

UPSC DAILY MACQs REPOSITORY April 2018

By ORACLE IAS

1) Scientists have developed Zika replicon system to develop vaccines. Which of the following statement defines the term Replicons?

- (a) Replicons are segments of viral genome that can replicate on their own, independent of the cellular chromosome.
- (b) Replicons are segments of bacterial genome that can replicate on their own, independent of the cellular chromosome.
- (c) Replicons are segments of viral genome work according to the cellular chromosome.
- (d) Replicons are segments of viral genome having no DNA.

Ans. (a)

Exp: Replicons are basically segments of viral genome that can replicate on their own, independent of the cellular chromosome. They can be used to locate portions of the viral molecule that block or halt viral replication. They can also study potential antiviral agents by differentiating between when the virus is making copies of itself and when it's altering its structure.

2) National Capital Territory (NCT) of Delhi declared free from bird flu after cases reported in October and November. Consider following statement regarding bird flu:

- 1. Bird flu is an infectious bacterial disease of birds caused by strains of the influenza.
- 2. People catch bird flu by close contact with birds or bird droppings.
- 3. It does not generally spread from person to person.

Which of the above statements is/are correct?

- (a) 1 and 2
- (b) 2 and 3
- (c) Only 2
- (d) All

Ans. (b)

Exp: Avian influenza, commonly called bird flu is an infectious viral disease of birds caused by strains of the influenza virus that have evolved to be specially adapted to enter avian cells. Influenza viruses are further classified by analyzing two proteins on surface of virus, hemagglutinin (H) and neuraminidase (N).

3) Cultivating sugarcane using drip irrigation technique has which of the following effect on Yield of the crop?

- (a) Increases Yield.
- (b) Increases Sugar Content.
- (c) Increases Both Yield and Sugar Content.
- (d) No effect.

Ans. (c)

Exp: The Tamil Nadu Agricultural University's Sugarcane Research Station at Sirugamani near here has taken up a research on cultivating sugarcane using drip irrigation technique for achieving higher yield with good sugar content. The research, being carried on an area of two acres using the 'TNAU (S) Si 8' variety, focusses on maximum utilisation of available water. It would also seek to educate the farmers on ways and means for economic use of fertilizers. More importantly, the length of the cane, the length of the nodes and inter nodes also increase appreciably

4) Which among the following Saints-Poets were associated with the Vaishnavite Movement?

1. Chaitanya
2. Narsinha Mehta
3. Meera
4. Kabir

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Codes:

(a) 1, 2 and 4 (b) 1, 2 and 3

(c) 3 and 4 (d) 2 and 4

Ans. (b)

Exp: Chaitanya, Narsinha Mehta and Meera were associated with the Vaishnavite Movement.

5) Consider the following statements related to the religious practice of Ashoka:

1. Ashoka adopted Buddhism but he was hostile to the Buddhist Sanghas as he wanted to maintain secularism.
2. Through his Dhamma, he had asked his subjects to be kind, compassionate and to observe nonviolence.
3. He had forced Buddhism on his subjects in later period to create tolerance towards other religions.

Which of the above statements are incorrect?

(a) 2 and 3 (b) 1 and 3

(c) Only 3 (d) All

Ans. (b)

Exp: There is no doubt that Ashoka's personal religion was Buddhism. In his Bhabru edict he says he had full faith in Buddha, Dhamma and Sangha. Though Ashoka accepted Buddhism as his main faith, he never forced either Buddhism or the Buddhist ideals on his subjects. The Dhamma, as explained in Ashoka's edicts is not a religion or a religious system but a 'Moral Law', a 'Common Code of Conduct' or an 'Ethical Order'. Ashoka is the only king in the history of human kind who apologized to his conquered subject for having waged war (Kalinga) against them and caused them misery and sufferings.

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6) Consider the following statements with respect to the Paleolithic Culture:

1. The Paleolithic sites are spread in practically all parts of India except the alluvial plains of Indus and Ganga.
2. The Paleolithic Culture is characterized by the use of most sophisticated metal weapons for hunting.
3. The people of Paleolithic Culture started practicing settled life and were the finest agriculturists of their time.
4. The Paleolithic Culture of India had developed in the Pleistocene period of ice age.

Which of the above statements are correct?

- (a) 1, 2 and 4
- (b) 1, 2 and 3
- (c) 3 and 4
- (d) 1 and 4

Ans. (d)

Exp: Paleolithic Culture: The people of this period were mainly hunters and food gatherers and barely managed to gather his food and lived on hunting. He had no knowledge of cultivation and house building. They used stone weapons for hunting. The Paleolithic Culture of India developed in the Pleistocene period of ice age. Various caves and rock shelters belonging to the upper Paleolithic phase have been discovered at Bhimbetka. The Paleolithic period is known as the Stone Age

7) Which of the following pair(s) is/are correct?

1. Continental Margins: Deep oceanic trenches are found here.
2. Abyssal Plains: It is the zone of intense volcanic activity.
3. Mid-oceanic ridges: Mountain range present under the sea where the continental sediments get deposited.

Codes:

- (a) Only 1
- (b) 2 and 3
- (c) 1 and 2
- (d) All

Ans. (a)

Exp: Continental Margins include continental shelf, continental slope, continental rise and deep-oceanic trenches. It too contains deep oceanic trenches. The abyssal plains are the areas where the continental sediments that move beyond the margins get deposited. Mid-oceanic ridges form an interconnected chain of mountain system within the ocean. It is the longest mountain-chain on the surface of earth. Its rift system at crest is of intense volcanic activity.

8) Which of the following is/are true in the context of 'rock cycle'?

1. Metamorphic rocks through continuous denudation change into igneous rocks.
2. Sedimentary rocks upon melting in the interior change into metamorphic rocks.
3. Igneous rocks under high pressure and heat transformed into metamorphic rocks.

Codes:

- (a) Only 1 (b) 2 and 3
- (c) Only 3 (d) None

Ans. (c)

Exp: Metamorphic rocks through continuous denudation change into sedimentary rocks. Sedimentary rocks upon melting in the interior change into igneous.

9) Which of the following statement is/are true about the ocean currents?

1. Pressure gradient, temperature and salinity differences lead to formation of Ocean currents.

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2. Ocean currents help in navigation and influence the weather of the region.
3. Unlike winds they are not influenced by coriolis force.

Codes:

- (a) Only 1 (b) 1 and 2
(c) 2 and 3 (d) All

Ans. (b)

Exp: Sargasso sea formed in Atlantic ocean which is a motionless ocean region around which ocean currents circulate. Ocean currents too get influenced by coriolis force.

10) Which of the following statements is/are correct with respect to different forms of government?

1. Democracy: The government has to explain its actions and defend its decisions to the people.
2. Monarchy: Whole power and authority of a nation rests in one person's hand not hereditary in nature and ruler does not have legal restrictions or political barriers.
3. Autocracy: A king has absolute powers to rule the country.

Codes:

- (a) Only 1
(b) 2 and 3
(c) 1 and 3
(d) None

Ans. (a)

Exp: In monarchy (king or queen) has the power to make decisions and run the government. The monarch may have a small group of people to discuss matters with, but the final decision making power remains with the monarch. Unlike in a democracy, kings and queens do not have to explain their actions or defend the decisions they take. Autocracy is the type of ruling system where the whole power and authority of a nation rests in one person's hand. This is also called as an absolute monarchy. In an autocracy, the ruler does not have legal

restrictions or political barriers. H/she can have the power to make any decision on his/her own.

11) Which of the following statements defines the basic features of a democracy?

1. People vote for their representatives during elections but elections can be held randomly.
2. People rule themselves by participating in the making of the rules.
3. People have economic and political freedom.

Codes:

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

Ans. (c)

Exp: Though people vote for their leaders during election, but these elections are to be held at fixed intervals. Then only it qualifies to be called as democracy. In a democracy, government derives authority only from people. People give the mandate. People are the ultimate rulers. So government has to be answerable to people in a democracy. There is Universal Adult Franchise i.e. voting rights for every adult irrespective of his religion, caste, gender, etc gives a wide meaning to the democracy, without which a country is not fully democratic nowadays.

This includes well educated & informed citizens also.

12) Which of the following factors is/are responsible for the evolution of 'diversity in India'?

1. Geography of a region
2. History of that region
3. Migration
4. Type of government

Codes:

- (a) Only 1
- (b) 1 and 2

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(c) 2 and 3

(d) All

Ans. (d)

Exp: Both Geography and History of a region leads to different kind of professions, habitats, clothing, etc which leads into differences with respect to other regions and ultimately resulting into diversity. Migration leads to intermingling of people from different cultures which leads to cultural exchange, resulting into a hybrid culture i.e. mix of both old & new ones. Government has a vital role in either promoting diversity (like that of India) or suppressing diversity (like that of Pakistan & N Korea). It depends on the attitude of government towards minorities, migrants, etc

13) Among the following, which is/are the effects of globalization on the Indian industry?

1. Greater competition in product market.
2. Increment in job opportunities for unskilled labours.

Select the correct answer from below given options:

(a) Only 1

(b) Only 2

(c) Both

(d) None

Ans. (a)

Exp: The negative Effects of Globalization on Indian Industry are that with the coming of technology the number of labor required decreased and this resulted in many people being removed from their jobs. This happened mainly in the pharmaceutical, chemical, manufacturing, and cement industries.

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14) Which of the following statements related to the estimation of National Income is/are correct?

1. Dadabhai Naoroji had prepared the first estimates of National income.
2. Dr. VKRV Rao used scientific procedure in estimating the national income.
3. Findlay Shirras applied a combination of census of output and census of income methods for calculating National Income.

Codes:

- (a) Only 2
- (b) 2 and 3
- (c) 1 and 2
- (d) All

Ans. (c)

Exp: Dadabhai Naoroji, fondly called the Grand Old Man of India, was the pioneer in this field. He prepared the first estimates of National income in 1876. He estimated the national income by first estimating the value of agricultural production and then adding a certain percentage as non-agricultural production. However, such method can only be called as a non-scientific method. The first person to adopt a scientific procedure in estimating the national income was Dr. VKRV Rao in 1931. He divided the Indian Economy into two parts: Agricultural Sector which included agriculture, forests, fishing and hunting and Corporate Sector which included industries, construction, business, transport and public services.

15) Which of the following are the benefits of FDI?

1. Create higher output and jobs.
2. Raise level of investment.
3. Upgradation of technology.
4. Help finance a current account deficit.
5. Develops human and institutional capabilities.

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Codes:

- (a) 1, 2, 3 and 5
- (b) 1, 2, 3 and 4
- (c) 2, 3, 4 and 5
- (d) All

Ans. (d)

Exp: Foreign direct investment (FDI) is made into a business or a sector by an individual or a company from another country. Benefits of FDI are:

Capital inflows create higher output and jobs.

- Capital inflows can help finance a current account deficit.
- Long term capital inflows are more sustainable than short term portfolio inflows. e.g. in a credit crunch, banks can easily withdraw portfolio investment, but capital investment is less prone to sudden withdrawals.
- Recipient country can benefit from improved knowledge and expertise of foreign multinational.
- Investment from abroad could lead to higher wages and improved working conditions, especially if the MNCs are conscious of their public image of working conditions in developing economies

16) Which of the following statements related to the Bird Life International is/are correct?

1. It is a platform for all the stakeholders engaged in genetic resource conservation and management of birds in developing nations.
2. Bird Life International is the official Red List authority for birds, for the International Union for Conservation of Nature.
3. It publishes the scientific journal Bird Conservation International.

Codes:

- (a) 1 and 2 (b) 2 and 3

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(c) 1 and 3 (d) All

Ans. (b)

Exp: It is a global partnership of conservation organizations that strives to conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources. It is the world's largest partnership of conservation organizations, with over 120 partner organizations. Bird Life International is the official Red List authority for birds, for the International Union for Conservation of Nature.

Publications:

- Bird Life International publishes a quarterly magazine, World Birdwatch, which contains recent news and authoritative articles about birds, their habitats, and their conservation around the world.
- It publishes the scientific journal Bird Conservation International.

17) Which of the following statements is/are true about Forest Ecosystem?

1. The productivity and community stability of a Coniferous forest is lower than any of the types of forest.
2. Tropical Evergreen Forests are the only forest where trees don't shed their leaves in accordance with the seasonal changes.
3. Rosewood and Sandalwood are found in Tropical Deciduous forest.

Codes:

(a) Only 1 (b) 1 and 2

(c) 2 and 3 (d) All

Ans. (a)

Exp: Coniferous Forest: Soils are poor and temperature is not high enough. So productivity and community stability are lower in general. These forests also are

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evergreen in nature and don't shed their leaves in accordance with the seasonal changes.

Tropical Evergreen: Rosewood, Mahogany, Ebony, etc. Tropical Deciduous: Sandalwood, Sal, Teak, etc.

18) Which of the following current events related to the renewable energy is/are correctly matched?

1. India's first LNG-powered bus rolled out in Kerala.
2. India's first BIO-CNG plant producing CNG from agricultural residue was inaugurated in Punjab.
3. India's first Second Generation (2G) Ethanol Bio-refinery is being proposed at Pune.

Select the correct answer using the codes

given below:

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) Only 1

Ans. (d)

Exp: India's first BIO-CNG plant producing CNG from agricultural residue was inaugurated in Pune. India's first Second Generation (2G) Ethanol Bio-refinery is being proposed at Bhatinda.

19) Recently India has been declared as a Yaws free country. Which of the following statements is/are true about this?

1. Yaws is an abnormality in the functioning of body where the heart is unable to pump enough blood.
2. Yaws mainly occurs in cold and dry temperate climate regions.

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3. Yaws free status has been accorded officially by WHO and UNICEF.

Codes:

- (a) Only 1
- (b) 2 and 3
- (c) Only 3
- (d) All

Ans. (c)

Exp: Yaws is a chronic infection that affects mainly the skin, bone and cartilage. The disease occurs mainly in poor communities in warm, humid, tropical areas. It affects mainly children below 15 years of age. Yaws free status has been accorded officially by WHO and UNICEF

20) The U.S. Food and Drug Administration (FDA) has announced that it will seek to eliminate majority of partially hydrogenated oils (PHOs) from the country's food supply by 2018. Consider the following statements related to the Tran's fats:

- 1. Artificial TFAs are formed when hydrogen is made to react with the oil to produce fats resembling pure ghee/butter.
- 2. Oil containing Trans Fats can be preserved longer and give the food the desired shape and texture.

Codes:

- (a) Only 1
- (b) Only 2
- (c) Both
- (d) None

Ans. (c)

Exp: TFA containing oils can be preserved longer, they give the food the desired shape and texture and can easily substitute 'Pure ghee'. These are comparatively far lower in cost and thus add to profit/saving.

21) Recently a study depicted that protein from vegetable sources rather than meat boost life expectancy. Consider the following statements about Proteins:

1. It builds structures such as muscles, tissues and organs.
2. It plays an important role in cell signaling and immune responses.
3. It is required for digestion.

Which of the above statements is/are correct?

- (a) 1 and 2
- (b) 2 and 3
- (c) 1 and 3
- (d) All

Ans. (d)

Exp: Protein enable growth, development and repair. Build structures such as muscles, tissues and organs, including the heart, lungs, and digestive organs. Enzymes, such as those required for digestion. Hormones, such as those for the endocrine glands. Proteins, therefore, are needed not only for obvious body structures, such as muscles, but also for the immune and digestive systems, etc. Proteins are also important in cell signaling, immune responses, cell adhesion, and the cell cycle. Protein is also a necessary component in our diet, since animals cannot synthesise all the amino acids and must obtain essential amino acids from food. Through the process of digestion, animals break down ingested protein into free amino acids that can be used for protein synthesis

22) Consider the following statements related to the Samkhya Philosophy:

1. The Samkhya is the oldest of all systems of philosophy.
2. The Samkhya system believes that the evolution of universe is not due to God but due to the inherent nature of the Prakriti (matter).
3. It is from Prakriti that all things develop.
4. It believes that the Purusa (Soul) is dependent on Prakriti and not vice versa.

Which of the above statements are correct?

- (a) 2, 3 and 4
- (b) 1, 2 and 3
- (c) 1, 3 and 4
- (d) 1 and 4

Ans. (b)

Exp: The Samkhya is the oldest of all systems of philosophy. It teaches the existence of twenty five basic principles (tattva). Of these twenty five tattvas, first is Prakriti i.e. "matter". The Samkhya system believes that the evolution of universe is not due to God but due to the inherent nature of the Prakriti. It is from Prakriti that all things like air, water, ether (akasa), intelligence (buddhi), selfconsciousness, sight, touch, hearing, speech, etc. develop. One of the most important tattva in all this is Purusa, the "soul". As in Jainism the Samkhya believes that there are infinite number of souls and Purusa is not dependent on Prakriti nor Prakriti is dependent on Purusa. Yet Purusa is involved in some way in the Prakriti. i.e. the matter and salvation lies in recognising their differences. A very important feature of Samkhya is the doctrine of three qualities (guna). These are virtue (Sattva), passion (Rajas) and dullness (Tamas).

23) Consider the following statements related to the Ashokan Incriptions:

1. The Ashokan inscriptions are found only in India and located generally on ancient highways.

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2. The name of Ashoka occurs in Major Pillar Edict found at Madhya Pradesh.
3. The other inscriptions refer to him as devanampiya (beloved of the gods) and piyadasi.
4. The inscriptions of Ashoka were mainly written in Prakrit language with Brahmi Script.

Which of the above given statements is/are correct?

- (a) 2 and 3
- (b) 1, 3 and 4
- (c) Only 3
- (d) All

Ans. (c)

Exp: The inscriptions on rocks are called Rock Edicts, and those on Pillars, Pillar Edicts. The Ashokan inscriptions are found in India, Nepal, Pakistan and Afghanistan. Altogether, they appear at 47 places. However, the name of Ashoka occurs only in copies of Minor Rock Edict found at three places in Karnataka and one in Madhya Pradesh. All other inscriptions refer to him as devanampiya (beloved of the gods) and piyadasi. These inscriptions are generally located on ancient highways. The inscriptions of Ashoka were written in four different scripts. In Afghanistan area they were written in Greek and Aramaic languages and scripts, and in Pakistan area, in Prakrit language and Kharosthi script. Inscriptions from all other areas are in Prakrit language, written in Brahmi script.

24) Consider the following statements with respect to the Charvaka philosophical system:

1. The Charvaka system (also called Lokayata) believes only in materialism and recognised the principle of direct perception.
2. The Charvaka system does not believe in soul, god, or any other life beyond the present one.

3. It does not believed in the Law of karma and rebirth.

Which of the above given statements is/are correct?

- (a) 1 and 3
- (b) 1 and 2
- (c) Only 1
- (d) All

Ans. (d)

Exp: The Charvaka system (also called Lokayata) believes only in materialism. The physical body composed of material elements is the only essence of man. The Charvaka system does not believe in soul, god, or any other life beyond the present one. There is no life beyond death, no heaven or hell, no 'Law of karma, and no rebirth.

25) Which of the following statements is/are true about rural urban migration?

- 1. Rural urban migration leads to the feminization of agriculture.
- 2. Rural urban migration increases the remittances to home and decreases the child labour and crime rates in cities.

Codes:

- (a) Only 1 (b) Only 2
- (c) Both (d) None

Ans. . (a)

Exp: Rural urban migration is mainly male dominating and rural society is left with many households without any male members, so it leads to feminization of agriculture. Due to migration many people send their earned money to their homes. But due to rural urban migration a large number of children are getting into the cities where labour is in high demand at low prices, hence it gives birth to child labour. Cities are mostly

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having high rates of crime because of rich poor divide, jobless youth, uneducated youth, etc.

26) Which of the following statements is/are true about Smart Cities Mission?

1. It is mainly focused on city improvement, city renewal and city extension.
2. It is a fully centrally sponsored scheme.
3. E-governance, urban mobility and citizen services all are the Smart City solutions.

Codes:

(a) 1 and 2 (b) Only 3

(c) 1 and 3 (d) All

Ans. (c)

Exp: It is not involved in setting up new cities or expanding the cities, rather focus is on renewal of urban features and getting the urban functions retrofitted. It is equally shared between the central government and the concerned state government. It is being implemented by Ministry of Urban Development in collaboration with the concerned state governments. Smart city solutions comprise many things such as E governance, urban mobility, citizen services, energy management, water management, etc.

27) Which of the following statements is/are true about urban pollution?

1. Acid rain in urban areas occurs due to generation of nitrous oxide from diesel vehicles.
2. Construction activities in cities are contributing to the air pollution and soil pollution.
3. Haze and photochemical smog are more prevalent in urban areas due to industrialization.

Codes:

(a) 1 and 2 (b) Only 2

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(c) 1 and 3 (d) All

Ans. (d)

Exp: Acid rain is more prevalent in urban areas as nitrous oxide and sulphurous oxide mainly comes out of fossil fuel combustion which contributes to the acid rain.

Construction activities release large quantity of dust in atmosphere in various sizes. It increases the particulate matter in air. Haze and photochemical smog are the result of release of dust particles, nitrous oxide, etc which is mainly evident in urban areas.

28) The Central Water Commission is the apex technical organisation in the country for development of water resources. Which of following statements related to it are correct?

1. It maintains water resources information system for each river basin.
2. It carries out techno – economic appraisal of state projects only.
3. It acts as attached organization to the inter-state river dispute tribunal to provide assistance.

Select the correct answer using the codes given below:

(a) 1 and 2

(b) 2 and 3

(c) Only 1

(d) All

Ans. (c)

Exp: Central Water Commission has presence in almost all the aspects of water resources development and management. The main functions of Central Water Commission being discharged through its India-wide field basin oriented setup are –

- Hydrological observations and studies,
- Maintaining water resources information system for each river basin,

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- Providing assistance in regulation and development of inter-state rivers,
- Issuing flood/inflow forecasts,
- Carrying out techno-economic appraisal of projects,
- Taking up survey and investigation of projects on request,
- Providing design consultancy, and
- Advising and assisting the Government of India on related matters.

29) Which of the following statements in context of different national institutions is/are correct?

1. Zonal Council: It has been set up to solve inter-State problems and fostering balanced socio – economic development of the respective zones.
2. NITI Aayog: It will develop mechanism to formulate credible plans for the village level.
3. Medical Council of India: It is a quasi judicial body which grants recognition of medical qualifications, gives accreditation to medical schools.

Select the correct answer using code below:

- (a) Only 1
- (b) 1 and 3
- (c) 1 and 2
- (d) All

Ans. (c)

Exp: Zonal Councils are advisory councils and are made up of the states of India have been grouped into six zones to foster cooperation among them. Five Zonal Councils were set up vide Part-III of the States Reorganisation Act, 1956. The North Eastern States' special problems are addressed by another statutory body – The North Eastern Council, created by the North Eastern Council Act, 1971. The chairman of the Zonal council is Union Home Minister and Chief Ministers of the States included in each zone act as Vice-Chairman of the Zonal Council for that zone by rotation,

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each holding office for a period of one year at a time. The NITI Aayog will comprise the following: Prime Minister of India as the Chairperson Governing Council comprising the Chief Ministers of all the States and Lt. Governors of Union Territories Regional Councils will be formed to address specific issues and contingencies impacting more than one state or a region. These will be formed for a specified tenure. NITI Aayog will emerge as a think-tank that will provide Governments at the central and state levels. The NITI Aayog will develop mechanisms to formulate credible plans to the village level and aggregate these progressively at higher levels of government. It will ensure special attention to the sections of society that may be at risk of not benefitting adequately from economic progress. The Medical Council of India (MCI) is a statutory body for establishing uniform and high standards of medical education in India.

The Council grants recognition of medical qualifications, gives accreditation to medical schools, grants registration to medical practitioners, and monitors medical practice in India.

30) With respect to the National Biodiversity Authority (NBA) consider the following statements:

1. It is established in 2003 to implement the provisions under the Biological Diversity Act.
2. It acts as an advisory body to the Government of India for fair and equitable sharing of benefits arising out of the use of biological resources.
3. It advice the State Governments in the selection of areas of biodiversity importance to be notified as heritage sites.

Which of the above statements are correct?

- (a) 1 and 2
- (b) 2 and 3
- (c) 1 and 3
- (d) All

Ans. d

Exp: The National Biodiversity Authority (NBA) was established in 2003 to implement India's Biological Diversity Act (2002). The NBA is a Statutory, Autonomous Body and it performs facilitative, regulatory and advisory function for the Government of India on issues of conservation, sustainable use of biological resources and fair and

equitable sharing of benefits arising out of the use of biological resources.

The National Biodiversity Authority (NBA) is a statutory autonomous body under the Ministry of Environment and Forests, Government of India established in 2003 to implement the provisions under the National Biological Diversity Act, 2002, after India signed Convention on Biological Diversity (CBD) in 1992. It acts as a facilitating, regulating and advisory body to the Government of India “on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.” Additionally, it advises State Governments in identifying the areas of biodiversity importance (biodiversity hotspots) as heritage sites.

31) Which of the following statements is/are true about Ecotone?

1. It is a zone of junction of two or more diverse ecosystems.
2. Both mangrove forests and grasslands are the examples of Ecotone.
3. Edge effect occurs when the territorial size of ecotone is much larger than the adjacent ones.

Select the correct answer using the codes given below:

(a) Only 1 (b) 1 and 2

(c) Only 3 (d) All

Ans. (b)

Exp: The edge effects are changes in population or community structures that occur at the boundary of two habitats. Areas with small habitat fragments exhibit especially pronounced edge effects that may extend throughout the range. As the edge effects increase, the boundary habitat allows for greater biodiversity. It is not related to the territorial size

32) Which of the following statements is/are true about Ecological Niche ?

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1. A niche is a unique functional role or place of a species in an ecosystem.
2. Higher the number of niche in an ecosystem, more stable is the ecosystem.
3. Some species tend to have exact identical ecological niche in an ecosystem to maintain stability and continuity.

Codes:

(a) 1 and 2 (b) Only 1

(c) Only 3 (d) All

Ans. (a)

Exp: Different species may have similar niche, but not exactly identical niche

33) Which of the following terms associated with the Ecosystem is/are correctly matched?

1. Net primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis.
2. Catabolism is when Bacterial and fungal enzymes degrade detritus into simpler inorganic substances.
3. Secondary productivity is defined as the rate of formation of new organic matter by consumers.

Select the correct answer using the codes given below:

(a) 1 and 2 (b) Only 1

(c) 2 and 3 (d) All

Ans. (c)

Exp: Primary production is defined as the amount of biomass or organic matter produced per unit area over a time period by plants during photosynthesis. It is expressed in terms of weight ($g\ m^{-2}$) or energy ($kcal\ m^{-2}$). The rate of biomass

production is called productivity. Gross primary productivity of an ecosystem is the rate of production of organic matter during photosynthesis. Gross primary productivity minus respiration losses (R), is the net primary productivity (NPP). Secondary productivity is defined as the rate of formation of new organic matter by consumers

34) Which of the following statement correctly defines the term “Sea water greenhouse”?

- (a) The technology introduced by UK Company to grow crops in arid region.
- (b) The amount of green house emissions released by seawater.
- (c) The amount of green house gasses absorbed by the ocean as it acts as the largest carbon sink.
- (d) Green houses gases contribution from the fishing industry.

Ans. (a)

Exp: A seawater greenhouse is a green house structure that enables the growth of crops in arid regions, using seawater and solar energy. The technique involves pumping seawater (or allowing it to gravitate if below sea level) to an arid location and then subjecting it to two processes: first, it is used to humidify and cool the air, and second, it is evaporated by solar heating and distilled to produce freshwater. Finally, the remaining humidified air is expelled from the greenhouse and used to improve growing conditions for out door plants.

35) India has officially declared itself free from which of the following diseases?

1. Yaws
2. Polio
3. Small pox
4. Chikangunya

5. Thyroid

Select the correct code:

(a) 1 and 2

(b) 1, 2 and 3

(c) 2, 3 and 5

(d) Only 2

Ans. (b)

Exp: Many cases and death has been reported in Delhi due to Chikangunya. Thyroid is still prevalent in major part of India.

36) Nobel Prize in Medicine was awarded for “discoveries of mechanisms for autophagy”. What is autophagy?

(a) Autophagy refers to a process where cells grow at an unprecedented rate in case of injury in the body.

(b) Autophagy mainly maintains a balance between manufacture of cellular components and break down of damaged or unnecessary organelles and other cellular constituents.

(c) Autophagy involves delivery of cytoplasmic cargo to the lysosome through only.

(d) None of the above.

Ans. (b)

Exp: Autophagy refers to the process where cells disassemble unnecessary or malfunctioning cell components. The Nobel Prize in Chemistry 2016 was awarded to Frenchman Jean-Pierre Sauvage, British-born Fraser Stoddart and Dutch scientist Bernard “Ben” Feringa for “developing miniscule machines at the molecular level.

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37) Consider the following statements with respect to the Dharmasutras:

1. In ancient polity, the Dharmasutras were rules and regulations for the obedience by the general public only to maintain peace & stability.
2. They were in the form of decree from the rulers to secure complete obedience from the subjects.
3. In the modern concept they are similar to the constitution and the law books of the ancient Indian polity and society.

Which of the above given statements are incorrect?

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

Ans. (a)

Exp: The Dharmasutras are rules and regulations for the general public and the rulers. It can be termed in the modern concept as the constitution and the law books for the ancient Indian polity and society. These are also called Dharmashastras. These were compiled between 600 and 200 B.C.

38) Consider the following statements with respect to the Harappan Script:

1. Harappan Script is in Sanskritic alphabetical order and resembles to IndoAryan language.
2. It distinctly belongs to Munda family of languages.
3. It is in the pictographic form.

Which of the above given statements is/are correct?

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

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Ans. (d)

Exp: Harappan Script is in the pictographic form and has not been deciphered yet.

39) Which among the following given statements are the subject matter of Puranas?

1. Sarga (evolution of universe).
2. Mimansa (dissolution of universe).
3. Manvantantra (recurring of time).
4. Vamsa (genealogical list of kings and sages)

Codes:

- (a) 1, 2 and 3
- (b) 3 and 4
- (c) 1, 3 and 4
- (d) 2, 3 and 4

Ans. (c)

Exp: Five branches of historical studies are considered to form the subject matter of the Puranas. These are (i) sarga (evolution of universe), (ii) pratisarga (involution of universe), (iii) manvantantra (recurring of time), (iv) vamsa (genealogical list of kings and sages), and (v) vamsanucharita (life stories of some selected characters). Later on description of the tirthas (sacred places of pilgrimage) and their mahatmya (religious importance) was also included in it.

40) Which of the following statements is/are true about the Urban Heat Island?

1. In the Urban Heat Island the temperature contrast with the surrounding is higher during night as compared to the day.
2. Regular blowing of wind will increase the effect of urban heat island.

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3. Concrete and asphalt used in construction activities support the formation of urban heat island.
4. It increases the occurrence of heat waves in summer.

Codes:

(a) 1 and 2 (b) 2, 3 and 4

(c) 1, 3 and 4 (d) 2 and 4

Ans. (c)

Exp: Temperature contrast increases during night as the structural landforms in urban areas take more time to cool down. Wind while regularly blowing will drive the heated air from one place to another and hence decrease the effect of urban island. Concrete and asphalt are generally used in pavements, roofs, roads construction. These are having high heat capacity which raises the temperature of its region. It increases the occurrence of heat waves in summer

41) Which of the following statements is/are true about concept of conurbation?

1. It is a region comprising a number of cities which have merged through population growth and physical expansion.
2. It is a region in which administration of the cities or towns differs but social structure and culture remain identical.
3. It has multiple labour markets in disintegrated form.

Codes:

(a) Only 1 (b) 2 and 3

(c) 1 and 3 (d) All

Ans. (a)

Exp: Conurbation is a region comprising a number of cities which have merged through population growth and physical expansion. It is well connected through

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transport. It has a single labour market which is considered as travel to work area. It is an extensive urban area resulting from the expansion of several cities or towns so that they coalesce but usually retain their separate identities. In India examples of conurbation are Delhi NCR, Mumbai Metropolitan Region, etc.

42) Which of the following pairs related to Indian cities is/are correct?

1. Chandigarh and Bhubaneswar: planned cities of India.
2. Karaikal: highest sex ratio in India.
3. Bangalore: highest literacy rate in India.

Codes:

- (a) Only 1 (b) 1 and 2
(c) Only 3 (d) All

Ans. (a)

Exp: After Independence Chandigarh and Bhubaneswar are set up as planned cities in India. Kozikhode has the highest sex ratio. Aizawl has the highest literacy rate in India.

43) With respect to the Administrative Tribunal consider the following statements:

1. Administrative Tribunals were introduced by 44th Amendment in 1976.
2. It adjudicates disputes and complaints between the union and the states related to Services.
3. The members of the tribunal are drawn from administrative streams only. Which of the above statements are correct?

- (a) 1 and 3
(b) 2 and 3
(c) All

(d) None

Ans. (d)

Exp: The Administrative Tribunals were set up in the year 1985 under the Administrative Tribunals Act, 1985. Owing its origin to Article 323-A of the Constitution, Administrative Tribunals adjudicate disputes and complaints with respect to recruitment and conditions of service of persons appointed to the public service and posts in connection with the affairs of the union and the states.

The Administrative Tribunals exercise jurisdiction only in relation to the service matters of the litigants covered by the Act. The aggrieved persons can also appear before it personally. The Government can present its case through its departmental officers or legal practitioners. Thus, the Tribunal provides for speedy and inexpensive justice to the litigants. The Act provides for establishment of the Central Administrative Tribunal (CAT) and the State Administrative Tribunals (SAT). The CAT was set-up on 1 November, 1985. These benches also hold circuit sittings at the other seats of High Courts. Earlier the tribunal consisted of a Chairman, Vice-Chairman and members. With the amendment in Administrative Tribunal Act, 1985 in 2006 the Members have been given the status of Judges of High Courts. The members are drawn both from judicial as well as administrative streams so as to give the tribunal the benefit of expertise both in legal and administrative spheres

44) Consider the following statements about Press Council of India:

1. The Council's actions cannot be questioned in any court of law.
2. The Chairman of council should be the Chief justice of High Court.
3. A complaint against a newspaper for any information which is objectionable and affecting anyone personally can be directly moved to the Press Council of India.

Which of the above statements are correct?

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(a) 1 and 2

(b) 2 and 3

(c) All

(d) None

Ans: D

Exp: The Press Council of India is a statutory body in India that governs the conduct of the print media. It is one of the most important bodies that sustain democracy, as it has supreme power in regard to the media to ensure that freedom of speech is maintained. It may either warn or censure the errant journalists on finding them guilty. The Council's actions may not be questioned unless it is proved to be in violation of the constitution, which makes it an exceedingly powerful body. A complaint against a newspaper for any publication the complainant finds objectionable and affecting him personally, or for non-publication of any material, should first be taken up with the editor or other representative of the publication concerned. If the complaint is not resolved satisfactorily, it may be referred the Press Council of India. The Press Council is a statutory, quasi-judicial body which acts as a watchdog of the press. It adjudicates the complaints against and by the press for violation of ethics and for violation of the freedom of the press respectively. The Press Council is headed by a Chairman: usually, a retired judge of the Supreme Court of India (except for the first chairman, Justice J. R. Mudholkar, who was a sitting judge of Supreme Court of India in 1968).

It consists of a Chairman and 28 other members.

- 13 represent the working journalists.
- 6 persons who own the business of management of newspapers.
- 1 from manager of news agencies

Three are to be persons having special knowledge or practical experience in respect of education and science, law and literature and culture.

- 5 Members of Parliament: three from Lok Sabha, and two from Rajya Sabha. The members serve on the Council for a term of three years. The Council was last

reconstituted on 22 May 2001. The Council is funded by revenue collected by it as fees levied on the registered newspapers in the country on the basis of their circulation. No fee is levied on newspapers with a circulation of less than 5000 copies. The deficit is made good by grants by the Central Government, through the Ministry of Information and Broadcasting.

45) The Transplantation of Human Organs Act (THOA) recognizes which of the following types of living donors?

1. Near relatives like parents, siblings, grandparents, grandchildren or spouses.
2. Others who can donate for “affection and attachment” or for a special reason but not for financial considerations.
3. From prison mates (who get decrease in jail terms) if the recipient is comfortable.
4. Swap donors where near relative donors are swapped between patients whose own family members are incompatible.

Codes:

- (a) 1, 2 and 3
- (b) 1, 2 and 4
- (c) 2, 3 and 4
- (d) 1 and 2

Ans. (b)

Exp: Living donation takes place when a living person donates an organ (or part of an organ) for transplantation to another person. The living donor can be a family member, such as a parent, child, brother or sister, grandparent or grandchild (living related donation). It can also come from someone who is emotionally related to the recipient, such as a good friend, a relative, a neighbor or an in-law (living unrelated donation).

The law recognizes three types of living donors:

- Near relatives like parents, siblings, grandparents, grandchildren or spouses.
- Others who can donate for “affection and attachment” or for a special reason but

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not for financial considerations.

- Swap donors where near relative donors are swapped between patients whose own family members are incompatible

46) Which of the following statements correctly state the contribution of Mahalanobis to the Indian Economy?

1. He had established the Indian Statistical Institute (ISI) in Calcutta.
2. He had started a journal, Sankhya, which served as forum for statisticians.
3. During Second Five-Year Plan, he had encouraged for the development of small-scale industry in India.

Codes:

- (a) 1 and 2
- (b) 2 and 3
- (c) Only 3
- (d) All

Ans. (a)

Exp: During Second Five-Year Plan he encouraged the development of heavy industry in India.

47) Which of the following is/are the detrimental impacts of unemployment on the economy?

1. Unemployment leads to wastage of manpower resource.
2. The dependence of the unemployed on the working population increases.
3. The quality of life of an individual gets affected.

Codes:

- (a) 1 and 2
- (b) 1 and 3
- (c) Only 3
- (d) All

Ans. (d) (self explanatory)

48) Which of the following is/are the objectives of the disinvestment policy in India?

1. Releasing public resources locked up in non-strategic PSEs.
2. Reducing public debt.
3. Transferring public sector risk to the private sector.

Select the correct answer from below given

options:

- (a) Only 1
- (b) Only 3
- (c) 1 and 2
- (d) All

Ans. (c)

Exp: Disinvestment can also be defined as the action of an organization (or government) selling or liquidating an asset or subsidiary. It is also referred to as 'divestment' or 'divestiture.' The following main objectives of disinvestment were outlined:

- To improve performance of units
- To reduce budgetary deficits
- To overcome the problem of political involvement in PSUs
- Enable the government to concentrate on Social development
- To provide better service to customers
- To ensure proper planning and execution
- To overcome the problem of corruption
- To fix the responsibility on management
- To make efficient use of disinvestment proceeds.
- To reduce the financial burden on the Government
- To improve public finances

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- To introduce, competition and market discipline

49) Which of the following statements related to the salinity is/are correct?

1. North Sea records higher salinity due to more saline water brought by the North Atlantic Drift.
2. Red Sea records lower salinity due to enormous fresh water influx by rivers.
3. Mediterranean Sea records higher salinity due to high evaporation.

- (a) 1 and 2
- (b) 2 and 3
- (c) 1 and 3
- (d) All

Solution — C

1. In the land locked Red Sea, it is as high as 41%. Thus Red sea has higher salinity.
2. The North Sea, in spite of its location in higher latitudes, records higher salinity due to more saline water brought by the North Atlantic Drift.
3. Baltic Sea records low salinity due to influx of river waters in large quantity.
4. The Mediterranean Sea records higher salinity due to high evaporation.
5. Salinity is, however, very low in Black Sea due to enormous fresh water influx by rivers.

50) Which of the following pair of rocks do not lead to formation of caves in Karst Topography?

- (a) Shales and limestone
- (b) Quartz and dolomites
- (c) Shales and Sandstones
- (d) Sandstones and limestone

Solution — C

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1 In areas where there are alternating beds of rocks (shales, sandstones, quartzites) with limestones or dolomites in between or in areas where limestones are dense, massive and occurring as thick beds, cave formation is prominent.

2. Water percolates down either through the materials or through cracks and joints and moves horizontally along bedding planes.

3. It is along these bedding planes that the limestone dissolves and long and narrow to wide gaps called caves result.

51) The Nilgiris along the west coast are relatively tectonically stable as compared to the Himalayas; but, still, debris avalanches and landslides occur though not as frequently as in the Himalayas, in these hills. Why?

1. Many slopes are steeper with almost vertical cliffs and escarpments in the Western Ghats and Nilgiris.

2. Mechanical weathering due to temperature changes and ranges is pronounced in this region.

3. They are mostly made up of sedimentary rocks and unconsolidated and semiconsolidated deposits.

4. They receive heavy amounts of rainfall over short periods.

(a) 1, 2 and 3

(b) 2, 3 and 4

(c) 1, 2 and 4

(d) 1 and 4

Solution — C

1. The debris avalanches and landslides occur very frequently in the Himalayas because the Himalayas are tectonically active.

2. They are mostly made up of sedimentary rocks and unconsolidated and semi-consolidated deposits. The slopes are very steep.

3. Compared to the Himalayas, the Nilgiris bordering Tamil Nadu, Karnataka, Kerala and the Western Ghats along the west coast are

relatively tectonically stable and are mostly made up of very hard rocks; but, still, debris avalanches and landslides occur though not

52) In the Continental Drift Theory, Wegener suggested that the movement responsible for the drifting of the continents was caused by pole-fleeing force and tidal force. What is pole-fleeing force?

(a) The force created by centrifugal force from the Earth's rotation and by the bulge at the slightly flattened Earth's equator.

(b) The force created by centripetal force from the Earth's rotation and by the bulge at the slightly flattened Earth's equator.

(c) The force created by centrifugal force from the Earth's rotation and attraction between Sun & Earth.

(d) The force created by centrifugal force from the Earth's rotation and attraction between Moon & Earth.

Solution — A

1. Pole-fleeing force is created by centrifugal force from the Earth's rotation and by the bulge at the slightly flattened Earth's equator, whose increased gravity pulled landmasses toward it.

2. Alfred Wegener thought that it was one of the forces that made continents move horizontally along with tidal force.

53) Which of the following method is used for determining the rate of motion of oceanic plates?

(a) By ocean-floor magnetic strip which records the flip-flops in the Earth's magnetic field.

(b) By geologic mapping studies.

(c) By means of ground-based or space based geodetic measurements.

(d) All of the above

Solution – D

1. The methods are: By the ocean-floor magnetic striping records the flip-flops in the Earth's magnetic field, scientists, knowing the approximate duration of the reversal, can calculate the average rate of plate movement during a given time span.
2. Evidence of past rates of plate movement also can be obtained from geologic mapping studies.
3. If a rock formation of known age — with distinctive composition, structure, or fossils — mapped on one side of a plate boundary can be matched with the same formation on the other side of the boundary, then measuring the distance that the formation has been offset can give an estimate of the average rate of plate motion. Current plate movement can be tracked directly by means of ground-based or space-based geodetic measurements.

54) Which of the following statements associated with chemical weathering process is/are correctly matched?

1. Oxidation: It is the reaction of carbonate and bicarbonate with minerals.
2. Hydration: It is the repeated cycles of freezing and melting through physical addition of water leading into fatigue & disintegration.
3. Reduction: It is the placement of mineral in absence of oxygen mainly below the water table.

(a) 1 and 2

(b) Only 3

(c) 2 and 3

(d) All

Solution — B

1. Hydration is the chemical addition of water causing expansion of the rock. Increase in the volume of the material itself or rock.
2. In weathering, oxidation means a combination of a mineral with oxygen to form oxides or hydroxides. Oxidation occurs where there is ready access to the atmosphere and oxygenated waters. The minerals most commonly involved in this process are iron, manganese, sulphur etc. In the process of oxidation rock breakdown occurs due to the disturbance caused by addition of oxygen. Red colour of iron upon oxidation turns to brown or yellow. When oxidised minerals are placed in an environment where oxygen is absent, reduction takes place. Such conditions exist usually below the water table, in areas of stagnant water and waterlogged ground. Red colour of iron upon reduction turns to greenish or bluish grey

55) Which of the following statements is/are true about Fast Neutron Reactor?

1. Fast neutron reactors can reduce the total radio toxicity of nuclear waste, and dramatically reduce the waste's lifetime.
2. Fast neutron reactors are less costly to build and operate, and are thus cost competitive with thermal neutron reactors.

- (a) Only 1
- (b) Only 2
- (c) Both
- (d) None

SOLUTION — A

This kind of reactor needs no neutron moderators.

Fast neutron reactors can reduce the total radiotoxicity of nuclear waste, and dramatically reduce the waste's lifetime. This is the biggest advantage it has.

Fastneutron reactors are costly to build and operate, and are not thus cost competitive with thermal neutron reactors.

56) Which of the following is/are the benefits of using biotechnology in field of Agriculture?

1. It reduces vulnerability of crops to environmental stresses.
2. It reduces dependence on fertilizers, pesticides and other agro chemicals.
3. It reduces generation of methane from the plants.

- (a) 1 and 2
(b) 2 and 3
(c) Only 1
(d) All

Solution – A

Biotechnology provides farmers with tools that can make production cheaper and more manageable. Some benefits are:

- Increased Crop yields.
- Reduced vulnerability of crops to environmental stresses.
- Increased nutritional qualities Proteins in foods may be modified to increase their nutritional qualities.
- Improved taste, texture or appearance of food.
- Reduced dependence on fertilizers, pesticides and other agrochemicals.
- Production of novel substances in crop plants.

57) Recently ISRO carried out successful testing of scramjet engine from the Satish Dhawan Space Centre. Which of the following statements is/are true about Scramjet Engine used in space rockets?

1. It is a special category of ramjet air breathing jet engine in which combustion takes place in supersonic airflow.
2. It uses Hydrogen as fuel and the Oxygen from the atmospheric air as the oxidiser.

- (a) Only 1
(b) Only 2
(c) Both
(d) None

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Solution – C

A scramjet is a variant of a ramjet air breathing jet engine in which combustion takes place in supersonic airflow. As in ramjets, a scramjet relies on high vehicle speed to forcefully compress the incoming air before combustion (hence ramjet), but a ramjet decelerates the air to subsonic velocities before combustion, while airflow in a scramjet is supersonic throughout the entire engine. This allows the scramjet to operate efficiently at extremely high speeds.

Advantages

- Does not have to carry oxygen
- No rotating parts makes it easier to manufacture than a turbojet
- Has a higher specific impulse (change in momentum per unit of propellant) than a rocket engine
- Higher speed could mean cheaper access to outer space in the future

58) Polar Remotely Operated Vehicle (PROVe) has been successfully deployed in Priyadarshini Lake of Antarctica. Which of the following is/are its benefits?

1. It will measure parameters like ocean currents, temperature, dissolved oxygen and salinity.
2. It will improve the Monsoon prediction.
3. It will help in understanding the biological activities taking place inside the sea.

Select the correct answer using below given options

- (a) 1 and 3
- (b) 2 and 3
- (c) Only 2
- (d) All

Solution D

India's first Polar Remotely Operated Vehicle (PROVe) operationalized in North Antarctica

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- It is an indigenously built by National Institute of Ocean Technology (NIOT) under Union Ministry of Earth Sciences
- It will measure parameters like ocean currents, temperature, dissolved oxygen and salinity in the Antarctic.
- It makes monsoon prediction and reading of pattern easier. It helps in capable of probing the sea bed under normal temperature and exploring up to 200 meters in inhospitable and tough regions. It is successfully deployed in Priyadarshini Lake (Antarctica) by ESSO NIOT.
- The results and outcomes will help researchers in understanding the biological activities taking place inside the sea.
- ESSONIOT is an IndoUS initiative under the Monsoon Mission program of the Union Ministry of Earth Sciences.

It will study science behind the monsoonal events of Bay of Bengal using both Indian & US research ships. It will especially help scientist to move away from present Mathematical models for forecasting the Monsoon which many times vary from initial forecast.

59) The National Optical Fibre Network (NOFN) aims to connect all the 2,50,000 Gram panchayats in the country and provide 100 Mbps connectivity to all gram panchayats (GPs). Which of the following advantages does Fiber optics has over traditional metal communications lines?

1. Fiber optic cables have a much greater bandwidth than metal cables.
2. Fiber optic cables are less susceptible than metal cables to interference.
3. Data can be transmitted digitally rather than analogically.

- (a) 1 and 3
- (b) Only 2
- (c) Only 1
- (d) All

Solution – D

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Fibre optics is a technology that uses glass (or plastic) threads (fibers) to transmit data. A fiber optic cable consists of a bundle of glass threads, each of which is capable of transmitting messages modulated onto light waves.

60) Which of the following statements is/are true about the newly developed instrument Bio Indicator Lidar Instrument?

1. It has been developed for use in space research jointly by ISRO and European Space Agency.
2. It uses sound waves to detect and analyze the composition of air.
3. It is used in detecting signatures of life on Mars.

- (a) 1 and 3
- (b) 2 and 3
- (c) Only 3
- (d) None

Solution — C

It has been developed for use in space research only by NASA. It uses light waves to detect and analyze the composition of air. It will be going to be used in detecting signatures of life on Mars.