solution (a)

P and S waves both forms shadow zones, however, shadow zone of S wave is larger than that of P wave. Hence, statement (2) is wrong.

P-waves move faster and are the first to arrive at the surface. These waves are of high frequency. They can travel in all mediums.

Statement (1) and (2) are correct. Surface Waves also called as long period waves. They are low frequency, long wavelength, and transverse vibration. These waves are responsible for most the destructive force of earthquake.



Q.3) Which among the below given pairs is/are incorrect?

Boundary Interaction : : Physical Feature

1. Subduction Zone : : Alps Mountains
2. Collision Zone : : Andes Mountains
3. Transform Boundary Interaction : : North Anatolian Fault in Turkey
4. Divergent Plates : : East Pacific Rise

Choose appropriate answer from the codes given below:

a) 1 and 2 only
b) 3 and 4 only
c) 3 only
d) None

Q.3) Solution (a)

Correct pairs:

1. Transform Boundary Interaction : : North Anatolian Fault in Turkey
2. Collision Zone : : Alps Mountains
3. Divergent Plates : : East Pacific Rise
4. Subduction Zone : : Andes Mountains

Q.4) Vosges mountain, Great Rift Valley, Sierra Nevada, Rhine valley, are examples of –

a) Volcanic mountains
b) Block mountains
c) Fold mountains
d) None of the above

Q.4) Solution (b)

Block Mountains are created when large areas are broken and displaced vertically. The uplifted blocks are termed as horsts and the lowered blocks are called graben.

Sierra Nevada, Rhine valley and Vosges (France, Europe)

Great Rift Valley (Africa) – mount Kilimanjaro

In India Narmada and Tapi valley also are examples of the same. Narmada flows between Vindhya and Satpura ranges (i.e. horsts) while Tapi flows between Satpura and Gwaligarh hills.

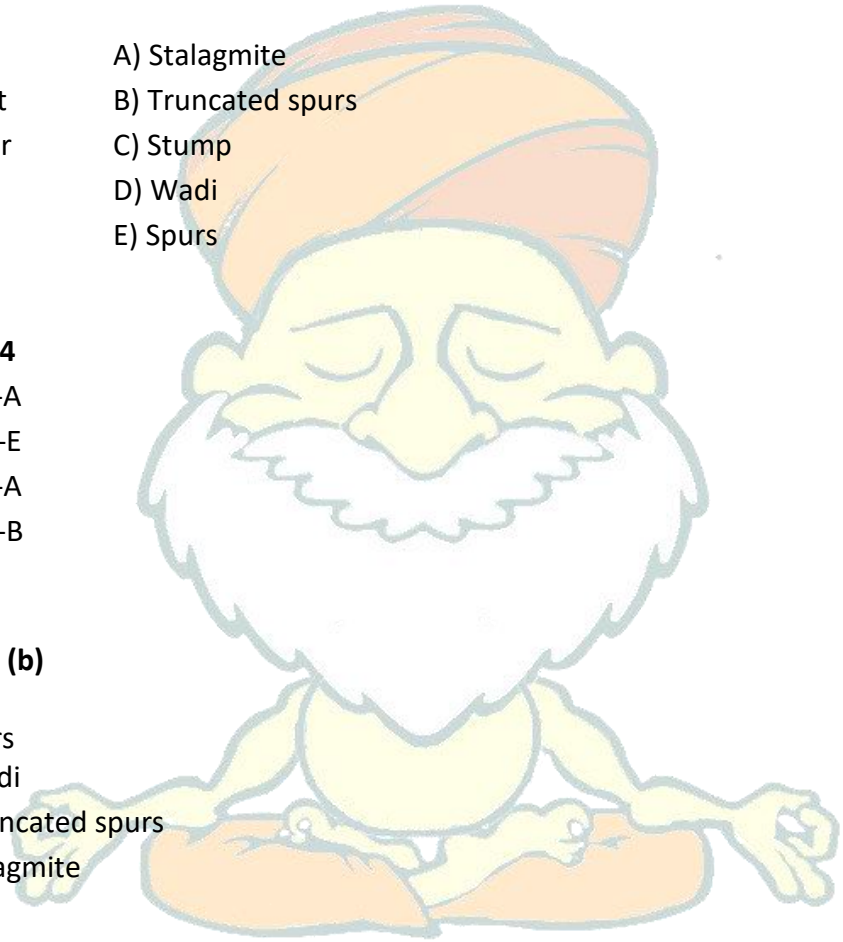
Q.5) Match the following in correct sequence:

Land forms	***Features***
1. Rivers	A) Stalagmite
2. Desert	B) Truncated spurs
3. Glacier	C) Stump
4. Karsts	D) Wadi
	E) Spurs

Codes:

1-2-3-4

a) E-D-C-A
b) A-D-B-E
c) E-D-B-A
d) A-C-D-B



Q.5) Solution (b)

Rivers : : Spurs
Desert : : Wadi
Glacier : : Truncated spurs
Karsts : : Stalagmite

Q.6) Consider the following statements:

1. Most of the hot deserts are present on the western margin of the continents in the zones of trade winds.
2. Namib desert is a classic example of the zone where trade winds blow offshore.

Choose the correct answer from the codes given below:

a) 1 only
b) 2 only

c) Both 1 and 2
d) Neither 1 nor 2

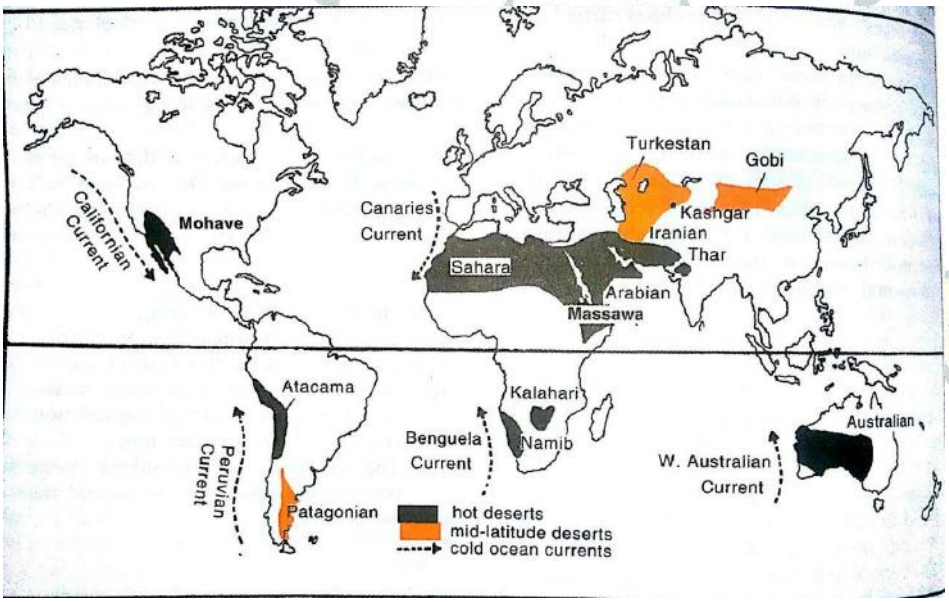
Q.6) Solution (c)

Hot deserts are on the western side of the continents because of the following reasons:

Off shore Trade Winds : This is one of the principle reasons for the location of Hot deserts on the western margins of continents. The trade winds blow in the North Easterly direction in the northern hemisphere while they blow in the South Easterly direction in the southern hemisphere. As such they blow over land and very dry thus no possibility of causing precipitation.

Cold Oceanic Currents : The presence of cold ocean currents along the western shores of continents leads to the development of high pressure over the water surface. This high pressure leads to subsidence of air hinders cloud formation. This would be another important reason.

Presence of orographic/mountain barrier : In case of hot deserts like the Mojave desert(USA) where the Rockies and the Thar desert(India) where the Aravallis act as orographic barrier to the rain bearing winds.



Q.7) Which of the following is not a chemical weathering process?

a) Solution

b) Oxidation
c) Exfoliation
d) Carbonation

Q.7) Solution (c)

Chemical Weathering Processes

A group of weathering processes viz; solution, carbonation, hydration, oxidation and reduction act on the rocks to decompose, dissolve or reduce them to a fine state.

Water and air (oxygen and carbon dioxide) along with heat speed up all chemical reactions.

Q.8) With reference to residual mountain which of the following statements is/are correct?

1. Residual mountains are formed by general lowering of level of surfaces nearby due to faulting.
2. Residual mountains can also be formed by the action of weathering.
3. Vindhyas and Rajmahal hills are example of residual mountains.

Select the correct answer using the code below:

a) 1 only
b) 1 and 2 only
c) 2 and 3 only
d) 1, 2 and 3

Q.8) Solution (c)

Block mountains are formed by the internal earth movements. When the forces of tension act on the rocks, they create faults in them. When the land between the two almost parallel faults is raised above the adjoining areas, it forms a block mountain.

The weathering and different agents of erosion – rivers, winds, glaciers etc. are constantly acting on the earth's crust. As soon as an elevated mountain range appears on the earth's surface, the agents of gradation begin their work of leveling it down. To a large extent, the process of wearing down depends on the shape and structure of the rocks.

After thousands of years, soft rocks are worn down into sand and the hard rocks are left standing up in the area that has been reduced in height. These are called residual mountains.

Hills like Vindhyas, the Nilgiris, the Parasnath, the Rajmahal and the Aravalis in India are examples of residual mountains.

Q.9) Match List I with List II and select the correct answer using the code given below the Lists:

	List I	**List II**
	Name	***Part of Ocean***
1.	Gulf of Thailand	A. South China Sea
2.	Gulf of Ob	B. Arctic Ocean
3.	Gulf of Aqaba	C. Red Sea
4.	Persian Gulf	D. Indian Ocean

Code:

1-2-3-4

a) C-D-A-B
b) C-A-B-D
c) D-B-A-C
d) A-B-C-D

Q.9) Solution (d)

All the given list are correctly matched, hence (d) is the right answer.

Q.10) Which of the following is/are the characteristic features of the convergent plate boundary?

1. Formation of zone of progressively deeper earthquakes.
2. Formation of chain of volcanic islands.
3. Shortening and thickening of the plates within the collision zone.

Choose the correct answer using the codes below:

a) 1 and 2 only
b) 2 and 3 only
c) 2 only
d) 1, 2 and 3

Q.10) Solution (d)

Effects that are found at convergent plate boundary (oceanic) include: a zone of progressively deeper earthquakes, an oceanic trench, a chain of volcanic islands, and the destruction of oceanic lithosphere.

Effects found at a convergent boundary between continental plates include: intense folding and faulting, a broad folded mountain range, shallow earthquake activity, shortening and thickening of the plates within the collision zone.

Q.11) Match List I with List II and select the correct answer using the code given below the Lists:

	List I	**List II**
	Desert	***Country***
1.	Kyzyl Kum	A. China
2.	Dasht-e-Lut	B. Kazakhstan
3.	Kara Kum	C. Iran
4.	Ordos	D. Central Asian Countries

Code:

1-2-3-4

a) B-C-D-A
b) A-B-C-D
c) C-D-A-B
d) A-C-B-D

Q.11) Solution (a)

Fact based question. Self-explanatory.

Q.12) Which of the following statements is/are correct?

1. Ash and cinder cones are built where eruptions are of the explosive type with a predominance of pyroclastic material.
2. The ash and cinder cones seldom attain heights in excess of a few hundred metres.

Choose the appropriate answer:

a) 1 only
b) 2 only

c) Both 1 and 2
d) Neither 1 nor 2

Q.12) Solution (c)

Both the given statements are correct.

On the basis of material ejected, the volcanoes may be classified into four major types: (i) basalt cones, (ii) bsalt domes or shield, (iii) ash or cinder cones, and (iv) composite or strato cones.

(i) Basalt cones

Basalt cones are rare. They are likely to be low rather than high cones because of the fluidity of basaltic lava. The Rangitoo (New Zealand) and Skjaldbreit(Iceland) are the most suitable examples of basalt cone volcanoes.

(ii) Basalt domes or shield

The Hawaiian volcanoes are the excellent examples of basalt domes or shield volcanoes as are Mt. Etna and many of the volcanoes of Iceland. Basalt domes are formed where fluid basaltic lava is extruded. They often attain great heights (e.g., Mauna Loa has an altitude of 4,219 metres).

(iii) Ash or cinder cones

Ash and cinder cones are built where eruptions are of the explosive type with a predominance of pyroclastic material. Growth of an ash or cinder cone begins around a crater. The ash and cinder cones seldom attain heights in excess of a few hundred metres

(iv) Composite or strato cones

A strato volcano is characterized by alternating sheet of lava and pyroclastric material. Its structure attests to alternating periods of explosive and quiet eruptions. Lava intruded into fissures solidifies to form dykes (dikes), if injected between layers of fragmental ejecta it forms sills.

Q.13) While entering the plains, Himalayan rivers generally make which of the following patterns?

1. Braided channels

2. Flat valleys
3. Ox-bow lakes

Select the correct answer using the codes below:

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

Q.13) Solution (d)

Braided channels occur in rivers with high slope when, threshold level of sediment load or slope is reached, any slope over this threshold creates a braided stream. This is true for Himalayan Rivers and so 1 is correct.

Flat valleys, like V-shaped valleys, are formed by streams, but they are no longer in their youthful stage, and are instead considered mature. With these streams, as the slope of a stream's channel becomes smooth, and begins to exit the steep V or U-shaped valley, the valley floor gets wider. Because the stream gradient is moderate or low, the river begins to erode the bank of its channel instead of valley walls. So, 2 is correct as it is found in Himalayan rivers.

An oxbow is a crescent-shaped lake lying alongside a winding river. The oxbow lake is created over time as erosion and deposits of soil change the river's course. This is found in bank eroding Himalayan Rivers. So, 3 is correct.

Q.14) The rivers originating from the Amarkantak range present a good example of

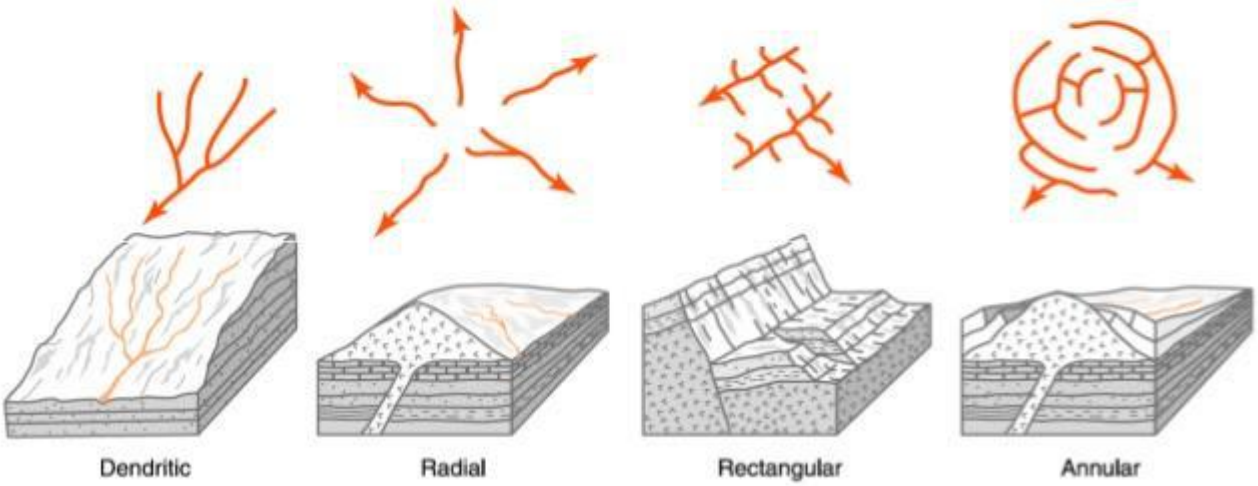
a) Dendritic Drainage pattern
b) Radial Drainage pattern
c) Trellis Drainage pattern
d) Centripetal Drainage pattern

Q.14) Solution (b)

When the rivers originate from a hill and flow in all directions, the drainage pattern is known as 'radial'. This can be seen in the Amarkantak range. So, (b) is correct.

TYPES OF DRAINAGE PATTERNS

- **Dendritic drainage pattern:** it is also common where the rock layers are horizontal.
- **Rectangular drainage pattern:** A region that has prominent parallel and perpendicular faults, repeated folds, or a strong rectangular jointing pattern will display a rectangular drainage pattern.
- **Radial drainage pattern:** occurs in an eroded dome A radial drainage pattern resembles the spokes of a wheel.
- **Annular drainage pattern:** Annular drainage is a pattern of concentric circles that are connected by short radial stream segments.



Q.15) A large blister or igneous mound with a dome-shaped upper surface and a level base fed by a pipe-like conduit from below is called

a) Laccolith
b) Batholith
c) Phacolith
d) Lopolith

Q.15) Solution (a)

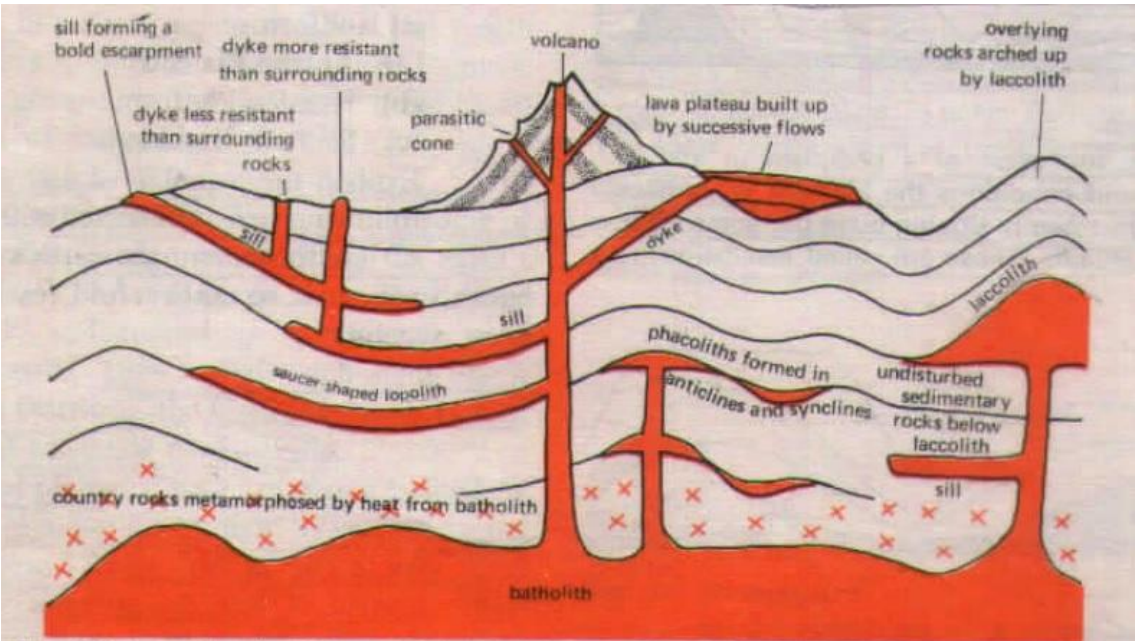


Fig. 26 Intrusive landforms of igneous intrusions in volcanic regions (showing sill, dyke, laccolith, lopolith phacolith and batholith)

Q.16) Consider the following statements about 'National Mission on Monuments and Antiquities' (NMMA)

1. It has the mandate of identifying, documenting, conserving and making accessible the manuscript heritage of India
2. It helps in developing synergy between institutions like Archaeological Survey of India, State Departments, concerned Institutions and NGOs to generate close interaction
3. Raja Rammohan Roy Library Foundation has been declared as the nodal agency for the NMMA for administrative, logistic, planning and budgeting purposes

Which of the following statements is/are correct?

a) 1 and 2
b) Only 2
c) 1 and 3
d) 2 and 3

Q.16) Solution (b)

Raja Rammohan Roy Library Foundation has been declared as the nodal agency for the National Mission on Libraries for administrative, logistic, planning and budgeting purposes.

National Mission for Manuscripts (NMM) has the mandate of identifying, documenting, conserving and making accessible the manuscript heritage of India. It is a national effort in the form of a mission for logical, radical and urgent response to a very contemporary challenge – of reclaiming the in heritance contained in manuscripts, often in a poor state of preservation.

Objectives of NMMA

- Documentation and creation of suitable database on built heritage and sites for information and dissemination to planners, researchers etc. and for better management of such cultural resources.
- Documentation in a uniform format developed by NMMA, of all Antiquities that are available in the form of Registered Antiquities, Catalogued Antiquities with Central as well as State Governments, Private museums and collections, Universities, etc.
- Promote awareness and sensitize people concerning the benefits of preserving the historical and cultural aspects of built heritage, sites and antiquities.
- Extend training facility and capacity building to the concerned State Departments, Local bodies, NGOs, Universities, Museums, Local communities etc.
- Help in developing synergy between institutions like Archaeological Survey of India, State Departments, concerned Institutions and NGOs to generate close interaction.
- Publication and Research

Source: http://pib.nic.in/newsite/PrintRelease.aspx?relid=158261

Q.17) Bluesnarfing is

a) A method whereby users download malicious code by simply clicking at some advertisement on any website that is infected
b) Theft of information from a wireless device through a Bluetooth connection
c) Fraudulent practice of sending emails in order to induce individuals to reveal personal information, such as passwords and credit card numbers
d) It enters your computer network and encrypts your files using public-key encryption and this encryption key remains on the hacker's server

Q.17) Solution (b)

Bluesnarfing is the theft of information from a wireless device through a Bluetooth connection. Bluetooth is a high-speed but very short-range wireless technology for exchanging data between desktop and mobile computers, personal digital assistants (PDAs), and other devices. By exploiting a vulnerability in the way Bluetooth is implemented on a mobile phone, an attacker can access information -- such as the user's calendar, contact list and e-mail and text messages -- without leaving any evidence of the attack. Other devices that use Bluetooth, such as laptop computers, may also be vulnerable, although to a lesser extent, by virtue of their more complex systems. Operating in invisible mode protects some devices, but others are vulnerable as long as Bluetooth is enabled.

Q.18) Which one of the following straits is nearest to the International Date Line?

a) Malacca Strait
b) Bering Strait
c) Strait of Florida
d) Strait of Gibraltar

Q.18) Solution (b)

The International Date Line is an imaginary Line on the 180th meridian in the Pacific Ocean that goes through the Bering Strait (between Alaska and Russia), which is half way around the world from Greenwich, England. It is basically a straight Line; however, there are some zigzags. These zigzags are necessary because otherwise one country would be observing two Dates at the same time. In order to prevent this, the International Date Line curves around these countries and only goes through the Pacific Ocean.

Refer Image -
https://upload.wikimedia.org/wikipedia/commons/6/61/International_Date_Line.png

Q.19) Dadaab, the world's largest refugee camp is located in

a) Jordan
b) Kenya
c) Egypt
d) Morocco

Q.19) Solution (b)

Source: http://www.thehindu.com/news/international/Kenya-court-blocks-closing-of-Dadaab-%E2%80%94-world%E2%80%99s-biggest-refugee-camp/article17277793.ece

Q.20) Qumran Caves was in news recently. It is located in

a) West Asia
b) North West Africa
c) Tibet
d) Iberian Peninsula

Q.20) Solution (a)

Qumran Caves are a series of caves, some natural, some artificial, found around the archaeological site of Qumran in the Judaean Desert of the West Bank. It is in a number of these caves that the Dead Sea Scrolls were discovered. The caves are recognized in Israel as a National Heritage Site.

Q.21) Where does exchange of gases (O2 and CO2) take place in our lungs?

a) Alveoli
b) Bronchi
c) Pleura
d) Trachea

Q.21) Solution (a)

Alveoli are tiny sacs within our lungs that allow oxygen and carbon dioxide to move between the lungs and bloodstream.

Source: http://www.thehindu.com/todays-paper/tp-national/How-lung-disease-can-block-ability-to-self-heal/article16897225.ece

Q.22) Consider the following statements about Airborne Early Warning and Control System (AEW&C) named Netra

1. It is indigenously developed by DRDO
2. It is based on Embraer aircraft

Which of the following statements is/are correct?

a) Only 1
b) Only 2
c) Both 1 and 2
d) Neither 1 nor 2

Q.22) Solution (c)

The Indian Air Force inducted its first indigenously developed airborne early warning and control (AEW&C) system, mounted on a Brazilian Embraer-145 jet.

The Netra AEW&C system has been developed by the Defence Research and Development Organisation (DRDO) and has a range of around 200 km.

The AWACS is a robust monitoring system that provides 360-degree coverage, compared to AEW&C's 240-degree capability. The AWACS also has better range and endurance.

Source: http://www.hindustantimes.com/india-news/iaf-inducts-netra-aew-c-the-first-indigenously-developed-surveillance-plane/story-UxyMeY9oH4XvamNEd9JNTP.html

Q.23) Grizzled Squirrel Wildlife Sanctuary is located in

a) Tamil Nadu
b) Kerala
c) Maharashtra
d) Andaman and Nicobar Islands

Q.23) Solution (a)

The Grizzled Squirrel Wildlife Sanctuary (GSWS), also known as Srivilliputhur Wildlife Sanctuary, was established in 1988 to protect the vulnerable grizzled giant squirrel. It is bordered on the southwest by the Periyar Tiger Reserve and is one of the best preserved forests south of the Palghat Gap.

Source: http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/rare-butterfly-varieties-spotted-in-srivilliputhur-sanctuary/article17357548.ece

Q.24) Consider the following statements about Mycorrhiza

1. It is a symbiotic association between bacterial micro-organism and roots of plants
2. It is used as a biofertiliser
3. The shelf life of mycorrhiza biofertiliser is higher than rhizobium

Which of the following statements is/are correct?

a) 1 and 2
b) 2 and 3
c) 1 and 3
d) All of the above

Q.24) Solution (b)

Mycorrhiza basically is the name given to the system in which fungal micro organism make an association with the roots of plants. This mutual association results in the improved supply of water and nutrients, such as phosphate and nitrogen, to the host plant. In return, the fungal partner gets plant-fixed carbon as its food. We can envisage mycorrhiza as the extended arms of plants which procure foods from more distant regions under the earth

where the roots of plants cannot reach. The best part of this story is that this association is natural and nearly 90 per cent of plants make such associations.

This broad spectrum host-non-specificity of mycorrhiza is an important factor in its use as biofertiliser when compared with other microbial biofertilisers such as rhizobium which are host-specific. Also, the shelf life of mycorrhiza biofertiliser (3-5 years) is much higher than rhizobium (six months).

The use of mycorrhiza biofertiliser provides benefits at both ends of crop management, with reduction in chemical fertiliser (up to 50 per cent in certain cases) and associated yield increase (5-25 per cent).

The role of mycorrhiza in supplying nutrients is particularly important from the phosphorus nutrition point of view, which is otherwise an extremely immobile element in soil.

With the rising price of phosphatic fertilisers and nearly 50 per cent of Indian soils being phosphorus deficient, mycorrhiza can play a big role in farm fertilisation. Apart from this, mycorrhiza also performs other functions, such as increasing tolerance to environmental stress, providing protection from soil-born pathogenic disease and maintaining biological health of the soil.

Source: http://www.thehindubusinessline.com/opinion/columns/the-biofertiliser-option/article4279979.ece

Q.25) Consider the following statements about Rashtriya Kishor Swasthya Karyakram (RKSK)

1. The scheme is for boys and girls between the ages of 10-19 years
2. Ministry of Health & Family Welfare has developed a National Adolescent Health Strategy in collaboration with United Nations Population Fund (UNFPA) to guide the implementation of this programme

Select the correct statements

a) Only 1
b) Only 2
c) Both 1 and 2
d) Neither 1 nor 2

Q.25) Solution (c)

The Ministry of Health & Family Welfare has launched a health programme for adolescents, in the age group of 10-19 years, which would target their nutrition, reproductive health and substance abuse, among other issues.

The Rashtriya Kishor Swasthya Karyakram was launched on 7th January, 2014. The key principle of this programme is adolescent participation and leadership, Equity and inclusion, Gender Equity and strategic partnerships with other sectors and stakeholders. The programme envisions enabling all adolescents in India to realize their full potential by making informed and responsible decisions related to their health and well being and by accessing the services and support they need to do so.

To guide the implementation of this programme, MOHFW in collaboration with UNFPA has developed a National Adolescent Health Strategy. It realigns the existing clinic-based curative approach to focus on a more holistic model based on a continuum of care for adolescent health and developmental needs.

The Rashtriya Kishor Swasthya Karyakram (National Adolescent Health Programme),will comprehensively address the health needs of the 243 million adolescents. It introduces community-based interventions through peer educators, and is underpinned by collaborations with other ministries and state governments.

Objectives:

- Improve Nutrition
- Improve Sexual and Reproductive Health
- Enhance Mental Health
- Prevent Injuries and violence
- Prevent substance misuse

Source: http://timesofindia.indiatimes.com/india/1-6-lakh-peer-educators-to-address-health-queries-of-adolescents/articleshow/57262939.cms