Booklet Serial No. : 363

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TEST BOOKLET

ARO-2016

Time Allowed : 2 Hours] [Maximum Marks : 100

All questions carry equal marks.

INSTRUCTIONS

Important Note : — There are five parts of Question Paper i.e. part A,B,C,D & E. The candidates may opt either of the parts from Part-A (Economics), Part-B (Commerce), Part-C (Statistics) & Part-D (Mathematics) according to their choice as per their essential qualification. Part-E is compulsory to all (Question No. 41 to 100).

1. Immediately after the commencement of the examination, you should check that test booklet does not have any unprinted or torn or missing pages or items, etc. If so, get it replaced by a complete test booklet.
2. **The candidates must encode the relevant part in the column of Booklet Series of Answer Sheet i.e. (A,B,C *or* D) which he/she has chosen to attempt.**
3. Write your Roll Number only in the box provided alongside. Do not write anything else on the Test Booklet.
4. This Test Booklet contains **100** items (questions). Each item comprises four responses (answers). Choose only one response for each item which you consider the best.
5. After the candidate has read each item in the Test Booklet and decided which of the given responses is correct or the best, he has to mark the circle containing the letter of the selected response by blackening it completely with Black or Blue ball pen. In the following example, response "C" is so marked :

6. Do the encoding carefully as given in the illustrations. While encoding your particulars or marking the answers on answer sheet, you should blacken the circle corresponding to the choice in full and no part of the circle should be left unfilled. After the response has been marked in the ANSWER SHEET, no erasing/fluid is allowed.
7. You have to mark all your responses ONLY on the ANSWER SHEET separately given according to 'INSTRUCTIONS FOR CANDIDATES' already supplied to you. *Responses marked on the Test Booklet or in any paper other than the answer sheet shall not be examined.*
8. All items carry equal marks. Attempt all items. Your total marks will depend only on the number of correct responses marked by you in the Answer Sheet. There will be no negative marking.
9. Before you proceed to mark responses in the Answer Sheet fill in the particulars in the front portion of the Answer Sheet as per the instructions sent to you.
10. If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct.
11. After you have completed the test, hand over the Answer Sheet only to the Invigilator.

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P.T.O.

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PART-A

(Economics)

1. In the Cobb-Douglas Production Function, the elasticity of substitution between factors labour and capital is :

   (A) Zero (B) Unity

   (C) More than unity (D) Less than unity

2. The demand curve for a firm in perfect competition is :

   (A) Parallel to X-axis

   (B) Parallel to Y-axis

   (C) Downward sloping

   (D) Initially parallel to X-axis, later downward sloping

3. The shut-down point for a perfectly competitive firm occurs at the :

   (A) Minimum point of AFC curve

   (B) Minimum point of AC curve

   (C) Minimum point of AVC curve

   (D) Minimum point of MC curve

4. What is included in innovation according to Schumpeter ?

(A) Introduction of new products

(B) Discovery of new markets

(C) Introduction of new methods of production

(D) All of the above

5. When an aggregate supply is horizontal and the mpc is 0.50, an increase of ₹ 50 crore in investment spending will result in the equilibrium level of output amounting to an increase of :

(A) ₹ 50 crore

(B) ₹ 100 crore

(C) ₹ 250 crore

(D) No increase

6. Gross investment in the national income accounts includes :

(A) Changes in business inventories

(B) Spending on producer's durable goods

(C) Both (A) and (B) above

(D) Neither (A) nor (B)

7. A supply schedule shows the relationship between the quantity supplied and :

(A) Technology

(B) Factor prices

(C) Price of the commodity

(D) Prices of other related commodities

8. Which of the following statements is *incorrect* ?

(A) Monetarists advocate such policies which interfere least with the market

(B) Most of the Keynesians are politically liberal

(C) Keynesians believe that an increase in money supply has an unpredictable effect upon nominal GDP

(D) Monetarists believe that increased government spending has no crowding-out effect

9. According to Malthusian population theory, output per capita in the long run :

(A) Does not increase

(B) Increases at a decreasing rate

(C) Increases at an increasing rate

(D) Tends towards the subsistence level

10. According to Hicks, technical progress is said to be neutral if :

(A) It does not raise growth rate at all

(B) It raises the average productivity of capital and labour in the same proportion

(C) It raises the marginal productivity of capital and labour in the same proportion

(D) It raises the demand and supply of labour in the same proportion

11. Which programme was re-structured as National Rural Livelihood Mission ?

(A) Swarna Jayanti Shahari Rozgar Yojana

(B) Swarna Jayanti Gram Swarozgar Yojana

(C) Integrated Rural Development Programme

(D) Sampoorna Grameen Rozgar Yojana

12. Who is credited to develop the concept of functional finance ?

(A) Hugh Dalton (B) A.P. Lerner

(C) Robinson (D) Taussig

13. Match List-I with List-II and select the answer by using codes given below :

List I	List II
(1) Planning Commission	(*i*) 1982
(2) NABARD	(*ii*) 1944
(3) Food Corporation of India	(*iii*) 1964
(4) IBRD	(*iv*) 1950

Codes :

	(1)	(2)	(3)	(4)
(A)	(*ii*)	(*i*)	(*iv*)	(*iii*)
(B)	(*ii*)	(*iii*)	(*i*)	(*iv*)
(C)	(*iv*)	(*i*)	(*ii*)	(*iii*)
(D)	(*iv*)	(*i*)	(*iii*)	(*ii*)

14. Which of the following is *correct* for a perfectly competitive firm's short-run supply curve ? It is the rising portion of the :

(A) AC curve above AVC

(B) AVC curve above MC

(C) MC curve above AVC

(D) MC curve above AC

15. Which one is *not* the basis for pure monopoly ?

(A) Patent

(B) Government Franchise

(C) Diminishing returns to scale

(D) Control over the supply of raw materials

16. If an oligopolist incurs losses in the short-run, then in the long-run :

(A) It will continue in the business

(B) It will go out of the business

(C) It will break even

(D) Either (A) or (C)

17. Cartel is a form of :

(A) Overt collusion

(B) Tacit collusion

(C) Used to explain price leadership

(D) Used to explain price rigidity

18. If the money wage index rises by 50 percent between 2010 and 2015, and the price index also rises by 20 percent over the same period, then the real wage index would :

(A) Rise by 30 percent

(B) Decrease by 30 percent

(C) Rise by 25 percent

(D) Decrease by 25 percent

19. According to Heckscher and Ohlin, the most important cause of the difference in relative commodity prices and trade between nations is a difference in :

(A) Technology

(B) Tastes

(C) Factor endowments

(D) Demand conditions

20. If a nation's terms of trade is 2, the terms of trade of its partner would be :

(A) ½

(B) 2

(C) 1

(D) 4

21. Ricardo's Law of Comparative Advantage is based on :

(A) Labour Theory of Value

(B) Opportunity Cost Theory

(C) Law of Diminishing Returns

(D) All of the above

22. When no imported inputs are used in the production of a commodity, the effective tariff rate is :

(A) Greater than the nominal rate

(B) Lesser than the nominal rate

(C) Equal to the nominal tariff rate

(D) All of the above

23. Which of the following is a debit item in the current account ?

(A) Gift to foreigners

(B) Gift from foreigners

(C) Export of services

(D) Export of merchandise

24. When the stock of money is ₹ 10,000 crore, the average price of output is 20, and production of output is 5,000 units, the velocity of money is :

(A) 10

(B) 5

(C) 4

(D) 2.5

25. In classical analysis, the rate of interest :

(A) Determines the short-run employment of labour

(B) Equates savings and investment

(C) Determines the full employment level of output

(D) Equates the supply and demand for money

26. When mpc is 0.80, a ₹ 100 crore decrease in autonomous spending causes the equilibrium level of income to :

(A) Decrease by ₹ 1000 crore

(B) Decrease by ₹ 500 crore

(C) Increase by ₹ 200 crore

(D) Increase by ₹ 500 crore

27. Monetary policy is most effective when investment spending is :

(A) Interest-elastic and the demand for money is interest-inelastic

(B) Interest-elastic and the demand for money is interest-elastic

(C) Interest-inelastic and the demand for money is interest-inelastic

(D) Interest-inelastic and the demand for money is interest-elastic

28. If the value of coefficient of correlation is +0.8 and the value of regression coefficient of Y on X is 0.32, the value of regression coefficient of X on Y will be :

(A) 0.64 (B) 0.96

(C) 2.5 (D) 2

29. Fisher's Ideal Index Number is given by :

(A) $\frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times 100$

(B) $\frac{\Sigma p_1 q_1}{\Sigma p_0 q_1} \times 100$

(C) $\sqrt{\frac{\Sigma (q_0 + q_1) p_1}{\Sigma (q_0 + q_1) p_0}} \times 100$

(D) $\sqrt{\frac{\Sigma p_1 q_0}{\Sigma p_0 q_0} \times \frac{\Sigma p_1 q_1}{\Sigma p_0 q_1}} \times 100$

30. If the mean and variance of a given frequency distribution is 10 and 0.25, then the coefficient of variation will be :

(A) 5

(B) 40

(C) 25

(D) 2.5

31. The algebraic sum of deviations from arithmetic mean is :

(A) Zero

(B) Unity

(C) Positive

(D) Negative

32. In a positively skewed frequency distribution, which of the following relationship is *correct* ?

(Symbols have usual meaning)

(A) A.M. = Median = Mode

(B) A.M. < Median < Mode

(C) A.M. > Mode < Median

(D) A.M. > Mode > Median

33. Who among the following introduced the idea of Self Help Groups (SHGs) as an effective tool for alleviating poverty in developing countries ?

(A) Subbaroy Chakravorty
(B) Amartya Sen
(C) Mohd. Yunus
(D) Mahboob-ul-Haq

34. Who had suggested the imposition of expenditure tax in India ?

(A) Kaldor
(B) Musgrave
(C) Saligman
(D) Dalton

35. In Harrod's growth model if $G_w < G_a$, it will lead to :

(A) Unemployment
(B) Stagnation
(C) Inflation
(D) Recession

36. Which of the following characteristics is possessed by public goods ?

(A) Rivalrous and non-excludable
(B) Rivalrous and excludable
(C) Non-rivalrous and non-excludable
(D) Non-rivalrous and excludable

37. The co-operative credit structure in India is :

(A) One-tier
(B) Two-tier
(C) Three-tier
(D) Five-tier

38. In the budget of the Government of India, the term Primary Deficit refers to :

(A) Fiscal Deficit — Subsidies

(B) Fiscal Deficit — Grants

(C) Fiscal Deficit — Indirect taxes

(D) Fiscal Deficit — Interest payments

39. Who believed that investment in birth control is better than traditional investment ?

(A) Karl-Hoover

(B) Sidgwick

(C) Enke

(D) Simon

40. Consider the following statements about MNREGA :

1. There should be at least 50 percent women beneficiaries

2. The wages should be compulsorily paid through either post office or bank accounts

Choose the *correct* code :

(A) Only 1 is correct

(B) Only 2 is correct

(C) 1 and 2, both are correct

(D) Neither 1 nor 2 is correct

PART-B

(Commerce)

1. Which of the following is *not* an identification device in advertising ?

   (A) Trade Mark
   (B) Trade Name
   (C) Pricing Policy
   (D) Trade Character

2. Which of the following is *not* an average ?

   (A) Arithmetic Mean
   (B) Range
   (C) Mode
   (D) Median

3. Which of the following is *not* an essential requisite for a valid contract ?

   (A) Offer and acceptance among the parties to a contract
   (B) The existence of consideration
   (C) Validity of subject matter of the contract
   (D) Contract in written form

4. Which one of the following is *not* a direct source of funds for mortgage credit ?

   (A) State Housing Development Authority
   (B) Insurance companies
   (C) Savings and loans associations
   (D) Pension funds

5. Which one of the following is *not* a source of capital ?

(A) Bank Loan

(B) Trade Credit

(C) Factoring

(D) Hedging

6. A firm will continue to sell goods at a deficit if total revenues cover :

(A) Fixed costs

(B) Variable costs plus a portion of fixed costs

(C) Fixed costs plus a portion of variable costs

(D) Total costs

7. Two successive trade discounts of 10 percent and 10 percent are equal to one single discount of :

(A) 22 percent

(B) 20 percent

(C) 21 percent

(D) 19 percent

8. An item is sold for $ 10 subject to two successive trade discounts of 15 percent and 5 percent and a cash discount of 2 percent if the amount is paid within ten days. What is the amount to be remitted if payment is made within ten days period ?

(A) $ 7.42

(B) $ 7.84

(C) $ 7.91

(D) $ 8.02

9. It is true that :

(A) Marginal cost includes normal profit to the owner

(B) Marginal cost does not include any profit

(C) The marginal cost curve is typically a straight line

(D) Marginal cost is equal to total cost divided by units of production

10. Which of the following items does *not* belong to an income statement ?

(A) Interest income

(B) Costs of goods manufactured

(C) Accounts Receivable

(D) Manufacturing expenses

11. Which of the following items does *not* belong to a balance sheet ?

(A) Administrative expenses

(B) Prepaid expenses

(C) Taxes payable

(D) Capital stock

12. Which one of the following is *not* an example of a current assets ?

(A) Investments

(B) Cash

(C) Inventory-Raw Material

(D) Inventory-work in progress

13. Which one of the following is *not* needed in computing the costs of goods sold ?

(A) Opening inventory
(B) Closing inventory
(C) Purchases
(D) Net sales

14. Mr. Shivam borrowed Rs. 4,000 from his bank for 90 days at 6 percent discount. Which one of the following represents the amount he actually received ?

(A) Rs. 4,060
(B) Rs. 3,960
(C) Rs. 4,000
(D) Rs. 3,940

15. Birinder and Surinder are both partners in the restaurant business. Birinder invested $ 50,000 and Surinder invested $ 40,000. The partnership provides for payment of interest @ 6 percent on capital out of income to each partner and balance to be equally divided. For the year ending March 2016, the net income was $ 20,000. How much did Birinder get ?

(A) $ 9,700
(B) $ 10,300
(C) $ 10,400
(D) $ 10,700

16. If a stock having face value of Rs. 50 is selling at Rs. 60 and the annual dividend is Rs. 2 per share, what is the dividend yield ?

(A) 4.0 percent

(B) 3.5 percent

(C) 3.3 percent

(D) 3.2 percent

17. To sell the stock short means :

(A) Sell a low priced stock

(B) Buy a stock and sell it in the short time

(C) Sell a stock that one does not have

(D) Buy a stock on a short notice

18. GNP is defined as :

(A) Total Goods produced

(B) Total Goods and Services produced

(C) Net national products plus dividends

(D) Net national products plus investments

19. Leverage is successful when :

(A) Rate of return on all invested capital exceeds the cost of borrowed funds

(B) The rate of return on all invested capital is equal to the cost of borrowed funds

(C) The rate of return on invested capital exceeds the capitalisation rate

(D) Common stockholders receive additional dividends

20. National income differs from Net National Product by :

(A) Income taxes

(B) Indirect business taxes

(C) Savings

(D) Depreciation

21. During deflationary times your rupee buys :

(A) More

(B) Less

(C) More goods but fewer services

(D) Less goods but more services

22. Which one of the following checks actual output against scheduled output ?

(A) Break Even Chart
(B) Job time ticket
(C) Time Study Sheet
(D) Gantt Chart

23. "2/10 net 60" refers to :

(A) Trade discount
(B) Quantity discount
(C) Cash discount
(D) Base point strategy

24. Demurrage is :

(A) a form of direct mail advertising
(B) a railroad penalty charge
(C) a form of discount
(D) an extra transportation charge due to overweight shipment

25. A valuation account is :

(A) a contra account
(B) a liability account
(C) a control account
(D) equal to the original cost of the assets

26. Keying-off account :

(A) helps determine whether any charges are open or unpaid

(B) condenses several accounts into one controlling account

(C) is valuable only for capital accounts

(D) is illegal

27. Net Income is computed by :

(A) deducting the expenses of doing business from the gross profit on sales

(B) deducting the expenses of doing business from net sales

(C) deducting the expenses of doing business from the operating income

(D) deducting the expenses of doing business from the cost of goods sold

28. Which one of the following is *not* an income statement account ?

(A) Office salaries

(B) Prepaid expenses

(C) Discount on purchases

(D) Bad debts

29. Assets plus liabilities equal :

(A) Capital

(B) Retained earnings

(C) Stockholders' equity

(D) None of the above

30. Reserve for contingencies represents :

(A) Fund set aside for contingencies

(B) An appropriation of retained earnings

(C) An asset

(D) The free amount set aside for eventualities

31. Seasonally adjusted index numbers are used in order to compare :

(A) Percentage changes (B) Absolute changes

(C) Minor changes (D) Significant changes

32. In hypothesis testing, if the experimenter rejects a true hypothesis, he is committing :

(A) an alpha error (B) a beta error

(C) a sigma error (D) a serious error

33. Regression Analysis is primarily a(an) :

(A) estimating device

(B) self-sustaining analysis

(C) parameter

(D) Statistics

34. All of the following are methods of depreciation, *except* :

(A) Straight Line

(B) Sum of the digits

(C) Double declining balance

(D) Triple declining balance

35. A 10 percent increase in stock outstanding has the effect of :

(A) decreasing earnings 10 percent

(B) increasing earnings 10 percent

(C) decreasing per share earnings 10 percent

(D) increasing per share earnings 10 percent

36. One family house is assessed at 40 percent of its market value, the tax is 4 percent and the taxes paid are 400. What is the market value of the house ?

(A) 20,000 (B) 25,000

(C) 10,000 (D) 15,000

37. The RBI issues Treasury notes, bills and bonds. In order of increasing original maturity, they are :

(A) bonds, notes and bills

(B) notes, bills and bonds

(C) bills, notes and bonds

(D) bills, bonds and notes

38. Debt of a company 1,00,000 @ 5 per cent

Equity capital 3,00,000 @15 per cent

What is the cost of capital for the company ?

(A) 10 per cent (B) 12.5 per cent

(C) 7.5 per cent (D) 13.25 per cent

39. Which one of the following business cycle indicators would be a leading indicator of general business trends ?

(A) GNP

(B) New orders of durable goods

(C) Industrial production index

(D) Book value of manufacturer's inventories

40. The net worth of the owner of single proprietorship is :

(A) The sum of the individual's capital account plus net income, plus the balance in the drawing account

(B) Current assets plus retained earnings, plus retained earnings, plus the balance in the drawing account

(C) Accounts receivable plus cash plus the balance in the drawing account

(D) Current assets plus cash plus accounts receivable

PART-C

(Statistics)

1. The axiomatic difinition of probability was given by :

   (A) Khinchin (B) Tchebyshev

   (C) Fisher (D) Kolmogorov

2. For two events A_1, A_2 let $P(A_1) = \frac{2}{3}$, $P(A_2) = \frac{3}{8}$ and $P(A_1 \cap A_2) = \frac{1}{4}$. It is said that :

   (1) A_1 and A_2 are not mutually exclusive

   (2) A_1 and A_2 are independent

   (3) Either A_1 or A_2 will certainly occur

   Select the correct answer from the codes given below :

   (A) 1, 2 and 3 are true

   (B) 1 and 3 are true

   (C) 1 and 2 are true

   (D) 2 and 3 are true

3. Consider the joint distribution of two random variables. The marginal distributions :

   (A) uniquely determine the joint distribution

   (B) do not uniquely determine the joint distribution

   (C) are independent

   (D) are of the same type as the joint distribution

4. The sum of numbers obtained in a throw of a dice twice is denoted by S. The probability of S will be maximum if S is :

(A) 5 (B) 7

(C) 6 (D) 12

5. A discrete random variable has the following probability distribution $p(-1) = \frac{1}{4}$, $p(2) = \frac{1}{2}$, $p(3) = \frac{1}{4}$.

Match List I and List II and select the correct answer using the codes given below the lists :

List I	List II
(1) E(X)	(*i*) 2
(2) E(1 × 1)	(*ii*) $\frac{5}{2}$
(3) $E(X^2)$	(*iii*) $\frac{9}{2}$
(4) E(X + 1)	(*iv*) $\frac{3}{2}$

Codes :

	(1)	(2)	(3)	(4)
(A)	(*iv*)	(*iii*)	(*i*)	(*ii*)
(B)	(*iv*)	(*i*)	(*iii*)	(*ii*)
(C)	(*iv*)	(*ii*)	(*i*)	(*iii*)
(D)	(*iv*)	(*i*)	(*ii*)	(*iii*)

6. If two random variables X and Y are defined on the basis of outcomes of throws of two dice such that X is the sum of points and Y is the difference of points obtained, then :

(A) $V(X) < V(Y)$ (B) $V(X) \geq V(Y)$

(C) $V(X) = V(Y)$ (D) $V(X) = 2V(Y)$

7. Two independent random variables X and Y have moment generating functions $M_X(t)$ and $M_Y(t)$. The moment generating function of X-Y is :

(A) $M_X(t) - M_Y(t)$ (B) $M_X(t) / M_Y(t)$

(C) $M_X(t) \cdot M_Y(t)$ (D) $M_X(t)\ M_Y(-t)$

8. A Poisson random variable has $\mu_4 = 2$. Its variance is :

(A) $\frac{1}{2}$ (B) $\frac{1}{3}$

(C) $\frac{2}{3}$ (D) $\frac{3}{4}$

9. Let the random variable X have gamma distribution :

$$f(x) = \frac{1}{\lceil\alpha\, \beta^{\alpha}} x^{\alpha-1} e^{-x/\beta}, \quad x \geq 0$$

Its mean and variance are :

(A) $\alpha\beta, \alpha^2\beta$ (B) $\frac{\alpha}{\beta}, \frac{\alpha}{\beta^2}$

(C) $\frac{\beta}{\alpha}, \frac{\beta}{\alpha^2}$ (D) $\alpha\beta, \alpha\beta^2$

10. Let X be a random variable with $E(X) = \theta$, $V(X) = \sigma^2$. The Tchebyshev's inequality states that for $t > 0$:

(A) $P\{X = \theta \pm t\sigma\} = \frac{1}{t^2}$

(B) $P\{-t\sigma \leq X - \theta \leq t\sigma\} \geq 1 - \frac{1}{t^2}$

(C) $P\{\theta - to \leq X \leq \theta + t\sigma\} \leq 1 - \frac{1}{t^2}$

(D) $P\{|X - \theta| \leq t\sigma\} \leq \frac{1}{t^2}$

11. Let (X_n) be a sequence of independent, identically distributed random variables with finite means and variances. Then for sequence (X_n) :

(A) LLN holds but CLT does not hold

(B) CLT holds but LLN does not hold

(C) neither CLT nor LLN holds

(D) both CLT and LLN hold

where LLN is law of large numbers and CLT is central limit theorem.

12. Let $(X_1, X_2, \ldots\ldots, X_n)$ be a random sample from binomial distribution $b(1, \theta)$. Consider the following statements :

Assertion (A) : $\bar{X}^2$ ($\bar{X}$ is the sample mean is a MLE of θ^2)

Assertion (R) : $\bar{X}$ is an unbiased estimator of θ

Which one of the following is *correct* ?

(A) Both (A) and (R) are true and (R) is correct reason for (A)

(B) Both (A) and (R) are true but (R) is not the correct reason for (A)

(C) (A) is true but (R) is false

(D) (A) is false but (R) is true

13. On the basis of single observation X from a uniform distribution $U(-\theta, \theta)$, the critical region for testing $H_0 : \theta = 1$ against $H_1 : \theta = 2$ is :

$$C = \{x : |x| > 0.9\}.$$

The level of significance is :

(A) 0.025 (B) 0.05

(C) 0.10 (D) 0.50

14. Let $\bar{X}$ be the mean of a random sample of size n from $N(\mu, 9)$. If $(\bar{X}-1, \bar{X}+1)$ is a 90% confidence interval for μ, than the sample size n should be :

(A) 24 (B) 16

(C) 15 (D) 5

15. Let (X_1, X_2) be a random sample from a binomial distribution $b(1, \theta)$. Then which of the following is *not* sufficient for the family of distributions $\{b(1, \theta) : 0 < \theta < 1\}$:

(A) $X_1 + X_2$ (B) $X_1 + 2X_2$

(C) $2X_1 + X_2$ (D) X_1X_2

16. If X is a binomial random variable with $n = 2$ and $p = 0.6$, then the variance of the random variable $\frac{X}{2}$ will be :

(A) 0.48 (B) 0.12

(C) 0.24 (D) $0.24/\sqrt{2}$

17. If T_1 and T_2 are two most efficient estimators for θ with the same variance σ^2 and correlation coefficient between them is ρ. Then the variance of $\left(\frac{T_1+T_2}{2}\right)$ is :

(A) σ^2

(B) $\rho\sigma^2$

(C) $(1+\rho)\frac{\sigma^2}{2}$

(D) $(1+\rho)\frac{\sigma^2}{4}$

18. For an exponential distribution $f(x)=\theta e^{-\theta x}, x \geq 0$ it is required to test $H_0 : \theta = 1$ against $H_1 : \theta = 3$ on the basis of only one observation x. The probabilities of the two kind of errors for the critical region $x > 5$ are :

(A) $\alpha = e^{-4}$, $\beta = 1 - e^{-5}$

(B) $\alpha = e^{-5}$, $\beta = 1 - e^{-3}$

(C) $\alpha = e^{-3}$, $\beta = 1 - e^{-15}$

(D) $\alpha = e^{-5}$, $\beta = 1 - e^{-15}$

19. A population consists of N units. From this population a simple random sample of size n is drawn. If $S^2 = \frac{1}{N-1}\sum_{i=1}^{N}(Y_i - \bar{Y})^2$, then variance of the sample mean is given by :

(A) $\frac{N-n}{N-1}\frac{S^2}{n}$

(B) $\frac{N-n}{N}\frac{S^2}{n}$

(C) $\frac{N-1}{N-n}\times\frac{S^2}{n}$

(D) $\frac{N-n}{N}\frac{S^2}{n-1}$

20. Which of the following is *true* ?

(A) $V_{Opt} \leq V_{Prop} \leq V_{Ran}$

(B) $V_{Prop} \leq V_{Opt} \leq V_{Ran}$

(C) $V_{Opt} \leq V_{Ran} \leq V_{Prop}$

(D) $V_{Prop} \leq V_{Ran} \leq V_{Opt}$

21. A population is divided into three strata consisting of 10, 20 and 30 units. If a sample of size 12 is selected with proportional allocation, the number of units drawn from the third strata will be :

(A) 2 (B) 4

(C) 6 (D) 8

22. A population consists of 100 units. A sample of size 4 is to be drawn by systematic sampling. If unit number 10 is drawn from the first group, then other units in the sample will have numbers :

(A) (25, 55, 80) (B) (25, 50, 75)

(C) (35, 55, 80) (D) (35, 60, 85)

23. In one-way classification, m observations are available for each of the k treatments. The error degrees of freedom will be :

(A) mk

(B) $(m - 1)k$

(C) $m(k - 1)$

(D) $(m - 1)(k - 1)$

24. In a two-way classification the number of treatments and blocks are 8 and 6 respectively. The error degrees of freedom will be :

(A) 35 (B) 42

(C) 40 (D) 48

25. In a Latin square design, let 5 be the number of treatments. The error degrees of freedom will be :

(A) 20 (B) 4

(C) 12 (D) 15

26. In a randomised block design there are 7 treatments and 5 blocks. If there is one missing observation, then the error degrees of freedom will be :

(A) 24 (B) 34

(C) 22 (D) 23

27. In a completely block design there are k treatments and the total number of observations is n. F the ratio of two mean squares will have degrees of freedom :

(A) $(k-1), (k(n-1))$ (B) kn

(C) $(k-1), (n-k)$ (D) $(k-1), (n-1)$

28. The formula for estimating one missing value is :

(A) $\dfrac{m(R+C+T)+2S}{(m-1)(m-2)}$

(B) $\dfrac{m(R+C+T)-2S}{(m+1)(m+2)}$

(C) $\dfrac{m(R+C+T)-2S}{(m-1)(m-2)}$

(D) $\dfrac{m(R+C+T)+2S}{(m+1)(m-2)}$

where,

m : is the number of treatments

C : is the total of the column having missing observation

R : is the total of the row having missing observation

T : is the total of all known treatment values having missing observations

S : is the total of known observations

29. Match the following correctly :

	List I		List II
(1)	Mean	(*i*)	μ_2
(2)	Variance	(*ii*)	μ_4
(3)	Skewness	(*iii*)	μ_1
(4)	Kurtosis	(*iv*)	μ_3

Answer code choices :

	(1)	(2)	(3)	(4)
(A)	(*iv*)	(*ii*)	(*i*)	(*iii*)
(B)	(*iii*)	(*i*)	(*iv*)	(*ii*)
(C)	(*i*)	(*iii*)	(*ii*)	(*iv*)
(D)	(*ii*)	(*iv*)	(*iii*)	(*i*)

30. Which one of the following is *wrong* ?

(A) β_1 gives the measure of departure from symmetry

(B) β_2 gives measure of peakedness

(C) β_1 and β_2 are always greater than or equal to zero and $\beta_2 > \beta_1$

(D) β_2 gives measure of departure from symmetry

31. Let (X_1, X_2) be a random sample from $N(\theta, 1)$.

Let $T_1 = \frac{2X_1 + X_2}{3}$, $T_2 = \frac{X_1 + 3X_2}{4}$, $T_3 = \frac{X_1 + X_2}{2}$ and

$V(T_i) = \sigma_i^2;\ i = 1, 2, 3$

Then which of the following is *correct* ?

(A) $\sigma_3^2 < \sigma_2^2 < \sigma_1^2$ (B) $\sigma_1^2 < \sigma_3^2 < \sigma_2^2$

(C) $\sigma_3^2 < \sigma_1^2 < \sigma_2^2$ (D) $\sigma_2^2 < \sigma_1^2 < \sigma_3^2$

32. Let (X_1, X_2, X_3) be a random sample from uniform population over interval $[\theta, 2\theta]$, then $\frac{2}{9}[X_1 + X_2 + X_3]$ is :

(A) an unbiased estimator of θ

(B) MLE of θ

(C) both unbiased and MLE of θ

(D) None of the above

33. If two lines of regression are

$$x + 2y - 5 = 0 \text{ and } 2x + 3y - 8 = 0,$$

then the correlation coefficient between X and Y is :

(A) $\frac{\sqrt{3}}{4}$ (B) $\frac{-2}{\sqrt{3}}$

(C) 1 (D) $\frac{-\sqrt{3}}{2}$

34. If X and Y are two standard normal variates and ρ is the correlation coefficient between (X, Y), then correlation coefficient between (X + Y) and (X – Y) is :

(A) 1 (B) ρ

(C) $-\rho$ (D) 0

35. Cramer-Rao lower bound to the variance of an unbiased estimator of a parameter θ of a normal population $N(\mu, \theta)$, where μ is known as :

(A) $\frac{\theta^2}{n}$ (B) $\frac{\theta^2}{2n}$

(C) $\frac{2\theta^2}{n}$ (D) $\frac{\theta(1-\theta)}{2n}$

36. For samples drawn from a multivariate normal distribution, the sample mean vector and sample covariance matrix are always :

(A) Independent and identically distributed

(B) Independent but not identically distributed

(C) Neither independent nor identically distributed

(D) Not independent but identically distributed

37. To test the randomness of a sample the following test is used :

(A) Sign test (B) Rank test

(C) Run test (D) Median test

38. Let $(X_1, X_2, \ldots\ldots, X_n)$ be a random sample from the distribution $f(x) = 1$, $0 \le x \le 1$. The pdf of the rth statistic $X_{(r)}$ is :

(A) $\dfrac{r!}{(n-r)!\,(r-1)!} x^{r-1} (1-x)^{n-r}, \; 0 \le x \le 1$

(B) $\dfrac{n!}{(n-r)!\,(r-1)!} x^{r-1} (1-x)^{n-r}, \; 0 \le x \le 1$

(C) $\dfrac{n!}{r!\,(r-1)!} x^{r+1} (1-x)^{n-r-1}, \; 0 \le x \le 1$

(D) $\dfrac{n!}{(n-r)!\,(r!)} x^{r-1} (1-x)^{n-r-1}, \; 0 \le x \le 1$

39. If $\underline{X}$ is $p \times 1$ vector having a p-variate normal distribution with parameters $\underline{\mu}$ and $\underline{\Sigma}$. Let $\underline{Y} = A\underline{X}$, where A is a non-singular matrix then $\underline{Y} = A\underline{X}$ has the distribution :

(A) Univariate normal

(B) Bivariate normal

(C) Multivariate normal

(D) None of these

40. For testing $H_0 : \theta = 4$ against $H_1 : \theta \ne 4$ in a normal population $N(\theta, 5)$, the following is a UMP critical region :

(A) $\bar{x} \ge k$

(B) $\bar{x} \le k$

(C) $|\bar{x}| \ge k$

(D) None of these

PART-D

(Mathematics)

1. For a sequence $\langle E_i \rangle$ of measurable sets on **R**, with $E_1 \subseteq E_2 \subseteq \ldots\ldots$, we have :

   (A) $m(\lim E_i) > \lim m(E_i)$

   (B) $m(\lim E_i) < \lim m(E_i)$

   (C) $m(\lim E_i) = \lim m(E_i)$

   (D) $m(\lim E_i) \leq \lim m(E_i)$

2. A set having non-vanishing Lebesgue measure is :

   (A) **Z** (B) **N**

   (C) **Q** (D) **R**

3. A function not necessarily measurable is :

   (A) constant function

   (B) continuous function

   (C) characteristic function

   (D) monotone function

4. Let $f : [0, 1] \to [0, 1]$ be measurable, $g : [0, 1] \to [0, 1]$ be continuous. Which one of the following is *not* necessarily measurable ?

   (A) $f + g$ (B) $g \circ f$

   (C) $f \circ g$ (D) $f.g$

5. Let $f : [0, 1] \to \mathbf{R}$ be defined by $f(x) = 0$ for $x \in \mathbf{Q}$ and for $x \in \mathbf{R} \setminus \mathbf{Q}$, $f(x) = n$, where n is the number of zeros immediately after the decimal point in the decimal representation of x. The Lebesgue integral $\int_0^1 f\,dx$ equals :

(A) 0

(B) 1

(C) 1/9

(D) 1/10

6. Let $f : [0, 1] \to [0, 1]$ be the characteristic function of the set of irrational numbers in [0, 1]. Then f is :

(A) Lebesgue integrable and Riemann integrable

(B) Lebesgue integrable but not Riemann integrable

(C) Neither Lebesgue integrable nor Riemann integrable

(D) Not Lebesgue integrable but Riemann integrable

7. The function $u(z) = \log|z|$ defined on $\mathbf{C} \setminus \{0\}$ is :

(A) continuous but its partial derivatives are not continuous

(B) not harmonic

(C) harmonic but does not have any harmonic conjugate

(D) analytic

8. Let U_n denote the group of integers relatively prime to n under multiplication modulo n. Then U_n is not cyclic, when n is :

(A) 8 (B) 9

(C) 17 (D) 18

9. Let **D** be the open unit disk and suppose f is an analytic function on **D** with $|f(z)| \leq 1$ for $z \in \mathbf{D}$ and $f(0) = 0$. Then, for all $z \in \mathbf{D}$:

(A) $|f'(0)| \leq 1$ and $|f(z)| \leq |z|$

(B) $|f'(0)| \geq 1$ and $|f(z)| \leq |z|$

(C) $|f'(0)| \geq 1$ and $|f(z)| \geq |z|$

(D) $|f'(0)| \leq 1$ and $|f(z)| \geq |z|$

10. If f is continuous mapping of a compact metric space X into $\mathbf{R}^k$, then f(X) is :

(A) closed but not bounded

(B) closed and bounded

(C) not closed but bounded

(D) neither closed nor bounded

11. The value of the improper integral $\int_0^\infty \frac{\log x}{1+x^2} dx$ is :

(A) $2\pi i$ (B) $-2\pi i$

(C) 2π (D) 0

12. The value of the contour integral $\oint_{|z|=2} \tan z \, dz$ is :

(A) $2\pi i$ (B) $4\pi i$

(C) $-4\pi i$ (D) $-2\pi i$

13. Under the mapping $w = 1/z$, the image of the :

(A) hyperbola $x^2 - y^2 = 1$ is a parabola

(B) circle $x^2 + y^2 - 6x = 0$ is a straight line

(C) unit disk is a square

(D) strip $1 < x < 2$ is a circle

14. The value of the improper integral $\int_0^\infty \frac{e^{-t}\sin^2 t}{t} dt$ is :

(A) $\frac{1}{4}\log 5$ (B) $\log 5$

(C) $\frac{1}{2}\log 5$ (D) $\frac{1}{8}\log 5$

15. An example of function $f : [0, 6] \to \mathbf{R}$, that is not necessarily Riemann integrable is :

(A) a continuous function f

(B) a monotone function f

(C) a bounded function f

(D) the greatest integer function $f(x) = [x]$

16. A metric space is compact if and only if it is :

(A) complete but not totally bounded

(B) not complete but totally bounded

(C) either totally bounded or complete

(D) complete and totally bounded

17. Suppose $<f_n>$ is a sequence of function defined on E, and suppose $|f_n(x)| \leq M_n$ $(x \in E, n \in \mathbf{N})$. Then $\sum f_n$ converges uniformly on E if :

(A) $\sum M_n$ does not converge

(B) $\sum M_n$ converges

(C) $\langle M_n \rangle$ converges

(D) $\langle M_n \rangle$ bounded

18. The function $f : \mathbf{C} \to \mathbf{C}$, where $f(z) = \sin z$, is not :

(A) bounded

(B) continuous

(C) analytic

(D) meromorphic

19. Which one of the following statements is *not* correct ?

(A) Any infinite cyclic group is isomorphic to additive group of integers

(B) The quaternion group is isomorphic to dihedral group D_4

(C) $(\mathbf{Z}, +)$ is not isomorphic to $(\mathbf{Q}, +)$

(D) Every group is isomorphic to a subgroup of the permutation group

20. The first three orthogonal polynomials $f_n(x)$ on $[-1, 1]$ with respect to the weight function $W(x) = 1$ is :

(A) $1, x, x^2 - 1/3$ (B) $-1, x, x^2 + 1/3$

(C) $1, -x, x^2 + 1/3$ (D) $1, x, x^2 - 4/3$

21. If $y(0) = 1$, $y(1) = 0$, $y(2) = 1$ and $y(3) = 10$, then the value of $y(4)$ given by Newton's forward difference interpolation formula is :

(A) 33 (B) 32

(C) 34 (D) 30

22. Mean and variance of a Chi-square distribution with n degrees of freedom is :

(A) $2n$ and n (B) n and $2n$

(C) $n/2$ and $2n$ (D) $2n$ and $n/2$

23. If X and Y are independent gamma variate with parameters μ and ν respectively, then the variate $U = X + Y$ is independent and :

(A) gamma variate with parameters $\mu + \nu$

(B) β_1 variate with parameters $\mu + \nu$

(C) β_2 variate with parameters $\mu + \nu$

(D) β_1 variate with parameters μ / ν

24. If one of the regression coefficient is greater than 1, then other must be :

(A) greater than 2

(B) less than 1

(C) equal to 1

(D) equal to 2

25. A random sample of 500 apples was taken from a large consignment and 60 were found to be bad. The 98 percentage confidence limits for the percentage of bad apples in the consignment are :

(A) (0.861, 0.1538)

(B) (086.1, 1.538)

(C) (8.61, 15.38)

(D) (8.61, 1.538)

26. If correlation coefficient between a most efficient estimator and any other estimator with efficiency e is :

(A) $e/2$

(B) $\sqrt{e}$

(C) e^2

(D) $\sqrt{e}/2$

27. The space X is not necessarily Hausdorff if :

(A) X is a product of two Hausdorff spaces

(B) X is a subspace of Hausdorff space

(C) X is an order topology

(D) the diagonal $D = \{x \times x \mid x \in X\}$ is open in $X \times X$

28. Which one of the following statements is *not* correct ?

(A) A closed subspace of a normal space is normal

(B) Every metrizable space is normal

(C) Every locally compact Hausdorff space is regular

(D) If J is uncountable, then product space $\mathbf{R}^J$ is normal

29. Which one of the following statements is *not* correct ?

(A) Eigen values of unitary matrix are located on the unit circle

(B) Eigen values of Hermitian matrix are located on the real axis

(C) If λ is an eigen value of a matrix, then $-1/\lambda$ is also an eigen value

(D) Eigen values of skew-Hermitian matrix are located on the imaginary axis

30. The quadratic form $x^2 + 5y^2 + z^2 + 2xy + 2yz + 6zx$ is :

(A) positive definite

(B) positive semidefinite

(C) negative definite

(D) indefinite

31. The solution of the differential equation $\frac{dy}{dt} + y = ty^2$ is :

(A) $(ce^t + t + 1)^{-1}$

(B) $(ce^t + t - 1)^{-1}$

(C) $(ce^t - t - 1)^{-1}$

(D) $(ce^t - t + 1)^{-1}$

32. For $x > 0$, the general solution of the second order variable coefficient equation $x^2y'' - 3xy' + 4y = \log x$ is :

(A) $y(x) = Ax^2 + Bx^2 \log x + \frac{1}{4} - \frac{1}{4}\log x$

(B) $y(x) = Ax^2 + Bx^2 \log x - \frac{1}{4} + \frac{1}{4}\log x$

(C) $y(x) = Ax^2 + Bx^2 \log x - \frac{1}{4} - \frac{1}{4}\log x$

(D) $y(x) = Ax^2 + Bx^2 \log x + \frac{1}{4} + \frac{1}{4}\log x$

33. On a rectangle $R : |x| \le a, |y| \le b$, the function $f(x, y) = x^2 + y^2$ satisfies Lipschitz condition with Lipschitz constant :

(A) $2b$ (B) a

(C) $2a - 2b$ (D) $2a + 2b$

34. The value of the integral $\int_0^{\pi/2} \sqrt{\tan\theta}\, d\theta$ is :

(A) π (B) $\pi\sqrt{2}$

(C) $\pi/\sqrt{2}$ (D) $\pi/2$

35. The eigen values λ of the Sturm-Liouville problem $(1 + x^2)y'' + 2xy' + \lambda x^2 y = 0$ with $y'(1) = 0$ and $y'(10) = 0$ satisfies :

(A) $\lambda \le 0$ (B) $\lambda \ge 0$

(C) $\lambda = 0$ (D) $\lambda \ne 0$

36. The value of game $\begin{pmatrix} a & -b \\ -c & d \end{pmatrix}$, where $a, b, c, d \geq 0$ is :

(A) $\frac{ad-bc}{a+b+c+d}$ (B) $\frac{ad+bc}{a+b+c+d}$

(C) $\frac{-ad-bc}{a+b+c+d}$ (D) $\frac{-ad+bc}{a+b+c+d}$

37. The linear programming problem $\max z = 100x + 40y$ subject to condition $10x + 4y \leq 2000$, $3x + 2y \leq 900$, $6x + 12y \leq 3000$, $x \geq 0$ and $y \geq 0$ has :

(A) exactly one optimal solution

(B) more than one optimal solution

(C) unbounded solution

(D) no solution

38. The value of the line integral $\int_L yzdx + xzdy + xydz$, where L is the line segment from (1, 1, 0) to (2, 3, 2) is :

(A) 0 (B) 9

(C) 7 (D) 12

39. If z is a zero of the zeta function in the critical strip $\{z : 0 \leq \text{Re}(z) \leq 1\}$, then :

(A) $\text{Re}(z) > 1/2$ (B) $\text{Re}(z) < 1/2$

(C) $\text{Re}(z) = 1/2$ (D) $\text{Re}(z) \neq 1/2$

40. If the power series $f(x) = \sum_{n=0}^{\infty} a_n x^n$ and $g(x) = \sum_{n=1}^{\infty} n a_n x^{n-1}$ have radius of convergence R_1 and R_2 respectively, then :

(A) $R_1 = R_2$ (B) $R_1 < R_2$

(C) $R_1 > R_2$ (D) $R_1 \neq R_2$

PART-E

(G.K.)

41. Which two districts of H.P. have border with Tibet ?

(A) Chamba and Lahul Spiti

(B) Kinnaur and Shimla

(C) Kullu and Kinnaur

(D) Kinnaur and Lahul-Spiti

42. Who is the author of *Pahari Miniature Painting* ?

(A) M. S. Randhawa (B) V. C. Ohri

(C) O. C. Handa (D) Karl Khandelwala

43. At which place in Sirmaur District of H.P. is Devji Sahuta Temple ?

(A) Paonta Sahib (B) Shillai

(C) Rajgarh (D) Dadahu

44. How many districts of H.P. have five members each in the State Vidhan Sabha ?

(A) Two (B) Three

(C) Four (D) Five

45. According to the H.P. Govt. notification of 1994 which of the following caste is NOT included in the OBC (Other Backward Classes) category ?

(A) Nai (B) Lohar

(C) Hesi (D) Mirasi

46. According to 2011 census what is the density of population in H.P. per sq. kilometer ?

(A) 327 (B) 283

(C) 159 (D) 123

47. Given below are the names of some persons who have been members of H.P. Vidhan Sabha :

(*i*) Thakur Ram Lal

(*ii*) Dr. Y. S. Parmar

(*iii*) Thakur Guman Singh (Chauhan)

Who among the above was/were elected for maximum terms ?

(A) (*i*) only

(B) (*iii*) only

(C) (*ii*) and (*iii*) only

(D) (*i*) and (*iii*) only

48. Who founded the Keonthal princely state ?

(A) Bir Sen
(B) Giri Sen
(C) Bhim Sen
(D) Ishwari Sen

49. By what name was the tribe living in Kinnaur area during the ancient times known ?

(A) Gandharvagana
(B) Asuragana
(C) Kulutagana
(D) Kunidagana

50. Which was the smallest princely state in the Kangra group of states ?

(A) Jaswan
(B) Guler
(C) Kutlehar
(D) Siba

51. Which of the following was earlier known as Kirgram ?

(A) Lambagraon
(B) Baijnath
(C) Nadaun
(D) Nurpur

52. Among the following which District Headquarters is at highest mean sea level ?

(A) Kelang
(B) Kalpa (Reckong Peo)
(C) Chamba
(D) Kullu

53. Which bank has been given the Lead Bank responsibility in largest number of Districts in H.P. ?

(A) SBI

(B) UCO Bank

(C) PNB

(D) H.P. State Cooperative Bank

54. There are nearly 4802 fair price shops in Himachal Pradesh. Which of the following manages the largest number of them ?

(A) Cooperative Societies

(B) Panchayats

(C) HP State Civil Supplies Corporation

(D) Mahila Mandals

55. Approximately what percentage of total cultivated area in H.P. is rain-fed ?

(A) 50 per cent

(B) 60 per cent

(C) 70 per cent

(D) 80 per cent

56. According to 2010-11 Agricultural Census what percentage of holdings in H.P. are small and marginal ?

(A) 89.23 per cent

(B) 87.95 per cent

(C) 83.61 per cent

(D) 78.38 per cent

57. At which place in Solan District of H.P. is Tissue Culture Laboratory to promote flower cultivation ?

(A) Garkhal
(B) Mahogbad
(C) Ramshahar
(D) Kunihar

58. At which place in Hamirpur District of H.P. is Government sheep breeding farm ?

(A) Rail
(B) Rangas
(C) Kalyal
(D) Tal

59. At which two places in H.P. are goverment run chick hatcheries ?

(A) Baijnath and Nerchowk
(B) Nahan and Sundernagar
(C) Dharampur and Baddi
(D) Berthin and Chauntra

60. Which of the following is *not* included in the weather based crop insurance scheme in H.P. as extended in 2014-15 ?

(A) Kinnow
(B) Plum
(C) Peach
(D) Litchi

61. Which reservoir of H.P. has the highest sale price value of fish catch ?

(A) Gobind Sagar
(B) Chamera
(C) Pong Dam
(D) Ranjit Sagar Dam

62. Which agency has sanctioned a development policy loan to H.P. state for shift towards Green Growth and sustainable development ?

(A) IMF
(B) World Bank
(C) Asian Development Bank
(D) NABARD

63. In which district of H.P. is Shahnehar Irrigation Project ?

(A) Una
(B) Hamirpur
(C) Kangra
(D) All of these

64. At which place in Una District of H.P. is Government run Industrial Workers Transit Hostel ?

(A) Nehrian
(B) Daulatpur
(C) Amb
(D) Delehad

65. In which river basin is Chaba hydel power project ?

(A) Yamuna (B) Satluj

(C) Beas (D) Ravi

66. When did the H.P. Government allow the facility of free travel in ordinary HRTC buses to the students of upto +2 class of Govt. Schools ?

(A) January 2013 (B) April 2013

(C) July 2013 (D) October 2013

67. Which of the following is *not* included in the Urban Infrastructure Development Scheme of Govt. of India for Small and Medium Towns (UIDSSMT) ?

(A) Rawalsar (B) Nalagarh

(C) Bilaspur (D) Sarkaghat

68. Which district of H.P. received the highest number of tourists during the year 2014 ?

(A) Shimla (B) Kullu

(C) Kangra (D) Una

69. Development Blocks in H.P. have been divided into three categories in terms of their potential for development. What are principal bases of this categorisation ?

(A) Distance from the neighbouring state(s)

(B) Employability of local people

(C) Extent of block's backwardness

(D) All of the above

70. On the bank of which stream is Manikaran ?

(A) Uhal (B) Sainj

(C) Parvati (D) Tirthan

71. Traditionally for how many days is *Sutak* observed in H.P. on the birth of a child in the family ?

(A) 3 to 5 days (B) 5 to 7 days

(C) 7 to 9 days (D) 11 to 13 days

72. With which region of H.P. is Dangi dance associated ?

(A) Kutlehar in Una (B) Renuka in Sirmaur

(C) Chhatrari in Chamba (D) Kupari-Melthi in Shimla

73. According to Vikram Samvat on which day does the Minjar fair of Chamba begin ?

(A) Third Monday of Asad
(B) Second Sunday of Shravan
(C) Fourth Sunday of Shravan
(D) First Monday of Bhadon

74. With which region of H.P. is Jhuri folk song associated ?

(A) Sirmaur-Mahasu
(B) Mandi-Bilaspur
(C) Kangra-Chamba
(D) Kullu-Kinnaur

75. In which region of H.P. is Barari dialect spoken ?

(A) Solan-Nalagarh
(B) Kangra-Nurpur
(C) Pangi-Bharmaur
(D) Jubbal-Kotkhai

76. What is Himachal's rank in the production of ginger in India ?

(A) First
(B) Second
(C) Third
(D) Fourth

77. Who was the first chairman of H.P. Administrative Tribunal ?

(A) Justice Bhawani Singh
(B) Justice Rup Singh Thakur
(C) Justice Hira Singh Thakur
(D) Justice V. K. Sharma

78. When was first Lokayukta appointed in H.P. ?

(A) July 1982 (B) August 1983

(C) September 1984 (D) January 1985

79. When was the office of Chief Commissioner replaced by Lt. Governor in H.P. ?

(A) March 1951 (B) December 1951

(C) March 1952 (D) July 1952

80. Who founded the Himachal Lokhit Party (HILOPA) ?

(A) Pandit Sukh Ram (B) Maheshwar Singh

(C) Rajan Sushant (D) Thakur Ram Lal

81. Which is the birth place of B. R. Ambedkar ?

(A) Mhow (B) Baroda

(C) Nasik (D) Ratnagiri

82. In which state of India is Shani Shingnapur Temple ?

(A) Madhya Pradesh (B) Gujarat

(C) Maharashtra (D) Karnataka

83. To which political party does Mehbooba Mufti belong ?

(A) BJP (B) BJD

(C) JDU (D) PDP

84. Where is Islamic Seminary Darul Uloom ?

(A) Deoband (B) Ajmer

(C) Hyderabad (D) Lucknow

85. On the bank of which river is Ujjain ?

(A) Chambal (B) Shipra/Kshipra

(C) Mahi (D) Mandakini

86. Who is Ajit Doval ?

(A) Deputy Chairman NITI Ayog

(B) Chief Information Commissioner (India)

(C) Chairman, 7th Pay Commission

(D) National Security Advisor (India)

87. To which state did Lance Naik Hanaman Thappa KOPPAD who was burried under 25 feet snow in Siachen Glacier belong ?

(A) Andhra Pradesh (B) Karnataka

(C) Telangana (D) Kerala

88. Which day is observed as Panchayati Raj Day ?

(A) April 14 (B) April 20

(C) April 24 (D) April 28

89. Which of the following fell on April 08, 2016 ?

(A) Beginning of Chaitra Navaratra

(B) Beginning of Vikram Samvat

(C) Gudi Padwa (Maharashtra New Year)

(D) All of the above

90. The Union Territory of Puduchcheri consists of four different regions which are not contiguous. Which of them is on the west coast of India ?

(A) Puduchcheri (B) Mahe

(C) Karaikal (D) Yanam

91. When was World Health Organisation (WHO) created ?

(A) 24th October, 1945 (B) 7th April, 1948

(C) 10th December, 1948 (D) 29th November, 1949

92. Who is Htin Kyaw ?

(A) President of Myanmar

(B) Chairman, Asian Development Bank

(C) President of North Korea

(D) President of Vietnam

93. What is the proposed venue of 2019 South Asian Games ?

(A) Islamabad (B) Dhaka

(C) Kabul (D) Katmandu

94. According to list drawn by *Wealth X and Business* who is the richest man in the world ?

(A) Bill Gates (B) Jeffrey Bezos

(C) Mark Zuckerberg (D) Warren Buffelt

95. Which is the tallest building in the world ?

(A) Burj Khalifa (B) Cayan Tower

(C) Burj al-Arab (D) None of these

96. Who is Abu Bakr Al Baghdadi ?

(A) President of Iran

(B) President of Egypt

(C) Leader of ISIS

(D) Pakistan's ambassador to India

97. Which country's capital is Brussels ?

(A) Austria (B) Hungary

(C) Belgium (D) Poland

98. To which country does You You Tu who shared the 2015 Nobel Prize for Medicine belong ?

(A) China (B) Russia

(C) USA (D) Japan

99. Who is the CEO of Google ?

(A) Satya Nadella (B) Sundar Pichai

(C) Rajiv Suri (D) Ajay Banga

100. Which country's official religious ideology is Wahhabism ?

(A) Saudi Arabia (B) Turkey

(C) UAE (D) Syria