

Code No.

J – 2274

**Entrance Examination for Admission to the P.G. Courses in the Teaching
Departments, 2020**

CSS

DEMOGRAPHY AND BIOSTATISTICS

General Instructions

1. The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).
2. Objective type questions which carry 1 mark each are to be (✓) 'tick marked' in the response sheets against the appropriate answers provided.
3. 8 questions are to be answered out of 12 questions carrying 5 marks each in Part 'B'.
4. **Negative marking** : 0.25 marks will be deducted for each wrong answer in Part 'A'.

Time : 2 Hours

Max. Marks : 100

To be filled in by the Candidate

Register Number	in Figures								
	in words								

PART – A
(Objective Type)

Choose appropriate answer from the options in the questions. **One mark each.**

(60 × 1 = 60 marks)

1. $(2x - 3)(x - 2)$ is polynomial of degree

- a) 2
c) 0

- b) 1
d) None of these

17. The National Institute of Virology is located _____ in India.

- a) Pune
- b) Chennai
- c) Hyderabad
- d) Delhi

18. If $A = \begin{bmatrix} a_1 & b_1 & c_1 \\ a_2 & b_2 & c_2 \\ a_3 & b_3 & c_3 \end{bmatrix}$ is a non-singular matrix then A is invertible and A^{-1}

- a) $\frac{\text{Adj } A}{\det A}$
- b) $\frac{1}{\det A}$
- c) $\text{Adj } A \cdot \det A$
- d) $\frac{\det A}{\text{Adj } A}$

19. If $(\cos \theta + \sec \theta) = \frac{5}{2}$, then $(\cos^2 \theta + \sec^2 \theta) =$

- a) $\frac{33}{4}$
- b) $\frac{21}{4}$
- c) $\frac{29}{4}$
- d) $\frac{17}{4}$

20. If a, b, c are the position vectors of the vertices of a triangle ABC , then the position vector of its centroid is

- a) $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$
- b) $3(a+b+c)$
- c) $\frac{a+b+c}{3}$
- d) $\frac{3}{a+b+c}$

21. If $A+B+C=180^\circ$, then $\tan A + \tan B + \tan C =$

- a) $\tan A \tan B \tan C$
- b) $1 + \tan A \tan B \tan C$
- c) $2 + \tan A \tan B \tan C$
- d) 1

32. In the moderately symmetrical series, the arithmetic mean, median and mode are related as
- a) $\text{Mean} - \text{Mode} = 3 (\text{Mean} - \text{Median})$
 - b) $\text{Mean} - \text{Median} = 2 (\text{Median} - \text{Mode})$
 - c) $\text{Median} - \text{Mode} = (\text{Mean} - \text{Median}) / 2$
 - d) $\text{Mode} - \text{Median} = 2 \text{Mean} - 2 \text{Median}$
33. The population of the country increased by an average of 2% per year from 2000 to 2003. If the population of this country was 20,00,000 on December 31, 2003, then the population on this country on Jan 1, 2000 to the nearest thousand would have been
- a) 18,46,000
 - b) 18,52,000
 - c) 10,00,000
 - d) 15,00,000
34. Population census is conducted through
- a) Accountability
 - b) Investigation
 - c) Complete enumeration
 - d) Sample Survey
35. Census reports used as a source of data is
- a) Primary source
 - b) Secondary source
 - c) Organized data
 - d) None
36. Population of a state increased by 9%, 16% respectively from the year 2012 to 2013. What is the average increase over these years?
- a) 12.5%
 - b) 9%
 - c) 12%
 - d) 14%

37. What is the definition of sex ratio?
- a) Number of deaths per 1000 live births of children
 - b) Number of women per 1000 men
 - c) Number of women per 10,00,000 men
 - d) Number of men per 1000 women
38. The highest sex ratio in the whole India is in
- a) Kerala
 - b) Punjab
 - c) Andhra Pradesh
 - d) Tamil Nadu
39. What was the Total Fertility Rate (TFR) in India?
- a) 2 – 1
 - b) 2 – 3
 - c) 2 – 4
 - d) 2 – 0
40. Which state of India has the lowest and highest infant mortality rate respectively?
- a) Kerala, Bihar
 - b) Odisha, Jharkhand
 - c) Goa, Madhya Pradesh
 - d) Maharashtra and Uttar Pradesh
41. World Environment Day is celebrated on
- a) 5th April
 - b) 5th May
 - c) 5th June
 - d) 5th July
42. Sex ratio of Kerala according to 2011 census was
- a) 940
 - b) 984
 - c) 1030
 - d) 1084

43. Which one of the following state is called as Gods own country in India?
- a) Goa
 - b) Karnataka
 - c) Tamil Nadu
 - d) Kerala
44. Indian Space Research Organization (ISRO) is situated in
- a) Sriharikota
 - b) Bangalore
 - c) Ahmedabad
 - d) Amritsar
45. Expand the term IPCC
- a) Inter-Governmental Panel on Climate Change
 - b) Interim Panel of Climate Change
 - c) International Pollution Control Council
 - d) International Population Control Council
46. According to census 2011, which one of the following state has lowest population in India?
- a) Manipur
 - b) Arunachal Pradesh
 - c) Sikkim
 - d) Goa
47. Which of the following cities has the most populous in India?
- a) Delhi
 - b) Mumbai
 - c) Calcutta
 - d) Bangalore
48. Queen of Arabian Sea is
- a) Chennai
 - b) Kochi
 - c) Goa
 - d) Bangalore

49. How many states and Union Territories (UT) are there in India at present?
- a) 29 States & 7 UTS b) 28 States & 8 UTS
c) 29 States & 8 UTS d) 28 States & 7 UTS
50. Total earth's surface covered by water is
- a) 75% b) 85%
c) 65% d) 50%
51. Malthus has _____ of birth control.
- a) Approved b) Disapproved
c) Neutral d) None of the above
52. Who is acclaimed as the father of Demography?
- a) John Gruant b) Malthus
c) Edmund Halley d) Kingsley Davis
53. Who wrote "an Essay on the Principles of Population"?
- a) Thomas R. Malthus b) S. Thompson
c) S. Chandrasekharan d) Confucius
54. International Institute for Population Sciences is located in
- a) Bombay b) Chennai
c) Calcutta d) Hyderabad
55. The first census was conducted in Independent India in the year
- a) 1951 b) 1956
c) 1947 d) 1961

56. Who postulated Population when unchecked increases in a geometrical ratio, subsistence increases only in an arithmetical ratio
- a) Malthus
 - b) Aristotle
 - c) J.S. Mill
 - d) David Ricardo
57. Which one is the highest population district in Kerala?
- a) Thiruvananthapuram
 - b) Malappuram
 - c) Cochin
 - d) Alappuzha
58. _____ refers to the capacity of a man, a woman or a couple to participate in reproduction.
- a) Fertility
 - b) Fecundity
 - c) Natality
 - d) Nuptiality
59. _____ is the difference between the total number of persons who arrive and the total number of persons who leave.
- a) Gross Migration
 - b) Actual Migration
 - c) Net Migration
 - d) Volume of Migration
60. A study of relations between organism and their environment is called
- a) Zoology
 - b) Ecology
 - c) Geography
 - d) Topography

ANSWER SHEET — PART — A

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E

21	A	B	C	D	E
22	A	B	C	D	E
23	A	B	C	D	E
24	A	B	C	D	E
25	A	B	C	D	E
26	A	B	C	D	E
27	A	B	C	D	E
28	A	B	C	D	E
29	A	B	C	D	E
30	A	B	C	D	E
31	A	B	C	D	E
32	A	B	C	D	E
33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

41	A	B	C	D	E
42	A	B	C	D	E
43	A	B	C	D	E
44	A	B	C	D	E
45	A	B	C	D	E
46	A	B	C	D	E
47	A	B	C	D	E
48	A	B	C	D	E
49	A	B	C	D	E
50	A	B	C	D	E
51	A	B	C	D	E
52	A	B	C	D	E
53	A	B	C	D	E
54	A	B	C	D	E
55	A	B	C	D	E
56	A	B	C	D	E
57	A	B	C	D	E
58	A	B	C	D	E
59	A	B	C	D	E
60	A	B	C	D	E

DEMOGRAPHY AND BIOSTATISTICS

PART – B (Descriptive Type)

Answer **any eight** questions.

(8 × 5 = 40 Marks)

1. Resolve into partial fractions :

(a) $\frac{5x^2 + 2}{x^2 + x}$

(b) $\frac{x^2 + 1}{(x^2 + 4)(x - 2)}$

2. Solve : $(1 + y^2) dx + (\tan^{-1} y - x) dy$.

3. The following are the marks of students in mathematics and statistics in a test, calculate correlation between them.

Student :	1	2	3	4	5	6	7	8	9	10
Marks in Mathematics :	78	36	98	25	75	82	90	62	65	39
Marks in Statistics :	84	51	91	60	68	62	86	58	53	47

4. Explain the Chi-Square test and its advantages.

5. Write about the gender issues in India.

6. Explain the factors affecting status of women.
7. Describe the role of NGO's in social development.
8. Explain the social determinants of fertility and mortality.
9. What are the main sources of air, water and soil pollution?
10. Explain the relationship between Population growth and economic development.
11. Briefly discuss the features of Kerala's economy.
12. Distinguish renewable and non-renewable energies sources.
