Q.1) Consider the following statements about 'Plantation agriculture':

1. In this type of farming, multiple crops are grown on a large area.
2. The plantation has an interface of agriculture and industry.
3. It is both capital intensive and labor intensive.

Which of the above statements is/are correct?

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

Q.1) Solution (b)

Plantation agriculture is a form of commercial farming where crops are grown for profit. Large land areas are needed for this type of agriculture. Countries that have plantation agriculture usually experience high annual temperatures and receive high annual rainfall. Plantation agriculture as mentioned above was introduced by the Europeans in colonies situated in the tropics. Some of the important plantation crops are tea, coffee, cocoa, rubber, cotton, oil palm, sugarcane, bananas and pineapples.

The plantation has an interface of agriculture and industry. Plantations cover large tracts of land, using capital intensive inputs, with the help of migrant labourers. All the produce is used as raw material in respective industries.

PURPOSE

-Plantation agriculture is a form of commercial farming where crops are grown for sale. Some crops are sold as raw materials to manufacturing industries.

INPUTS:

Land: Plantations are huge and can extend from a few hectares to a few thousand hectares. For example, in Malaysia, an oil palm plantation is usually at least 40 hectares in size.

Capital: A large amount of capital is put into building roads, buying machinery and building factories to process the crops harvested from the plantations.

Plantation owners also invest large amounts of their capital on fertilizers and pesticides. Fertilizers are applied to plantation crops as frequently as these crops use up nutrients from the land quickly. Since plantations usually grow one type of crop, pest attacks can cause total destruction of the plantations. Pesticides are therefore used in huge quantities to prevent crops from being entirely destroyed by pests.

Labour: Due to the large size of a plantation, a lot of labour is needed to tend to the crops and work in the nearby processing factories. For example in Malaysia's large rubber plantations, many workers are hired to tap latex from rubber trees.

PRODUCE:

- The total output of a plantation is usually high. However, as a plantation covers a wide area of land, **its output per unit is usually low.**
- Usually, only one type p crop is grown in a plantation. Common examples include rubber, coffee, tea, bananas, sugar cane, oil palm, cocoa and tobacco.

Do you know?

- Plantation agriculture is a form of commercial farming where crops are grown for profit. Large land areas are needed for this type of agriculture. **Countries that have plantation agriculture usually experience high annual temperatures and receive high annual rainfall.** Plantations are mainly found in countries that have a tropical climate.

THINK!

- Distribution of plantation crops in India.

Q.2) Consider the following statements about Seed Replacement Rate?

1. Seed Replacement Rate (SSR) is a measure of how much of the total cropped area was sown with farm saved seeds in comparison to certified seeds.
2. Seed Replacement Rate is directly proportional to productivity.
3. Seed Replacement Ratio denotes actual quality seed distributed to farmers

Which of the above statements is/are correct?

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

Q.2) Solution (c)

Seed Replacement Rate (SSR) or Seed Replacement Ratio is a measure of how much of the total cropped area was **sown with certified seeds in comparison to farm saved seeds.** However, since every farmer is aware of the benefits of certified seeds; he would want to sow certified seeds, provided he is supplied with required quantity of certified seeds. Thus,

Seed Replacement Ratio also denotes actual quality seed distributed to farmers vis-a-vis actual seed required for cultivation of crops.

Since certified seeds are better in productivity**, the Seed Replacement Rate is directly proportional to productivity.** Thus, higher the Seed Replacement Ratio, higher is production as well as productivity and higher are chances of achieving nutritional security, food security and containing food price inflation.

Do you know?

Supply of quality seeds is not a onetime affair; they need to be produced every new season continuously. The hybrid seeds (those produced by cross pollinating of plants) can be sown only once because the seed from their first generation does not reliably produce the same copies of their parents. Thus, **every new crop season requires purchase of new seeds. Producing certified seeds from breeder seeds takes at least three years efforts.**

THINK!

- Breeder seeds.
- Foundation seeds
- Registered seeds

Q.3) Consider the following statements about the objectives of Open Market Sale Scheme (Domestic) [OMSS (D)].

1. To enhance the supply of food grains during the lean season and deficit regions
2. To moderate the open market prices.
3. To offload the excess stocks.
4. To augment the revenue for the functioning of Food Corporation of India.

Select the correct answer using the codes given below.

a) 1, 2 and 3 only
b) 1, 3 and 4 only
c) 2, 3 and 4 only
d) All the above

Q.3) Solution (a)

In addition to maintaining buffer stocks and for making a provision for meeting the requirement of the Targeted Public Distribution System (TPDS) and Other Welfare Schemes (OWS), **FCI on the instructions from the Government sells excess stocks out of Central Pool**

through Open Market Sale Scheme (Domestic) [OMSS (D)] in the open market from time to time at predetermined prices to achieve the following objectives:

- To enhance the supply of food grains during the lean season and deficit regions
- To moderate the open market prices
- To offload the excess stocks
- To reduce the carrying cost of food grains

Do you know?

- The Economic Cost of food grains consists of three components, namely, **pooled cost of grains, procurement incidentals and the cost of distribution**.
- Pooled cost of food grains is the weighted MSP of the stock of food grains available with FCI at the time of calculating the economic cost.

THINK!

- Interest Subvention Scheme (ISS).

Source: Economic Survey-2018.

Q.4) Consider the following statements about Unified Package Insurance Scheme (UPIS).

1. Life insurance protection to the farmer and his/her family members.
2. The policy will be issued for a period up to 1 year.
3. It covers both the personal assets and livelihood assets.

Which of the above statements is/are correct regarding UPIS?

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

Q.4) Solution (d)

Unified Package Insurance Scheme (UPIS) aims at **providing financial protection to citizens associated in agriculture sector,** thereby ensuring food security, crop diversification and enhancing growth and competitiveness of agriculture sector besides protecting farmers from financial risks. **The UPIS will be implemented in 45 selected districts on Pilot basis from Kharif 2016 season.**

- This policy is designed to take care of the insurance needs of farmers associated with agriculture activities. This policy provides yield-based crop insurance to the farmer based on his ownership rights of land and sown crop.
- **It covers both the personal assets of the farmer like the dwelling & its contents** (Fire), the **other assets which help him in earning his livelihood** such as Agricultural Pump Sets, and Agriculture Tractor owned by farmer.
- The policy also provides protection to farmer and his/her family members in case of the Accidental Death / Disablement, accidental insurance protection of farmer's school/college going children and provisioning of education fee to the students in case of death of parent.
- Life insurance protection to the farmer and his/her family members.
- The policy will be issued for a period up to 1 year.

Do you know?

- The cover will be for one full year except for Crop Insurance (which will be bi-annual separately for Kharif and Rabi seasons) renewable from year to year. The Loanee farmers will be covered through Banks/Financial Institutions whereas **non-loanee farmer shall be covered through banks and/or insurance intermediaries.**

THINK!

- Pradhan Mantri Fasal Bima Yojan

Source: India -2018(Year Book).

Q.5) Which of the following best defines Mridaparikshak?

a) The device which measures the water table in agriculture fields.
b) Mini lab for soil testing and fertilizer recommendation.
c) Indigenous Ecological niche modelling (ENM) system.
d) Indigenous geophysical survey technology.

Q.5) Solution (b)

ICAR, Indian Institute of Soil Science, Bhopal, a research institute under the Natural Resource Management (NRM) Division of Indian Council of Agricultural Research (ICAR), has developed ***'Mridaparikshak', a MINILAB that can determine soil health.***

The Features of MRIDAPARIKSHAK include:

- Mridaparikshak is a digital mobile quantitative minilab/soil test kit to provide soil testing service at farmers' doorsteps.
- Mridaparikshak determines all the important soil parameters i.e. soil pH, EC, organic carbon, available nitrogen, phosphorus, potassium, Sulphur and micronutrients like zinc, boron and iron.
- It also provides crop and soil specific fertilizer recommendations directly to farmer's mobile through SMS.
- It is highly compatible with soil health card.
- Mridaparikshak comes with soil sampling tools, GPS, balance, shaker, hot plate, and a Smart Soil Pro, an instrument for determining the soil parameters and displaying of fertilizer nutrient recommendations.
- It can be operated by young educated farmers/rural youths (11-12 Pass) with short training.

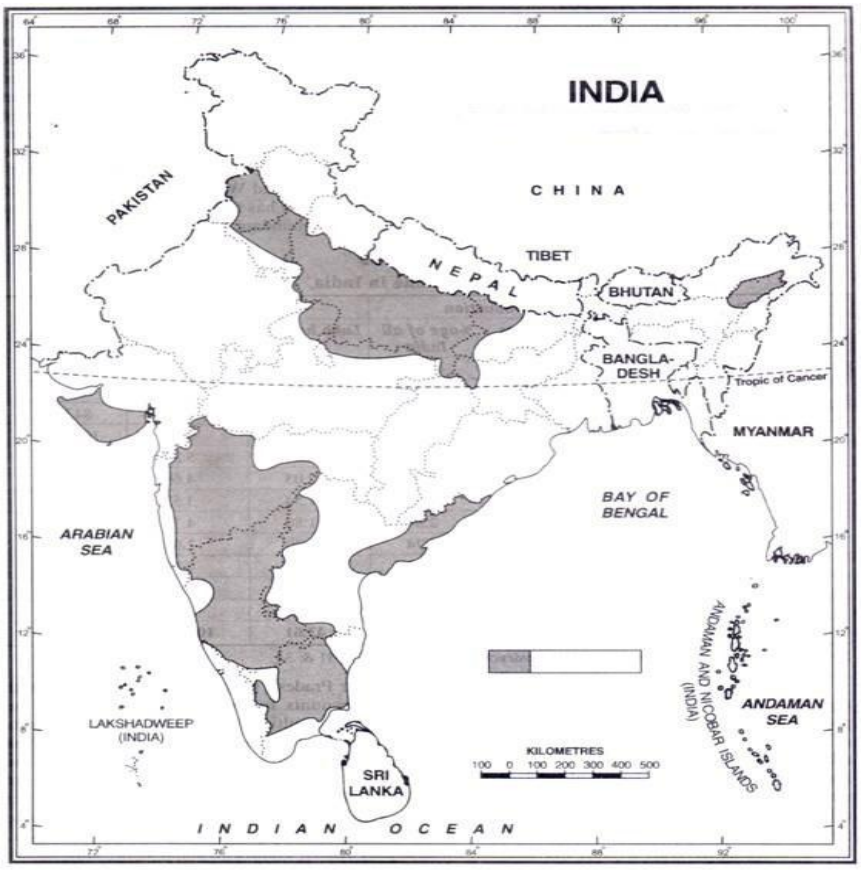
Do you know?

- Forecasting studies of rice yields using **DSSAT (Decision Support System for Agrotechnology Transfer)** rice model predicted that, all states in the eastern region are likely to experience reduced yields of below or equal to 10% during mid-century climate change scenarios except Bihar.
- The Decision Support System for Agrotechnology Transfer (DSSAT**) is a set of computer programs for simulating agricultural crop growth.** It has been used in over 100 countries by agronomists for evaluating farming methods. One application has been assessing the possible impacts on agriculture of climate change and testing adaptation methods.

THINK!

- Soil Health Card.

Q.6) The map shown below indicates distribution of which of the following crop?



a) Cotton
b) Groundnut
c) Sugarcane
d) Pulses

Q.6) Solution (c)

Sugarcane belongs to bamboo family of plants and is indigenous to India. It is the main source of sugar, gur and khandsari. About two-thirds of the total sugarcane produced in India is consumed for making gur and khandsari and only one third of it goes to sugar factories. It also provides raw material for manufacturing alcohol.

Conditions of Growth:

It is a long duration crop and requires 10 to 15 and even 18 months to mature, depending upon the geographical conditions**. It requires hot and humid climate with average temperature of 21°-27°C and 75-150 cm rainfall.**

Following three distinct belts of sugarcane cultivation can be identified.

- The Satluj-Ganga plain from Punjab to Bihar containing 51 per cent of the total area and 60 per cent of the country's total production.
- The black soil belt from Maharashtra to Tamil Nadu along the eastern slopes of the Western Ghats.
- Coastal Andhra and the Krishna Valley.

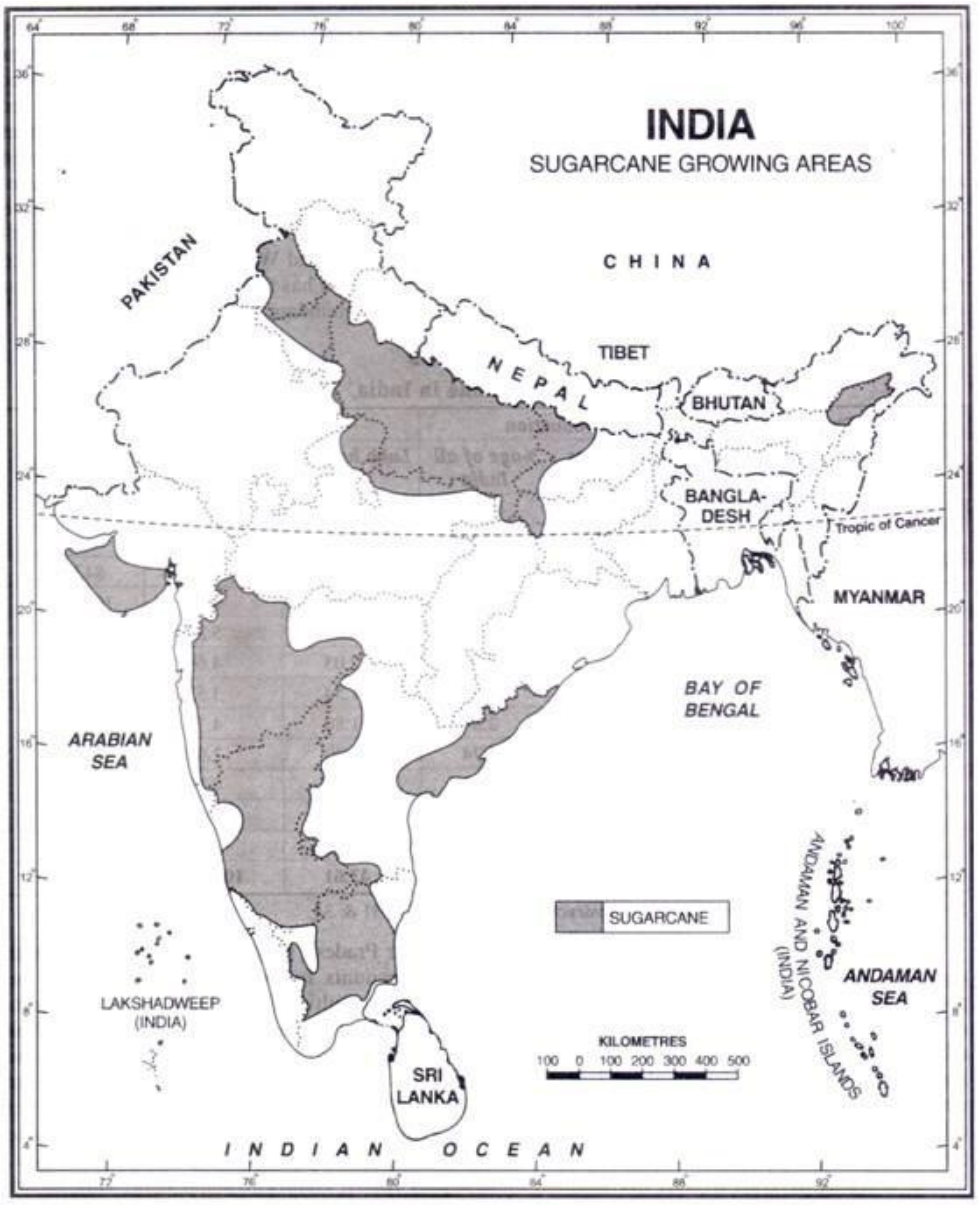


FIG. 24.4. India : Sugarcane Growing Areas

Do you know?

- **Ratoon crop is the second or any other successive crop obtained from the roots left over in the field from the first crop.** This is widely practiced in different parts of the country due to its low cost of production and relatively shorter maturation period because cost inputs and time are saved as there is no need for fresh sowing and growing of roots. However, productivity decreases with each passing year and Ratooning becomes uncommercial after one or two years.

THINK!

- Distribution map of major crops of India.

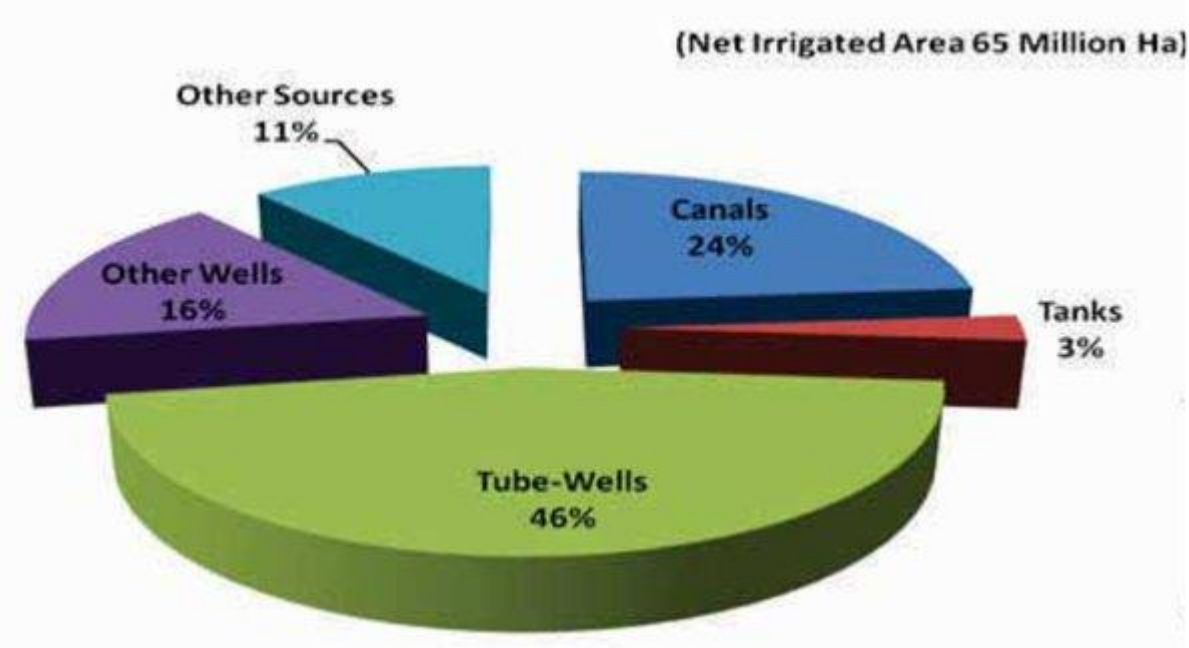
Q.7) Arrange the following in increasing order of their share in irrigation in India.

1. Canals
2. Wells
3. Tube wells
4. Tanks

Select the correct answer using the codes given below.

a) 2-4-3-1
b) 4-2-1-3
c) 4-2-3-1
d) 2-4-1-3

Q.7) Solution (b)



Since 1950-51, the government had given considerable importance to the development of command area under canals. In 1950-51, the Canal irrigated area was 8.3 million hectares and it currently stands at 17 million hectares. Despite that, the relative importance of Canals has come down from 40% in 1951 to 26% in 2010-11. On the other hand, the well (16%)

and tube well (46%) accounted for 29% total irrigated area and now they share 64% of the total irrigated area.

This implies **that "despite of heavy public expenditure on canals, our governments have not been able to reduce the groundwater depletion"** done by the remarkable progress of the tube wells in last many decades. The key reason is widening gap between irrigation potential created and actually utilized.

Do you know?

India accounts for around 4% of world's renewable water resources. The average annual precipitation in India is around 4000 BCM (Billion Cubic Meter). Of this, around half (1869 BCM) water runs off from rivers to oceans. What is left from that only 690 BCM is utilizable surface water. This along with 430 BCM groundwater makes India's total annual utilizable water resources to be close to 1120 BCM.

THINK!

- Various irrigation distribution map of India.

Q.8) Which of the following are the characteristics of Indian Agriculture?

1. Intensive subsistence agriculture
2. Small landholdings
3. Small gross area under agriculture
4. High productivity

Select the code from following:

a) 1 and 2
b) 3 and 4
c) 1,2 and 4
d) All of the above

Q.8) Solution (a)

Characteristics of Indian farming

Subsistence agriculture:

Most parts of India have subsistence agriculture. The farmer owns a small piece of land, grows crops with the help of his family members and consumes almost the entire farm produce with little surplus to sell in the market.

Pressure of population on agriculture:

The population in India is increasing at a rapid pace and exerts heavy pressure on agriculture. Agriculture has to provide employment to a large section of work force and has to feed the teeming millions.

Importance of animals:

Animal force has always played a significant role in agricultural operations such as ploughing, irrigation, threshing and transporting the agricultural products. Complete mechanisation of Indian agriculture is still a distant goal and animals will continue to dominate the agricultural scene in India for several years to come.

Dependent upon Monsoon:

Indian agriculture is mainly dependent upon monsoon which is uncertain, unreliable and irregular. In spite of the large scale expansion of irrigation facilities since Independence, only one-third of the cropped area is provided by perennial irrigation and the remaining two-third of the cropped area has to bear the brunt of the vagaries of the monsoons.

Predominance of food crops:

Since Indian agriculture has to feed a large population, production of food crops is the first priority of the farmers almost everywhere in the country. More than two-thirds of the total cropped area is devoted to the cultivation of food crops.

Insignificant place to given fodder crops:

Although India has the largest population of livestock in the world, fodder crops are given a very insignificant place in our cropping pattern. Only four per cent of the reporting area is devoted to permanent pastures and other grazing lands. This is due to pressing demand of land for food crops. The result is that the domestic animals are not properly fed and their productivity is very low compared to international standards.

Seasonal pattern:

India has three major crop seasons.

(i) Kharif season starts with the onset of monsoons and continues till the beginning of winter. Major crops of this season are rice, maize, jowar, bajra, cotton, sesamum, groundnut and pulses such as moong, urad, etc.

(ii) Rabi season starts at the beginning of winter and continues till the end of winter or beginning of summer. Major crops of this season are wheat, barley, jowar, gram and oil seeds such as linseed, rape and mustard.

(iii) Zaid is summer cropping season in which crops like rice, maize, groundnut, vegetables and fruits are grown. Now some varieties of pulses have been evolved which can be successfully grown in summer.

Small Landholdings

More than 80% of India's farmers are small and marginalized with less than 1 hectare of land.

Note: Gross area under agriculture in India is one of the highest in India in terms of percentage. More than 50% of India's area is under agriculture.

Q.9) Which of the following statements correctly defines Mixed cropping?

a) Animal rearing and cultivation of crops in the same field
b) Growing different crops one after other in the same field
c) Growing different crops in the same field at the same time
d) Growing different crops in different fields at the same time

Q.9) Solution (c)

Mixed cropping, also known as polyculture, inter-cropping, or co-cultivation, is a type of agriculture that involves planting two or more plants simultaneously in the same field, interdigitating the crops so that they grow together. In general, the theory is that planting multiple crops at once saves space since crops in the same field might ripen at different seasons, and provides a wealth of environmental benefits.

Documented benefits of mixed cropping include the balance of input and outgo of soil nutrients, the suppression of weeds and insect pests, the resistance of climate extremes (wet, dry, hot, cold), the suppression of plant diseases, the increase in overall productivity, and the management of scarce resources (land) to the fullest degree.

Mixed cropping is done to maintain the soil quality. It is also done in areas which are prone to climatic changes so that atleast one of the crop survives.

Think

Difference between mixed farming and mixed cropping

Q.10) Which of the following places are known as the Shrimp capital of India?

a) Hyderabad
b) Nellore
c) Thiruvanthapuram
d) Calicut

Q.10) Solution (b)

Shrimp production in India

Brackish-water aquaculture in India is concentrated around the giant tiger prawn (P. monodon) as the single most important species. Recently, the culture of exotic, white-leg shrimp, L. vannamei, however, has attracted the farmers' attention because of its fast growth, low incidence of native diseases, availability of Specific Pathogen Free (SPF) domesticated strains and culture feasibility in wide salinity range.

With the production levels of 10–12 tonnes/ha/crop of three to four months' duration, the production of this species has reached to a level of 406,044 tonnes during 2015–16. Very recently, L. vannamei culture is also started in freshwater ponds particularly in Telangana State and some other states in India by the stocking of PLs acclimatising to zero ppt salinity at hatchery level. The culture and production level is encouraging.

Brackish water aquaculture is mainly concentrated on the coasts of Andhra Pradesh, Tamil Nadu, Orissa and West Bengal in India. With regards to the market, while the main areas of consumption for freshwater fish are in West Bengal, Bihar, Orissa and northeastern India. Cultured brackish water shrimps are destined mainly for export.

Among the coastal states, West Bengal and Andhra Pradesh is the largest producer of P. monodon and L. vannamei shrimp respectively in the country during the year 2015-16. Today L. vannamei is the largest cultured shrimp in terms of production and productivity in India.

Andhra Pradesh tops in area under culture and production followed by Tamil Nadu way behind.

Nellore in Andhra Pradesh is called the Shrimp capital of India.

Think

- Difference between shrimp and prawns
- Pink Revolution

Q.11) Consider the following:

1. Yellow Revolution – Oil seeds
2. Silver Revolution – Egg production
3. Golden Revolution – Horticulture
4. Grey Revolution – Leather

Which of the above revolutions are correctly matched?

a) 1,2 and 3
b) 2,3 and 4
c) 1,3 and 4
d) All of the above

Q.11) Solution (a)

List of Revolutions in India

Black Revolution	Related with Petroleum Production
Blue Revolution	Related with Fish Production
Brown Revolution	Related with Leather, Cocoa
Golden Fibre Revolution	Related with Jute Production
Golden Revolution	Related with Overall Horticulture, Honey, Fruit Production
Green Revolution	Related with Agriculture Production
Grey Revolution	Related with Fertilizers
Pink Revolution	Related with Onions, Prawn
Red Revolution	Related with Meat, Tomato Production
Evergreen Revolution	Intended for overall agriculture production growth
Round Revolution	Related with Potato Production
Silver Fibre Revolution	Related with Cotton Production
Silver Revolution	Related with Egg Production
White Revolution	Related with Dairy, Milk Production
Yellow Revolution	Related with Oil Seed Production
Round Revolution	Related with Potato

Q.12) Which of the following statements are correct regarding Bamboo and cane?

1. Bamboo is a grass while cane is tree.
2. Bamboo is hollow while cane has mass
3. Cane is flexible when wet and can be shaped easily while bamboo is brittle.

Select the code from below:

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

Q.12) Solution (b)

Differences between Bamboo and Cane

Both bamboo and cane belong to the grass family of Poaceae because of which their appearance seems quite similar. However, there are several distinct characteristics to both these species that can be used to set them apart.

- Bamboo belongs to the subfamily Bambusoideae, tribe Bambuseae of the grass family of Poaceae. Cane can be either of the two genera of perennial grasses of the family Poaceae.
- In general use, the word cane is also used for rattan a climbing or trailing plant in the palm family, primarily of the genus Calamus.
- Cane is a flexible material that is often used for a myriad of purposes such as the making of walking sticks, crutches as well as for weaving into baskets, boats, etc. bamboo is more brittle than cane and can only be used as flooring and roofing material. Bamboo cannot be weaved.

Think

- National Bamboo Mission

Q.13) Crop rotation is done by growing different crops in the same field one after the other. Which of the following are benefits of crop rotation?

1. Maintains the soil fertility
2. Helps in pest control
3. Prevents soil depletion

Select the code from following:

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

Q.13) Solution (d)

Crop rotation

Crop rotation is one of the oldest and most effective cultural control strategies. It means the planned order of specific crops planted on the same field. It also means that the succeeding crop belongs to a different family than the previous one. The planned rotation may vary from 2 or 3 year or longer period.

Some insect pests and disease-causing organisms are hosts' specific. For example, rice stem borer feeds mostly on rice. If you don't rotate rice with other crops belonging to a different family, the problem continues as food is always available to the pest. However, if you plant legume as the next crop, then corn, then beans, then bulbs, the insect pest will likely die due to absence of food.

Advantages of crop rotation

- Prevents soil depletion
- Maintains soil fertility
- Reduces soil erosion
- Controls insect/mite pests. Crop rotation as a means to control to insect pests is most effective when the pests are present before the crop is planted have no wide range of host crops; attack only annual/biennial crops; and do not have the ability to fly from one field to another.
- Reduces reliance on synthetic chemicals
- Reduces the pests' build-up
- Prevents diseases
- Helps control weeds

Think

- Why is it wise to rotate staple crops with leguminous crops?

Q.14) Considering the benefits of organic farming, it is being promoted in India. Which of the following statements are correct regarding Organic Farming?

1. Organic farming refers to the use of traditional methods for farming without using artificial fertilizers and pesticides.

2. Organic farming produces much lower yield than conventional farming.
3. It helps in maintaining fertility of soil by encouraging soil biological activity.

Select the code from below:

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

Q.14) Solution (c)

Organic Farming in India

Organic farming system in India is not new and is being followed from ancient time. It is a method of farming system which primarily aimed at cultivating the land and raising crops in such a way, as to keep the soil alive and in good health by use of organic wastes (crop, animal and farm wastes, aquatic wastes) and other biological materials along with beneficial microbes (biofertilizers) to release nutrients to crops for increased sustainable production in an eco friendly pollution free environment.

Need of organic farming

With the increase in population our compulsion would be not only to stabilize agricultural production but to increase it further in sustainable manner. The scientists have realized that the 'Green Revolution' with high input use has reached a plateau and is now sustained with diminishing return of falling dividends. Thus, a natural balance needs to be maintained at all cost for existence of life and property. The obvious choice for that would be more relevant in the present era, when these agrochemicals which are produced from fossil fuel and are not renewable and are diminishing in availability. It may also cost heavily on our foreign exchange in future.

The key characteristics of organic farming include

- Protecting the long term fertility of soils by maintaining organic matter levels, encouraging soil biological activity, and careful mechanical intervention
- Providing crop nutrients indirectly using relatively insoluble nutrient sources which are made available to the plant by the action of soil micro-organisms
- Nitrogen self-sufficiency through the use of legumes and biological nitrogen fixation, as well as effective recycling of organic materials including crop residues and livestock manures

- Weed, disease and pest control relying primarily on crop rotations, natural predators, diversity, organic manuring, resistant varieties and limited (preferably minimal) thermal, biological and chemical intervention
- The extensive management of livestock, paying full regard to their evolutionary adaptations, behavioural needs and animal welfare issues with respect to nutrition, housing, health, breeding and rearing
- Careful attention to the impact of the farming system on the wider environment and the conservation of wildlife and natural habitats

Note: There is no scientific basis to prove that yield in organic farming is less than conventional farming.

Q.15) Consider the following statements with regard to Millets:

1. Millets are short duration (3-4 months) warm weather grasses grown in those areas where the main crops like rice and wheat cannot be grown successfully.
2. Year 2017 was declared as the 'national year of millets'.
3. Millets are cultivated in low-fertile land, mountainous, tribal and rain-fed areas.

Which of the statements given above is/are correct?

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

Q.15) Solution (c)

Nutrient-rich millets got a boost with the Union government declaring 2018 as the 'national year of millets'. This decision has been taken following a request by Karnataka, which is the country's leader in the millet sector.

In case of an emergency, the cultivation of millets is very suitable for small and marginal farmers. In order to promote millets, their prescribed purchases in MSP and inclusion in Mid-day Meal are being done.

Millets include Jowar, Bajra, Ragi, little millets include Kutki, Kodo, Sawa, Kangni and Cheena.

Millets are known for their nutrients. They are tolerant to drought, are photo insensitive and are resistant to climate change. The cultivation of millets requires less water than the cultivation of rice and wheat.

Do you know?

Millets are short duration (3-4 months) warm weather grasses grown in those areas where the main crops like rice and wheat cannot be grown successfully.

Millets are cultivated in low-fertile land, mountainous, tribal and rain-fed areas. These areas include Andhra Pradesh, Chhattisgarh, Gujarat, Haryana, Madhya Pradesh, Rajasthan, Maharashtra, Karnataka, **Uttar Pradesh, Tamil Nadu and Telangana.**

THINK!

- International year of millets.

Q.16) Which of the statements given below are true about Black soil?

1. Black Soils are highly argillaceous.
2. Black soil is highly retentive of moisture.
3. It is a soil group typical to the wet and hot regions of the Peninsula.
4. These soils are best suited for cotton crop, tobacco, castor, sunflower and millets.

Choose the appropriate answer:

a) 1, 2 and 3 only
b) 1, 2 and 4 only
c) 2, 3 and 4 only
d) 1, 2, 3 and 4

Q.16) Solution (b)

Black soils:

- The parent material for most of the black soil are the volcanic rocks that were formed in the Deccan Plateau (Deccan and the Rajmahal trap).
- In Tamil Nadu, gneisses and schists form the parent material. The former are sufficiently deep while the later are generally shallow.
- These are the region of high temperature and low rainfall. It is, therefore, a soil group typical to the dry **(not wet)** and hot regions of the Peninsula.
- A typical black soil is highly argillaceous (consisting of or containing clay)

- The black soil is highly retentive of moisture. It swells greatly on accumulating moisture. Strenuous effort is required to work on such soil in rainy season as it gets very sticky.

Q.17) Consider the below statements about Wheat and choose the incorrect statement:

a) It can be grown in the temperate zone and the cold tracts of the far north, beyond even the 60 degree north altitude.
b) It requires a fairly warm temperature, damp climate and the period of heat should be comparatively long.
c) Soils with a clay loam or loam texture, good structure and moderate water holding capacity are ideal for wheat cultivation.
d) It can be cultivated from sea level to as high as 3300 meters.

Q.17) Solution (b)

Climate requirement:

Wheat is the main cereal crop in India. Wheat crop has wide adaptability. It can be grown not only in the tropical and sub-tropical zones, but also in the temperate zone and the cold tracts of the far north, beyond even the 60 degree north altitude.

Wheat can tolerate severe cold and snow and resume growth with the setting in of warm weather in spring. It can be cultivated from sea level to as high as 3300 meters. The best wheat are produced in areas favoured with cool, moist weather during the major portion of the growing period followed by dry, warm weather to enable the grain to ripen properly.

The optimum temperature range for ideal germination of wheat seed is 20-25 C though the seeds can germinate in the temperature range 3.5 to 35 C. Rains just after sowing hamper germination and encourage seedling blight. **Areas with a warm and damp climate are not suited for wheat growing.**

Wheat requires a fairly warm temperature, but the period of heat should not be long as grains can ripen quickly. When temperatures are high, too much energy is lost through the process of transpiration by the plants and the reduced residual energy results in poorer grain formation and lower yields. Wheat is mainly a rabi (winter) season crop in India.

Soil requirement:

Wheat is grown in a variety of soils of India. Soils with a clay loam or loam texture, good structure and moderate water holding capacity are ideal for wheat cultivation. Care should be taken to avoid very porous and excessively drained soils. Soil should be neutral in its reaction. Heavy soil with good drainage are suitable for wheat cultivation under dry

conditions. These soils absorb and retain rain water well. Heavy soils with poor structure and poor drainage are not suitable as wheat is sensitive to water logging. Wheat can be successfully grown on lighter soils provided their water and nutrient holding capacity are improved.

Q.18) Consider the following about Agroforestry:

1. It is a dynamic, ecologically based, natural resource management system that, diversifies and sustains production and builds social institutions.
2. Its objective is to Encourage and expand tree plantation in complementarity and integrated manner with crops and livestock to improve productivity, employment, income and livelihoods of rural households, especially the small holder farmers.
3. Agroforestry has a lot in common with intercropping. Both have two or more plant species (such as nitrogen-fixing plants) in close interaction, both provide multiple outputs.
4. National Agroforestry Policy is under the nodal ministry of Environment Forests and Climate Change.

Which of the following are correct about Agroforestry

a) 2, 3 and 4 only
b) 1 and 4 only
c) 1, 2 and 3 only
d) All of the above

Q.18) Solution (c)

With the Budget giving emphasis on agriculture, a conceptual question is expected.

Agroforestry is defined as a land use system which integrates trees and shrubs on farmlands and rural landscapes to enhance productivity, profitability, diversity and ecosystem sustainability. It is a dynamic, ecologically based, natural resource management system that, through integration of woody perennials on farms and in the agricultural landscape, diversifies and sustains production and builds social institutions.

Do you know?

Major policy initiatives, including the National Forest Policy 1988, the National Agriculture Policy 2000, Planning Commission Task Force on Greening India 2001, National Bamboo Mission 2002, National Policy on Farmers, 2007 and Green India Mission 2010, emphasize the role of agroforestry for efficient nutrient cycling, organic matter addition for sustainable

agriculture and for improving vegetation cover. However, agroforestry has not gained the desired importance as a resource development tool due to various factors.

Q.19) Tillage is the agricultural preparation of the soil by mechanical agitation of various types, such as digging, stirring and overturning. What are the benefits of practicing conservation tillage on a farm?

1. Less soil erosion
2. Fewer trips across the field, thereby saving fuel and machinery costs
3. Less groundwater contamination by pesticides

Select the correct code:

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

Q.19) Solution (a)

Conservation tillage is any method of soil cultivation that leaves the previous year's crop residue (such as corn stalks or wheat stubble) on fields before and after planting the next crop, to reduce soil erosion and runoff.

Conservation tillage systems also benefit farmers by reducing fuel consumption and soil compaction. By reducing the number of times the farmer travels over the field, farmers realize significant savings in fuel and labor. There are some concerns about it, particularly concerning impacts on water quality and on pests.

Q.20) Which among the following crops are Kharif crops?

1. Rice
2. Wheat
3. chickpea/gram
4. millet/ragi
5. soya bean

Choose the appropriate code from below:

a) 1, 4 and 5 only
b) 2 and 3 only

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

Q.20) Solution (a)

Kharif Crops

- The Kharif crop is the summer crop or monsoon crop in India.
- Sown in : beginning of the first rains in July
- Harvested : during the rainy (monsoon) season , between April and October
- Major Kharif crops: rice, maize, sorghum, pearl millet/bajra, finger millet/ragi (cereals), arhar (pulses), soyabean, groundnut (oilseeds), cotton etc.

Rabi Crops

- The Rabi crop is the spring harvest or winter crop in India .
- Sown in: Winter (Last of October)
- Harvested in : Spring (March, April)
- Major Rabi crops: wheat, barley, oats (cereals), chickpea/gram (pulses), linseed, mustard (oilseeds) etc.

Zaid Crop

- This crop is grown in some parts of country during March to June.
- Major Zaid crops in India are Watermelon, Muskmelon, bitter gourd, pumpkin, cucumber etc.

Q.21) Which of the statements provided below with regard to Cotton cultivation in India is/are correct?

1. In the raw material consumption basket of the Indian textile industry, the proportion of cotton is around 59%.
2. India has the distinction of having the largest area under cotton cultivation in the world.
3. India is the 1st largest producer and exporter of cotton in the World.

Choose appropriate answer from the codes given below:

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

Q.21) Solution (b)

Cotton is one of the most important cash crops and accounts for around 25% of the total global fibre production. Cotton is also one of the most important commercial crops cultivated in India. In the raw material consumption basket of the Indian textile industry, the proportion of cotton is around 59%. It plays a major role in sustaining the livelihood of an estimated 5.8 million cotton farmers and 40- 50 million people engaged in related activities such as cotton processing and trade. India also has the distinction of having the largest area under cotton cultivation in the world i.e. about 11 million hectares.

India is the country to grow all four species of cultivated cotton Gossypium arboreum and herbaceum (Asian cotton), G.barbadense (Egyptian cotton) and G. hirsutum (American Upland cotton).

Production and productivity of cotton in India have improved significantly during the past decades. India is the largest producer and 2nd largest exporter of cotton in the World. India is also leading consumer of cotton. Hence statement (3) is incorrect.

Q.22) Which of the following statements is correct?

a) International Energy Forum includes member states of International Energy Agency (IEA) and Organization of the Petroleum Exporting Countries (OPEC) only
b) India is hosting the 2018 edition of the International Energy Forum Ministerial
c) United Arab Emirates hosted the 7th Asian Ministerial Energy Roundtable (AMER7)
d) Both (b) and (c)

Q.22) Solution (b)

The International Energy Forum, also known as IEF, is the world's largest recurring gathering of energy ministers. It is unique in that participants not only include IEA and OPEC countries, but also key international actors such as Brazil, China, India, Mexico, Russia, and South Africa. The IEF countries account for more than 90 percent of global oil and gas supply and demand. The IEF is promoted by a permanent Secretariat based in the Diplomatic Quarter of Riyadh, Saudi Arabia. Asia Ministerial Energy Round Table Government of Thailand hosted the 7th Asian Ministerial Energy Round Table (AMER7) between 1 November-3 November 2017). It was co-Hosted by the United Arab Emirates.

The 16th International Energy Forum Ministerial (IEF16) gathers IEF Energy Ministers, industry leaders, and heads of key international organisations to debate the future of global

energy security on 10-12 April 2018 in New Delhi under the theme "The Future of Global Energy Security: Transition, Technology, Trade and Investment." Hosted by India and co-hosted by China and Korea, IEF16 aims to focus on how global shifts, transition policies and new technologies influence market stability and future investment in the energy sector.

Source: http://pib.nic.in/newsite/PrintRelease.aspx?relid=173163

Q.23) Consider the following statements about Project HIMANK

1. It is a project of the Ministry of Home Affairs
2. It is associated with the construction of roads in states bordered with China

Select the correct statements

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

Q.23) Solution (d)

Project HIMANK, is a project of the Border Roads Organisation (BRO) in the Ladakh region of northernmost India that started in August 1985. Himank is responsible for the construction and maintenance of roads and related infrastructure including the world's highest motorable roads across the Khardung La, Tanglang La and Chang La passes. Himank's work ensures access to sensitive military areas including the world's highest battle-ground at the Siachen Glacier and Pangong Tso Lake (at 14500 ft) whose waters span the de facto India-China border.

BRO is under the Ministry of Defence

Border Roads Organization (BRO) has constructed the world's highest motorable road in the Ladakh region of Jammu and Kashmir, passing through Umling La Top at a height of over 19,300 feet. The world's highest motorable road passes through Umling La Top in Ladakh at a height of over 19,300 feet and connects Chisumle and Demchok villages, located 230km from Leh.

Source: https://www.livemint.com/Politics/YpojBHOzLBVypMDOylGPXJ/BRO-builds-worlds-highest-motorable-road-in-Ladakh-at-1930.html

Q.24) India falls under which of the following categories?

a) Low-income economies
b) Lower-middle-income economies
c) Upper-middle-income economies
d) High-income economies

Q.24) Solution (b)

India maybe high middle-income economy in 30 years: World Bank

The World Bank considers countries of regions with a Gross National Income per capita between $3,956 and $12,235 as high middle-income economies.

India currently falls in the lower middle-income category, recording a GNI per capita of $1,680 in 2016, according to World Bank data.

While lower income economies accounted for GNI per capita of $1,005 or less in 2016, lower middle-income economies were those between $1,006 and $3,955, and high income economies had $12,236 or more.

Source: https://www.hindustantimes.com/business-news/world-bank-says-india-could-be-a-high-middle-income-economy-in-30-years-what-does-this-mean/story-KGshH20TZqQrGnZFm7kzbJ.html

Q.25) 'Lead' is likely to be found in which of the following?

1. Lipstick
2. Household paints
3. PVC plumbing pipes

Select the correct code:

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

Q.25) Solution (d)

Lead Contamination due to PVC pipes is one of the major contributing factors of groundwater pollution in India.

It's very difficult to find lead free lipstick in India as almost every brand uses lead in some amount to increase the pigments; long staying lipsticks supposedly have more lead content.

All household paints should have lead less than 90 ppm (parts per million) and their label should say so, according to new rules.

The rules issued by the environment ministry and enforced by the Central Pollution Control Board (CPCB) regulate lead in household and decorative paints.

Lead imparts colour in some cases, makes the paint more durable, corrosion-resistant and speeds up drying.

Source: https://www.hindustantimes.com/environment/if-your-paint-label-doesn-t-say-lead-less-than-90-ppm-don-t-buy-it/story-agL3ICozFbenZct1y2afDI.html

Q.26) Which of the following is/are correctly matched?

	Joint Exercise	Country
1.	SAMPRITI	India and Bangladesh
2.	PRABAL DOSTYK	India and Kazakhstan
3.	Desert Tiger	United Arab Emirates & India

Select the correct code:

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

Q.26) Solution (a)

SAMPRITI - India and Bangladesh

PRABAL DOSTYK - India and Kazakhstan

Desert Eagle - United Arab Emirates & India

Desert Tiger – Malaysia and UAE