

SAMPLE QUESTION PAPER—E

1. (d) Direct personal investigation ensures high degree of accuracy of investigation.
2. (c) Statistical calculation in classified data are based on the actual values of observations.
3. (a) The class mid-point is equal to the average of the upper class limit & the lower class limit.
4. (b) Registered & unregistered types of industries are included in production industry.
5. (d) The first Industrial Policy was declared on April 16, 1948 by then Union Industry Minister Mr. Shyama Prasad Mukherjee. This policy established a base for mixed & controlled economy in India.
6. Most of the surveys are sample surveys. These are preferred in statistics because of a number of reasons. A sample can provide reasonably reliable and accurate information at a lower cost and in a short time. As the size of the sample is small as compared to the population, the time and cost involved on sample study are much less than that of the complete counts. For complete count huge funds are required. There is always the problem of finance.
On other hand samples are smaller than the population, more detailed information can be collected by conducting intensive enquiries. It is suitable when universe comprises units of homogeneous nature whereas survey method is used when universe comprises units of heterogeneity. Therefore, we can say that sample provide better results than survey method. **3**
7. Standard deviation measure of dispersion is far best and the widely used measure of dispersion. It is useful because it is free from those defects from which the earlier measures of dispersion suffer. It satisfies most of the properties of a good measure of dispersion. It is based on all values and is useful in certain advanced statistical problems. **3**
8. Core challenges before the government related to women employment, both in the urban and rural areas are as follows :
 - (1) Women empowerment through formal and free education at the elementary level is a great challenge.
 - (2) Adequate skill and technical training through vocational courses institutions is not available.
 - (3) Provision of reservation for women in government jobs are less .
 - (4) Child marriage and related exploitation are prevailing.
 - (5) Spreading information through awareness programmes is very less. **1 × 3 [Any three]**
9. When the mid-values of class-intervals are given the class-intervals are found out by first finding out the difference between two mid-values and then subtracting half of it from each mid-values to find the lower limit and adding it to each mid-value to find the upper limit of the class-intervals.

$$\text{Mid-point} = (\text{Lower limit} + \text{Upper limit})/2$$

Example : Compute mid-value from the following data :

Class-Interval	Mid-Value
0 – 10	5
10 – 20	15
20 – 30	25

$$2 + 1 = 3$$

10. The cumulative frequency is calculated by adding each frequency from a frequency distribution table to the sum of its predecessors. The last value will always be equal to the total of all observations, since all frequencies already have been added to the previous total.

Example : The following frequency distribution table gives the marks obtained by 40 students :

Class marks	Frequency	Cumulative Frequency
0–10	5	4
10–20	5	$9 = 5 + (4)$
20–30	12	$21 = 12 + (4 + 5)$
30–40	11	$32 = 11 + (4 + 5 + 12)$
40–50	8	$40 = 8 + (4 + 5 + 12 + 11)$

$$1\frac{1}{2} + 1\frac{1}{2}$$

11. The change in the composition of India's foreign trade can be made into two parts :
 - (i) **Change in the composition of exports :** The share of agricultural goods was 55% in the

traditional exports by India in 1950-51. It reduced to 19.4% in 1989-90 and 19.7% in 2007-08. The share of engineering goods was 0.05% in 1951. It increased to 24% in 2007-08. 1½

- (ii) **Change in the composition of imports :** The share of jute, cotton and foodgrains had increased too much in the composition of import trade of India after 1947. But now it has reduced. The import of petroleum, fertilizers, steel, iron, metals, machineries, capital materials, edible oil and chemicals has stepped up. 1½

12. The elements of green revolution are as follows :

- (i) **Mechanisation of agriculture :** The farmers have started using tractors, tubewells, harvesters, threshers etc. In this way, the mechanisation of agriculture has increased rapidly. 1
- (ii) **High yielding varieties of seeds :** High yielding varieties of seeds have the biggest contribution in green revolution. Due to this, agricultural production increased much in a short period. 1
- (iii) **Irrigational facilities :** In new agricultural policies, special attention was paid towards small irrigational projects. To provide irrigational facilities, many schemes of irrigation were implemented. 1
- (iv) **Chemical fertilizers :** The main elements of green revolution are chemical fertilizers. There has been considerable increase in chemical fertilizers in India since independence. 1

- 13. Recent instances of damages to stocks of wheat in the godowns of the Indian government, being maintained by the Food Corporation of India (FCI), have been the centre of debate of various levels. In a country where 60% of the population is still below poverty line, country's balance of payments never able to achieve balance due to lesser exports. Subsidy bills, all listing, cannot afford to show insensitiveness towards handling public foods, resource and money.** 3

14. Comparison can be made as follows :

Sectoral contribution in GDP %

Sector	India	China	
(i) Agriculture	23	15	½
(ii) Industry	26	53	½
(iii) Service	51	32	½

The main conclusions are as follows :

- (i) **Agricultural Sector :** The sectoral contribution of agriculture is higher in India in comparison to China. ½
- (ii) **Industrial Sector :** The sectoral contribution of industries is higher in China than that of India. ½
- (iii) **Service Sector :** In service sector, the sectoral contribution is higher in India as comprison to China. ½

In this way, the contribution of industries is higher in comparison to agriculture in China. Due to this reason, China is progressing rapidly.

15.

Mark in Maths (X)	R ₁	Mark in Econo. (Y)	R ₂	D ¹ (R ₁ - R ₂)	D ²
85	2	60	2	0	0
60	5	48	6	-1	1
55	6	49	5	1	1
65	4	50	4	0	0
75	3	55	3	0	0
90	1	62	1	0	0
					ΣD ² = 2

$$rK = 1 - \frac{6\Sigma D^2}{N(N^2 - 1)} = 1 - \frac{6 \times 2}{6(36 - 1)} = 1 - \frac{2}{35} = \frac{33}{35} = 0.94$$

16. Following are the measures taken by government for agricultural marketing :

- (i) **Setting up of regulated markets :** Regulated markets have been set up to improve the marketing of agricultural produce. In this, there is a control of market committee on the sale of agricultural produce. As a result, the malparactices have come to an end in the mandis. Out of the 7600 mandis, about 7000 mandis are regulated. Now more than 70% of the produce is sold in the mandis. 1

- (ii) **Storage facilities :** Government had set up central warehousing corporation in 1967. The main objective of this is to run and construct godowns and warehouses for the storage of agricultural produce. For the same purpose, the State Government has also set up 'state warehousing corporations'. Godowns have been established at mandi level and village level. In the beginning of the 10th plan, the storage capacity of all the agencies was 702 lakh tonnes. 1
- (iii) **Garding and standardization : Agricultural Produce (grading and marketing) Act was implemented in 1937.** Under this act, government has established grading stations for goods like flour, ghee, eggs, etc. AGMARK stamp of the department of agricultural marketing is marked on the graded goods. There is a wide market of AGMARK goods. These goods are sold at higher prices. 1
- (iv) **Quality control :** Government has setup central control quality laboratory at Nagpur. Eight other regional laboratories have also been established in various parts of the country. The main objective is to test the quality and purity of agricultural goods. In this way, quality control is being given due importance. 1

17. It is necessary to generate employment in formal sector because :

- (i) Formal sector refers to the organized sector of the economy. It includes government departments, public enterprises and private establishments that hire 10 or more workers. 1
- (ii) Workers of the formal sectors enjoy social security benefits and also they remain protected by the labour laws. 1
- (iii) The informal sector is an unorganized sector of the economy. People engaged in this sector do not enjoy any social security benefits and do not have any trade unions and consequently, have low bargaining power. This makes them more vulnerable to the uncertainties of the market. 1
- (iv) Creating more jobs in the formal sector will not only absorb workforce from the informal sector but also helps in reducing poverty and income inequalities. 1
- (v) In order to safeguard the interests of the informal sector and to utilise this portion of the workforce for achieving economic growth, it is very important to generate more employment opportunities in the formal sector rather than in the informal sector. 1

18. Following are the four pressing environmental concerns of India :

- (i) **Land degradation :** Land in India suffers from varying degrees and types of degradation stemmy, mainly from unsuitable use and inappropriate management practices. 1
- (ii) **Bio-diversity loss :** In India, the per capita forest land is only 0.08 hectare against the requirement of 0.47 hectare to meet basic needs, resulting in an excess falling of about 15 million cubic meters forests over the permissible limits. Similarly with soil, soil is being eroded at a rate of 5.3 billion tonnes a year for the entire country, as a result of which, the country loses 0.8 million tonnes of nitrogen, 1.8 million tonnes of phosphorus and 26.3 million tonnes of potassium every year. 1
- (iii) **Management of fresh water :** In our country management of fresh water is altogether faulty. Unplanned urbanization, loss of rain water (as it seeps into the earth), faulty systems of waste disposal are responsible for polluted water. 1
- (iv) **Air Pollution :** Air pollution is very dangerous for plants, animals and human beings. It is a serious concern mainly in urban areas where the dust and smoke emitted by factories vehicles etc. pollute the environment very badly. 1

In order to rectify these problems, the government has to undertake the projects which involve heavy investment. Hence, it is said that opportunity costs of correcting the imbalance created by environmental degradation is quite high.

19. Calculation of Karl Pearson's correlation coefficient :

X	dX	dX ²	Y	dY	dY ²	dXdY
78	9	81	125	13	169	117
89	20	400	137	25	625	500
97	28	784	156	44	1936	1232
69	0	0	112	0	0	0
59	-10	100	107	-5	25	50
79	10	100	136	24	576	240
68	-1	1	123	11	121	-11
61	-8	64	108	-4	16	32
N = 8	$\Sigma dX = 48$	$\Sigma dX^2 = 1530$	N = 8	$\Sigma dY = 108$	$\Sigma dY^2 = 3468$	$\Sigma dXdY = 2160$

$$\begin{aligned}
 r &= \frac{dx - dyN - (\Sigma dx)(\Sigma dy)}{\sqrt{\Sigma X^2 N - (\Sigma dx)^2} \sqrt{\Sigma Y^2 N - (\Sigma dy)^2}} \\
 &= \frac{2,160 \times 8 - (48)(108)}{\sqrt{1,530 \times 8 - (48)^2} \times \sqrt{3,468 \times 8 - (108)^2}} \\
 &= \frac{17,280 - 5,184}{\sqrt{1,240 - 2,304} \times \sqrt{1,744 - 11,664}} \\
 &= \frac{12,096}{\sqrt{9,936} \times \sqrt{16,080}} = \frac{12,096}{99.68 \times 126.8} \\
 &= \frac{12,096}{12,639} = 0.196
 \end{aligned}$$

20. Unplanned, unbalanced and undirected was the development of the Indian economy at the time of independence, this can be justified by the following points :

- Stagnation and deterioration in the agricultural sector where 85% of the country's population was dependent.
- Deindustrialisation of Indian economy due to the combined effect of the downfall of India's handicraft industry and the bleak growth of modern industry characterised by lack of investment.
- Regression in Foreign trade due to restrictive policies and monopoly control by the Britishers.
- Self-serving infrastructural development, meant for the development of the industries running in Britain and to catalyse the export of primary goods from India and import of cheap substitute industrial manufactured goods.

Conclusion : At the time of independence, above 22% of the workforce was engaged in agriculture and allied activities, 10.7% in industrial and construction activities and 17.2% in service sector.

Thus all the sectors were not uniformly developed and was unbalanced.

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21. Calculation of Coefficient of Variation (Group A)

Age Group X	No. of person f	Mid-points m	d = m - A A = 25	d' = $\frac{m - A}{C}$ C = 10	fd'	d' ²	fd' ²
0 - 10	5	5	-20	-2	-10	4	20
10 - 20	15	15	-10	-1	-15	1	15
20 - 30	20	25 (A)	0	0	0	0	0
30 - 40	25	35	+10	+1	+25	1	25
40 - 50	18	45	+20	+2	+36	4	72
50 - 60	10	55	+30	+3	+30	9	90
60 - 70	7	65	+40	+4	+28	16	112
	N = Σf = 100				$\Sigma fd'$ = 94		$\Sigma fd'^2$ = 334

$$\sigma = \sqrt{\frac{\Sigma fd'^2}{N} - \left(\frac{\Sigma fd'}{N}\right)^2} \times C = \frac{334}{100} - \left(\frac{94}{100}\right)^2 \times 10$$

$$\sigma = \sqrt{3.34 - 0.883} \times 10 = 15.67$$

$$\bar{X} = A + \frac{\Sigma fd'}{\Sigma f} \times C = 25 + \frac{94}{100} \times 10 = 34.4$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma}{\bar{X}} \times 100$$

$$= \frac{15.67}{34.4} = 45.55\%$$

Calculation of Coefficient of Variation (Group B) AglaSem Schools

Age Group X	No. of persons f	Mid-points m	d = m - A A = 25	d' = $\frac{m - A}{C}$ C = 10	fd'	d' ²	fd' ²
0 - 10	7	5	-20	-2	-14	4	28
10 - 20	12	15	-10	-1	-12	1	12
20 - 30	22	25(A)	0	0	0	0	0
30 - 40	30	35	+10	+1	+30	1	30
40 - 50	20	45	+20	+2	+40	4	80
50 - 60	5	55	+30	+3	+15	9	45
60 - 70	4	65	+40	+4	+16	16	64
	N = $\Sigma f = 100$				$\Sigma fd' = 75$		$\Sigma fd'^2 = 259$

$$\sigma = \sqrt{\frac{\Sigma fd'^2}{N} - \left(\frac{\Sigma fd'}{N}\right)^2} \times C = \sqrt{\frac{259}{100} - \left(\frac{75}{100}\right)^2} \times 10$$

$$\sigma = \sqrt{2.59 - 0.5625} = 14.24$$

$$\bar{X} = A + \frac{\Sigma fd'}{\Sigma f} \times C = 25 + \frac{75}{100} \times 10 = 32.5$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma}{\bar{X}} \times 100$$

$$= \frac{14.24}{32.5} \times 100$$

$$= 43.82\%$$

Coefficient of variation of Group B (43.82%), is less than that of Group A (45.55%), so Group B is more uniform.

22. Values involved here are — sensitiveness, responsibility, critical thinking, analysis and interpretation and sectoral specific initiation. Reserve Bank of India, the central bank and the nodal agency for regulating the banking system in India, has been proactively engaged in formulation policies and procedures for the easy availability of rural credit, besides easy availability for connecting down the NPAs. It had recently issued licenses for new private banks for widening and penetrating the banking facilities in the whole of India.

The route map has already been in consideration with in the government agencies, as above being depicted, but the actual result lies in its implementation.[6]

23. Yes, Infrastructure acts as a support system for producing activity in the economy and thereby contributes to economic development. The following point explain the role of infrastructure :

- (i) **Infrastructure increases productivity :** Infrastructure economic and social facilitates production. The availability of quality infrastructure guarantees increase in production and productivity. Infrastructure ensures easy movement of goods and raw materials thereby reducing inefficiencies and lead to efficient utilization of scarce resources and eliminate wastages. 1
- (ii) **Infrastructure encourages investment :** Infrastructure provides an environment conducive to investment lack of facilities discourage investment. For example, an investor will not invest in absence of basic infrastructure such as transport and communication. 1
- (iii) **Infrastructure generates linkages in production :** Infrastructure promotes economic development by way of various linkages-forward and backward linkages. In other words infrastructure provides scope for expansion of one industry due to the expansion of the other by way of forward and backward linkages. The process of economic growth becomes a dynamic process in the presence of sufficient infrastructure facilities. 1
- (iv) **Infrastructure enhances size of the market :** Infrastructure widens the size of the market. The fast and cost effective movement of raw materials and finished goods in bulk enables a producer to offer his products across the country and even across international boundaries. 1

24. In order to alleviate poverty, government has adopted the following three dimensional approaches :

- (i) **Trickle down approach** : This approach is based on the expectation that the positive effects of economic growth will be trickled down or benefit all sections of the society and also the poor people. 1
- (ii) **Poverty alleviation approach** : This approach aimed at the creation of income – earning assets and employment generation opportunities. 1
- (iii) **Providing basic amenities** : This approach aimed at providing the basic amenities like proper medical and health care facilities, better education, proper sanitation etc. to the poor people. The basic amenities positively affect health, productivity, income earning opportunities and, there by, alleviate poverty. 1

A thorough analysis of the three dimensional approach yields the following conclusions:

- (i) Although there has been a reduction in the percentage of absolute poor in some of the states but still the poor people lack basic amenities, literacy and nourishment. Secondly, there has not been significant change in the ownership of income-earning assets and productive resources. 1
- (ii) Land reforms do not have high successful records that further added to the inequality of income from land. 1
- (iii) Improper implementation of poverty alleviation programmes by ill-motivated and inadequately trained bureaucrats further worsened the situation. Corruption along with the inclination towards interest of elites led to an inefficient and misallocation of scarce resources. 1

25. Following are the factors contributing to land degradation in India :

Degradation of land refers to the gradual but consistent loss of fertility. This is emerging as a serious concern in the context of environmental issues in India.

- (i) **Soil Erosion** : The removal of upper layer of the soil caused by agents like strong winds or floods is termed as soil erosion. The top most layer of the soil carries major & essential nutrients like nitrogen, phosphorus & potassium consequently, the loss of this layer deteriorates the quality & productivity of land. 1
- (ii) **Alkalinity & salinity of soil** : The salinity & alkalinity is caused by the problem of water logging. Water logged on the top layer of soil absorbs all the nutrients present in the soil, thereby, reducing its fertility. 1
- (iii) **Deforestation** : The growing population along with their ever growing demand leads to large scale destruction of forests ever. The reduction of forest coverage leads to soil erosion that in turn causes climate change. 1
- (iv) **Shifting cultivation** : The practice of shifting cultivation and subsistence farming carried by the small and the marginal farmers result is the replenishment of soil nutrients & hence, its fertility. 1
- (v) **Excessive use of Fertilizers** : The excessive use of chemical fertilizers, insecticides & pesticides lowers the quality & fertility of soil. 1
- (vi) **Desertification** : The spread of Deserts in arid and semi-arid areas is referred to as desertification. It occurs due to overgrazing of the animals. This results in the reduction of lush green areas that in turn leads to replenishment of soil fertility. 1

