



CBRT - 2020 Question Paper Grid

Government of Goa

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Set Name

Subjects

Display

Assistant Professor(Botany)

Itemcode : **PB1272**

Q1 : The term Ground Stroke is associated with which of the following games?

- (a) Cricket
- (b) Badminton
- (c) Tennis
- (d) Draughts

Itemcode : **PB1273**

Q2 : The saffron colour in the national flag signifies

- (a) truth and peace
- (b) courage and Sacrifice
- (c) faith and chivalry
- (d) None of the above

Itemcode : **PB1274**

Q3 : The significance of the lotus symbol is

- (a) culture and civilisation
- (b) peace
- (c) justice
- (d) sign of mourning, in protest

Itemcode : **PB1275**

Q4 : The Reliance Cup was earlier known by the name of

- (a) Benson and Hedges Cup
- (b) McDowell's Challenge Cup
- (c) Prudential Cup
- (d) Rothmans Cup

Itemcode : **PB1276**

Q5 : 'Apsara' is the name of India's first

- (a) Railway Locomotive
- (b) Helicopter
- (c) Nuclear Reactor
- (d) Ground Battle Tank

Itemcode : **PB1277**

Q6 : Raja Ravi Verma, was famous in which of the fields?

- (a) Painting
- (b) Politics
- (c) Dance
- (d) Music

Itemcode : **PB1278**

Q7 : The first hand glider was designed by...?

- (a) Leonardo DaVinci
- (b) The Wright brothers
- (c) Francis Rogallo
- (d) Galileo

Itemcode : **PB1279**

Q8 : In which Indian state did the game of Polo originate?

- (a) Meghalaya
- (b) Rajasthan
- (c) Manipur
- (d) West Bengal

Itemcode : **PB1280**

Q9 : Which of the following is a Manipuri version of Hockey?

- (a) Khong Kangjei
- (b) Hiyang Tanaba
- (c) Yubi Lakpi
- (d) None of above

Itemcode : **PB1281**

Q10 Who is to be conferred with the 2020 Swami Vivekananda Karmayogi Award?

- (a) Jadav Payeng
- (b) Rajendra Singh
- (c) Vandana Shiva
- (d) Sunita Narain

Passage:

The Indian economy rests on agricultural base and for decades and generations the picture that India Presented to the world was one of famine and of an unchanging peasantry reluctant to depart from the cultural practices handed down to them by their forefathers. Indian agriculture , it was said, was a gamble on the rains. Some visionaries and civil servants had sought to change all this. Their experiments at rural transformation were watched with amused interest and if their efforts did not meet with more than temporary and isolated success, it was because they were operating individuals and in very limited area within what was basically an inhospitable and unresponsive administrative environment. The scale of effort was enlarged during the Second World War with the launching of the "grow more food campaign". But the administrative structure remained largely unaltered.

It was to change all this, that the Community Development Programme was introduced. There were three problems that had to be tackled. First, if the farmer was to change methods, he had to be educated to see the possibility to change through actual demonstration in his field at no cost to himself. If the farmer tilled the land in the same manner as his father before him, it was because tradition had no optimized risks and the farmer had no margin on the basis of which to gamble on strange new practices and risk not merely a financial loss but his very survival. Second, there was no one agency to whom the farmer could turn for assistance or advice. If he wanted better seeds, he had to go to the Agriculture Department. For irrigation he had to knock at the doors of the Irrigation Department. Roads were the responsibility of the Public Works Department. Land problems had to be taken up with the revenue authorities and so on. In short, the administration was totally fragmented at the point which touched the life of the farmer. Coordination was difficult and the totality of the farmer's problem could never be adequately comprehended, let alone ameliorated, by the administration. Third, even if the administration sought to promote rural transformation and the farmers, were willing, how was the new knowledge to be transmitted not merely to every village but to each cultivator?

The Community Development Programme sought to provide answers to these three problems. Something in the nature of the single-line administration was established under a chain of command running through the District Development Officer and Block Development Officer to the multipurpose village level worker. Instead of having to go to several departments to get anything done, the farmer could now deal with a single community development authority with which all the executive agencies involved in rural development were associated. The many thousands of field demonstrations laid out under the Community Development Programme demonstrated the possibility of change in a manner that carried conviction and at no risk to the peasant. Once the farmer was persuaded, his alleged age-old conservatism vanished and the next problem was to satisfy his ever-growing demands. Meanwhile, the establishment of a National Extension Service first time created a permanent transmission system for the propagation and demonstration of new ideas and methods, not just in isolated pockets, but over very wide areas.

Itemcode : **PB1282**

Q11 Which of the following was the objective of launching Community Development Programme?

- (a) To eradicate illiteracy of the rural folk
- (b) To switch over to me mechanisation in agro sector
- (c) To solve the diverse problems of farmers on a single platform
- (d) To minimize farmer?s financial losses and risks

Itemcode : **PB1283**

Q12 For the people in the world , the image of Indian Village is that of

- (a) an opponent of traditionalism and conservatism
- (b) a rule-bound, conservative and culture-groomed person
- (c) a visionary and a perfect gambler
- (d) an inhospitable and unresponsive person

Itemcode : **PB1284**

Q13 The experiments undertaken by some visionaries were aimed at

- (a) Changes in administrative environment
- (b) temporary and isolated success
- (c) evolution of new operational strategies
- (d) upliftment of peasants and rural development

Itemcode : **PB1285**

Q14 What was the probable disadvantage of the fragmented administration to the farmers?

- (a) Loss of time, money and energy
- (b) exposure to novel techniques and strategies
- (c) Availability of manures, fertilisers and seeds
- (d) Uncertainty of rains during the crop season

Itemcode : **PB1286**

Q15 What was the impact of these demonstrations on the farmers?

:

- (a) Their unreasonable demands increased disproportionately
- (b) Their tendency to cling to past traditions vanished
- (c) National Extension Service was established by them
- (d) Their standard of living remained unaltered

Itemcode : **PB1262**

Q16 The failure of palm readers to identify the causal connection between the lines on a person's hands and his or her life indicates that the theory of palm reading is:

- (a) Internally incoherent.
- (b) Inadequate.
- (c) Unfruitful.
- (d) Dysfunctional.

Itemcode : **PB1263**

Q17 As a result of the application of Ockham's razor, naturalistic explanations are preferred to supernatural explanations because:

- (a) Naturalistic explanations lead to entirely new ways of viewing the world.
- (b) Naturalistic explanations are preferred by atheists.
- (c) Supernatural explanations are inconsistent with well confirmed scientific theories.
- (d) Supernatural explanations are always contaminated by religious beliefs.

Itemcode : **PB1264**

Q18 If January 1st, 2007 is Monday, what was the day on 1st January 1995?

:

- (a) Sunday
- (b) Monday
- (c) Friday
- (d) Saturday

Itemcode : **PB1265**

Q19 Statements

- :
- I All students are ambitious
 - II All ambitious persons are hard working
- Conclusions:
- i. All students are hard-working
 - ii. All hardly working people are not ambitious
- Which of the following is correct?

- (a) Only (i) is correct
- (b) Only (ii) is correct
- (c) Both (i) and (ii) are correct
- (d) Neither (i) nor (ii) are correct

Itemcode : **PB1266**

Q20 Read the given argument and answer the question that follows.

:

Argument

Here's another reason to get vaccinated against measles - researchers have found that the measles virus makes kids' immune systems "forget" most of what they have learned, leaving children vulnerable to other diseases for as long as three years. "Our findings suggest that measles vaccines have benefits that extend beyond just protecting against measles itself," said Michael Mina, a medical student at Emory University who worked on the study while doing postdoctoral research at Princeton University.

Which of the following, if true, would most strengthen the argument made in favour of the vaccination against measles?

- (a) Studies have suggested that vaccines can have broader benefits than simply protecting against a single disease.
- (b) If you get measles, three years later, you could die from something that you would not die from had you not been infected with measles.
- (c) Various scientists are working to find out whether reducing measles incidence will cause a drop in deaths from other infectious diseases.
- (d) The findings, published in the journal Science, help explain why deaths and illnesses from a range of diseases plummet in countries after they introduced measles vaccine campaigns.

Itemcode : **PB1267**

Q21 Read the given argument and answer the question that follows.

:

Arguments

It's no surprise that, in an era of rapid change, island nations will be among the first to feel the effects of climate change. A common sentiment shared among the islands of the Pacific is that they suffer a great deal from the phenomenon while contributing the least to the problem. These islands are located in a region that's sandwiched by two of the world's largest carbon-emitting countries, the United States and China, which means that any concerns they voice on the global stage often come out as mere whispers.

Which of the following, if true, would support the 'common sentiment' mentioned in the passage?

- (a) Plastic pollution in oceans is an enormous problem globally but the island nations suffer the most due to this, as plastic harms the very aquatic life that island nations depend on for their economic progress.
- (b) Carbon emissions are directly proportional to the size of the population of a country and the resulting increase in sea-level poses the greatest threat to the low-lying island nations, despite their relatively small populations.
- (c) Island nations have banded together in the international arena to call on other countries to limit their emissions in order to

curtail the devastating impacts of climate change on their vulnerable nations.

(d) The island nations are more vulnerable to the physical impacts of climate change due to a number of socioeconomic stressors like high population growth, over-pumping of groundwater, pollution, etc.

Itemcode : **PB1268**

Q22 The following table shows the information related to population and a few other parameters for 5 states of India for the year 2010.

States	Population (in Lakhs)	Rural Population (in %)	Literacy Rate (in %)	No. of Women per 1000 Men
P	720	40	50	920
Q	400	70	55	914
R	420	55	45	970
S	350	64	44	958
T	640	30	60	990

In rural

region of state P, all women i.e. 188 Lakh are literate and all men are illiterate. The literacy rate among urban men in state P is at least?

- (a) 40%
 (b) 0%
 (c) 4%
 (d) None of these

Itemcode : **PB1269**

Q23 The following table shows the information related to population and a few other parameters for 5 states of India for the year 2010.

States	Population (in Lakhs)	Rural Population (in %)	Literacy Rate (in %)	No. of Women per 1000 Men
P	720	40	50	920
Q	400	70	55	914
R	420	55	45	970
S	350	64	44	958
T	640	30	60	990

If the

literate population, staying in urban area, of each state is maximum possible, then in how many states urban population can be 100% literate?

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

Itemcode : **PB1270**

Q24 The following table shows the information related to population and a few other parameters for 5 states of India for the year 2010.

States	Population (in Lakhs)	Rural Population (in %)	Literacy Rate (in %)	No. of Women per 1000 Men
P	720	40	50	920
Q	400	70	55	914
R	420	55	45	970
S	350	64	44	958
T	640	30	60	990

In each

state 10% of rural population migrates to urban areas of the same state. If this migrant population is illiterate then which state will have lowest literacy rates in its urban areas?

- (a) Q
 (b) R
 (c) S
 (d) Cannot be determined

Itemcode : **PB1271**

Q25 The following table shows the information related to population and a few other parameters for 5 states of India for the year 2010.

States	Population (in Lakhs)	Rural Population (in %)	Literacy Rate (in %)	No. of Women per 1000 Men
P	720	40	50	920
Q	400	70	55	914
R	420	55	45	970
S	350	64	44	958
T	640	30	60	990

If 70% of

literate population of each state lives in urban areas, then which state has the lowest percentage of literacy in rural areas?

- (a) Q
- (b) R
- (c) S
- (d) Cannot be determined

Itemcode : PB1212

Q26 Which of the following statements best describes the interaction between fire and ecosystems?
:

- (a) The chance of fire in a given ecosystem is highly predictable over the short term.
- (b) Many kinds of plants and plant communities have adapted to frequent fires.
- (c) The prevention of forest fires has allowed more productive and stable plant communities to develop.
- (d) Fire is unnatural in ecosystems and should be prevented.

Itemcode : PB1213

Q27 Two barnacles, *Balanus* and *Chthamalus*, can both survive on the lower rocks just above the low-tide line on Goa's coast, but only *Balanus* actually does so, with *Chthamalus* adopting a higher zone. Which of the following best accounts for this niche separation?
:

- (a) competitive exclusion
- (b) predation of *Chthamalus* by *Balanus*
- (c) cooperative displacement
- (d) primary succession

Itemcode : PB1214

Q28 Which of the following statements about succession is correct?
:

- (a) Secondary succession occurs where no soil exists.
- (b) Primary succession occurs in areas where soil remains after a disturbance.
- (c) Secondary succession can occur where a disturbance has left soil intact.
- (d) Some cases of succession involve facilitation, a phenomenon in which local species inhibit the growth of newcomers.

Itemcode : PB1215

Q29 Landscape ecology is best described as the study of
:

- (a) the array of interacting species within a community
- (b) abiotic factors and the community of species that exist in a particular area.
- (c) physiological and behavioural ways in which organisms meet the challenges of their environment.
- (d) related arrays of ecosystems

Itemcode : PB1216

Q30 The El-Nino Phenomenon occurs in
:

- (a) Atlantic Ocean
- (b) Pacific Ocean
- (c) Indian Ocean
- (d) Arctic Ocean

Itemcode : PB1217

Q31 What percentage of invasive species are harmful (or potentially harmful)?
:

- (a) 100
- (b) 50
- (c) 25
- (d) <5

Itemcode : PB1218

Q32 The nitrogen cycle differs substantially from the calcium cycle in that
:

- (a) trees require calcium to a greater degree
- (b) nitrogen is fixed from atmospheric sources via a symbiosis
- (c) calcium is substantially influenced by the activity of leguminous plants
- (d) none of these

Itemcode : PB1219

Q33 EIA is defined as
:

- (a) A process of identifying, predicting, and evaluating the likely impacts of a proposed project or development to define mitigation actions to reduce negative impacts and to provide positive contributions to the natural environment and well-being
- (b) A report written by government representatives on the planned development impacts of environment, socio-economic issues and culture
- (c) Project life-cycle assessment
- (d) Something that needs to be done to stop controversial projects

Itemcode : PB1220

Q34 Deuteromycetes are called imperfect fungi because
:

- (a) The sexual cycle has not been observed
- (b) Nothing about them indicates their relation to fungi
- (c) They do not produce mycelia
- (d) They have no asexual reproduction

Itemcode : PB1221

Q35 Which of the following is a reproductive structure of the fungus :

- (a) Gametangia
- (b) Sporangia
- (c) Conidia
- (d) All of the above

Itemcode : PB1222

Q36 Ergotism is responsible for all of the following except :

- (a) Irish potato famine
- (b) Hallucinations
- (c) Gangrene
- (d) Both A and B

Itemcode : PB1223

Q37 Which of the following does not represent a human disease caused by fungi :

- (a) Ringworm
- (b) Cryptococcosis
- (c) Malaria
- (d) Scabies

Itemcode : PB1224

Q38 Which of the following produce motile sexual and asexual spores :

- (a) Slime molds
- (b) Dimorphic fungi
- (c) Club fungi
- (d) Water molds

Itemcode : PB1225

Q39 Heterothallism was discovered by :

- (a) Blakeslee
- (b) Faraday
- (c) Alexopoulos
- (d) Gaumann

Itemcode : PB1226

Q40 Black rust of wheat is caused by :

- (a) Puccinia graminis
- (b) Puccinia recondita
- (c) Puccinia striiformis
- (d) Puccinia glumarum

Itemcode : PB1227

Q41 Alternaria solani causes:

- (a) late blight of potato
- (b) wart of potato
- (c) early blight of potato
- (d) leaf curl of potato

Itemcode : PB1228

Q42 Pribnow box is the component of _____.

- (a) Operators
- (b) Enhancers
- (c) Activators
- (d) Promoters

Itemcode : PB1229

Q43 Sigma factor is the component of :

- (a) DNA polymerase
- (b) DNA ligase

- (c) RNA polymerase
- (d) Endonuclease

Itemcode : **PB1230**

Q44 The role of topoisomerases in eukaryotic DNA replication is to :

- (a) Cut, uncoil and reseal the double stranded DNA
- (b) Bind to the origin of replication sites within double stranded DNA
- (c) Open up the double stranded DNA at the replication fork
- (d) Join the Okazaki fragments together with phosphodiester bonds

Itemcode : **PB1231**

Q45 Eukaryotes differ from prokaryote in mechanism of DNA replication due to :

- (a) Use of DNA primer rather than RNA primer
- (b) Different enzyme for synthesis of lagging and leading strands
- (c) Discontinuous rather than semi-discontinuous replication
- (d) Unidirectional rather than semi-discontinuous replication

Itemcode : **PB1232**

Q46 Which of the following does not code for an enzyme having both helicase and nuclease activity? :

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

Itemcode : **PB1233**

Q47 Which position of a codon is said to wobble? :

- (a) First
- (b) Second
- (c) Third
- (d) Fourth

Itemcode : **PB1234**

Q48 The role of mRNA in protein synthesis is :

- (a) It translates genetic code to a specific amino acid
- (b) It modifies mRNA molecules prior to protein synthesis
- (c) It provides genetic blueprint for the protein
- (d) It catalyzes the process

Itemcode : **PB1235**

Q49 The role of small nuclear RNAs in protein synthesis is :

- (a) It translates genetic code to a specific amino acid
- (b) It modifies mRNA molecules prior to protein synthesis
- (c) It provides genetic blueprint for the protein
- (d) It catalyzes the process

Itemcode : **PB1236**

Q50 Peroxisomes are involved in which type of reactions pertaining to plant photosynthesis? :

- (a) Calvin Cycle
- (b) Glycolytic cycle
- (c) Glyoxylate cycle
- (d) Bacterial photosynthesis

Itemcode : **PB1237**

Q51 In C3 and C4 plants, primary carboxylation takes place with the help of :

- (a) PEP carboxylase and pyruvate carboxylase
- (b) RuBP carboxylase and PEP carboxylase
- (c) RuBP carboxylase and pyruvate carboxylase
- (d) None of the above

Itemcode : **PB1238**

Q52 The hypothesis that all photosynthetic organisms require a source of hydrogen was first proposed by :

- (a) Van Niel
- (b) Hill
- (c) Hatch & Slack
- (d) Ruber & Kamer

Itemcode : PB1239

Q53 The process of photosynthesis is :

- (a) Reductive, exergonic and catabolic
- (b) Reductive, exergonic and anabolic
- (c) Reductive, endergonic and catabolic
- (d) Reductive, endergonic and anabolic

Itemcode : PB1240

Q54 The net gain of ATP produced during the oxidation of one glucose molecule in a plant cell :

- (a) 38 ATP molecules
- (b) 30 ATP molecules
- (c) 36 ATP molecules
- (d) 24 ATP molecules

Itemcode : PB1241

Q55 Nitrosomonas and Nitrobacter are _____ :

- (a) Ammonifying bacteria
- (b) Denitrifying bacteria
- (c) Nitrogen fixing bacteria
- (d) Nitrifying bacteria

Itemcode : PB1242

Q56 Selection of homogygous plants is? :

- (a) Mass selection
- (b) Pure line selection
- (c) Hybrid vigour
- (d) inbreeding depression

Itemcode : PB1243

Q57 Triticale is developed through intergeneric hybridization of :

- (a) Wheat and Rye
- (b) Maize and rice
- (c) Wheat and barley
- (d) Wheat and rice

Itemcode : PB1244

Q58 Semidwarf variety IR8 was developed in :

- (a) India
- (b) China
- (c) Philippines
- (d) Taiwan

Itemcode : PB1245

Q59 Heterosis loss due to continuous inbreeding known as :

- (a) Hybrid vigour
- (b) out breeding depression
- (c) Pureline selection
- (d) Inbreeding depression

Itemcode : PB1246

Q60 Which of the following is not true about RNA :

- (a) RNA is chemically more reactive than DNA
- (b) 2'-OH prevent RNA to adopt Beta-conformation
- (c) RNA was discovered by Hoppe-Seyler
- (d) feulgen reaction is performed by both DNA and RNA.

Itemcode : PB1247

Q61 Which of the following is not a characteristics of DNA :

- (a) It is less susceptible to alkaline hydrolysis than RNA
- (b) It has hydroxyl group attached to the 3' carbon at the 3' end
- (c) It is stabilized by hydrogen bonding, vander waals forces and covalent interaction
- (d) It can exist in four or more than four helical conformation

Itemcode : PB1248

Q62 Which is a incorrect statement

:

- (a) Both primers (R and F) should have similar T_m
- (b) Primers can not share complementarity
- (c) Primers can have palindromic sequences
- (d) Primers determine the boundaries of amplified product

Itemcode : **PB1249****Q63** Which is an incorrect statement

:

- (a) Foreign DNA placed between left and right border of the Ti plasmid can be transferred to infected plant genome.
- (b) Binary vector are those which has TDNA and Vir region on two different vectors without compromising the transformation
- (c) Vir region is not essential for transferring the TDNA to plants
- (d) Ti plasmid causes plant tumors

Itemcode : **PB1250****Q64** Which is an incorrect statement

:

- (a) You do not need dNTP in PCR reaction
- (b) Primers are needed in dideoxy methods of DNA sequencing
- (c) In dideoxy methods of sequencing only single strand of DNA is sequenced
- (d) Radioactivity in PCR is replaced by fluorescence probe

Itemcode : **PB1251****Q65** Bacterial DNA is not cleaved by their own restriction enzymes because bacteria add _____ to their own DNA

:

- (a) Nucleotides
- (b) Methyl group
- (c) Ligase
- (d) Phosphate

Itemcode : **PB1252****Q66** Restriction enzyme hydrolyse the backbone of DNA between

:

- (a) PO_4 and nitrogen bases
- (b) Ribose and nitrogen bases
- (c) PO_4 and deoxyribose
- (d) Nitrogen bases and deoxyribose

Itemcode : **PB1253****Q67** Which is not correct

:

- (a) Genomic library contain introns
- (b) cDNA library contain fragmented gene
- (c) cDNA library does not represent all genes
- (d) Genomic library contain upstream and down stream sequences of gene

Itemcode : **PB1254****Q68** What strategies will be apply to select recombinant DNA

:

- (a) Replica plating
- (b) Blue- white colonies
- (c) Direct selection vectors
- (d) All of the above

Itemcode : **PB1255****Q69** Which is correct statement

:

- (a) mRNA can be isolated using affinity chromatography
- (b) cDNA clone library contain all the gene
- (c) Reverse transcriptase synthesises DS DNA from SS DNA
- (d) Plasmid accommodate larger foreign DNA than phages

Itemcode : **PB1256****Q70** An allosteric site on an enzyme is

:

- (a) The same as the active site
- (b) Non protein in nature
- (c) Where ATP attaches and gives up its energy
- (d) Often involved in feedback inhibition

Itemcode : **PB1257****Q71** Which one of the following statement is correct concerning the Michalis constant K_m ?

:

- (a) Is measured in the same units as the rate of the enzyme-catalyzed reaction

- (b) Varies with the amount of enzyme used in measuring the reaction rate
- (c) Can be considered to be a measure of the affinity an enzyme has for its substrate
- (d) Has a low value to indicate a low affinity to substrate

Itemcode : **PB1258**

Q72 Which of the following statement about the enzyme complexes of the electron transport system is correct :

- (a) They interact with one another via mobile electron carriers
- (b) They are located in the mitochondrial matrix
- (c) They can not be separated from one another in a functional form
- (d) They all have cytochrome

Itemcode : **PB1259**

Q73 More free energy is released during the citric acid cycle than during glycolysis, but only 1 mole of ATP is produced for each mole of acetyl Co-A that enters the cycle. What happens to most of the remaining free energy that is produced during the citric acid cycle?

- (a) It is used to synthesize GTP
- (b) It is used to reduce electron carriers
- (c) It is lost as heat
- (d) it is used to reduce pyruvate

Itemcode : **PB1260**

Q74 Which of the following statement is not true with respect to the photosystem II found in chloroplasts :

- (a) PS II is located in the grana
- (b) Chlorophyll molecule in the reaction centre of the PS II is bound to a 110 Kd integral membrane protein
- (c) A complex of cytochrome b and f transport electron from PS II and PS I
- (d) PS II reaction centre is bound to Mn^{+2} ions.

Itemcode : **PB1261**

Q75 In which of the following organelles glycolates is oxidized to glyoxilate during photorespiration :

- (a) Chloroplasts
- (b) Peroxisome
- (c) Mitochondria
- (d) Endoplasmic reticulum