

**JUNIOR STATISTICAL ASSISTANTS - 2020**

**ECONOMICS THEORY**

**Paper - I**

**Time Allowed - 3 Hours**

**Maximum Marks-100**

**INSTRUCTIONS**

- i) *Attempt any Five questions. All questions carry equal Marks.*
- ii) *The answer to each question or part thereof should begin on a fresh page.*
- iii) *Your answer should be precise and coherent.*
- iv) *The part/parts of the same question must be answered together and should not be interposed between answers to other questions.*
- v) *If you encounter any typographical error, please read it as it appears in the text book.*
- vi) *Candidates are, in their own interest, advised to go through the General Instructions on the back side of the title page of the Answer Script for strict adherence.*
- vii) *No continuation sheets shall be provided to any candidate under any circumstances.*
- viii) *Candidates shall put a cross (×) on blank pages of Answer Script.*
- ix) *No blank page be left in between answer to various questions.*

1. Explain **Professor Robbins definition of Economics**? How is Robbins definition superior to other definitions and explain the grounds on which it was criticized?
  2. What do you understand from **Gross National Product**? How is it measured? Explain.
  3. Explain **Hicks Reformulation of Consumer's Surplus** in terms of quantity variation and price variation.
  4. Explain the "**Laws of Returns to the Scale**".
  5. Explain the term "**Division of Labour**". What are its advantages & disadvantages?
  6. What is **Production Function**? What is the difference between a **short run** and **long run** Production Function.
  7. Define **Money**. Critically examine the **Fishers Quantity Theory of Money**?
  8. What factors were responsible for **Nationalization of Major Indian Commercial Banks in India in 1969**? Analyze the performance of commercial banks in India after their Nationalization?
  9. What do you understand from "**Cannons of Taxation**". Explain in Detail?
  10. What is "**Economic Planning**"? What were the main objectives of adoption of Economic Planning in India?
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**JUNIOR STATISTICAL ASSISTANTS - 2020**

**APPLIED ECONOMICS**

**Paper - II**

**Time Allowed - 3 Hours**

**Maximum Marks-100**

**INSTRUCTIONS**

- i) Attempt any Five questions selecting One question from section-A and Two questions from section -B and Section C . All questions carry equal Marks.*
- ii) The answer to each question or part thereof should begin on a fresh page.*
- iii) Your answer should be precise and coherent.*
- iv) The part/parts of the same questions must be answered together and should not be interposed between answers to other questions.*
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## SECTION - A

1. Analyze and explain **Basic Characteristics of Indian Economy**?
2. Explain the problem of **Population explosion in India**. Analyze the causes and remedies of high rate of growth of population in India?

## SECTION - B

3. Explain in detail **Basic Characteristics of Jammu & Kashmir's Economy**?
4. Give an account of **Population Growth in Jammu & Kashmir since 1950**. What trends have taken place in population growth over the years?
5. Explain the **progress achieved in connectivity (Road Sector) in J&K** through developmental plans since 1950?
6. Jammu & Kashmir Government have taken **various initiatives for development of Industries**, yet there is not much growth of industrial sector. Do you agree with the statement? Explain in detail.

## SECTION - C

7. What do you understand from "**Economic Planning**". What role does planning play in the development of India?
8. **Analyze how focus shifted in development of India through 5 Year Plans?** To what extent this shift helped in the overall development of India?
9. **J&K development plans grew over different Five Year Plans. Explain?** What were the main features/objectives of 10<sup>th</sup> & 11<sup>th</sup> Five year Plan in J&K.? How far State achieved the set targets.
10. **GSDP & Per Capita Income of J&K** has grown over the years. Explain? Is J&K growing at par with rest of country?

**JUNIOR STATISTICAL ASSISTANTS (JSA)**

**Statistics Theory**

**Paper - III**

**Time Allowed : 3 Hours**

**Maximum Marks-100**

**INSTRUCTIONS**

- i) Attempt any **Five** questions. Each questions carry **equal** Marks.
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- iii) Your answer should be precise and coherent.
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1. a) What do you mean by measures of Central tendency? What are its various measures? What are the requisite conditions for a Central tendency?
- b) If  $\bar{x}_i (i = 1, 2, \dots, k)$  are means of K Component series of sizes  $n_i (i = 1, 2, \dots, k)$  respectively then prove that the Composite mean  $\bar{x}$  is

$$\bar{x} = \frac{\sum_{i=1}^k n_i \bar{x}_i}{\sum_{i=1}^k n_i}$$

- c) The average Salary of male employees in a factory was Rs. 520 and that of female employees was of Rs. 420. The mean Salary of all the employees was Rs. 500. Find the percentage of male and female employees of the factory. **(20 Marks)**
2. a) What are different Sources of Secondary data?
- b) What do you understand by tabulation of data and what are its objectives?
- c) A cyclist pedals from his house to his College at a Speed of 10km.p.h and back from College to his house as 15km.p.h. Find the average speed of the cyclist.
- (20 Marks)**

3. a) Discuss the various methods of Collecting Primary data.
- b) Draw a bar diagram of the procurement of Rice (in tonnes) in different years and interpret the data.

<b>Year:</b>	1980	1981	1982	1983	1984	1985	1986	1987
<b>Rice (In Tonnes):</b>	4500	5700	6100	6500	6800	5300	4300	7800

**(20 Marks)**

4. a) Define Pie Chart. Draw a pie chart for the following data about the percentage break-up of the Cost of Construction of house is given.

Items	% of Expenditure
Labour	25%
Bricks	15%
Cement	20%
Steel	15%
Timber	10%
Supervisor	15%

- b) What factors to be Considered during the Collection of data? **(20 Marks)**

5. a) What do you mean by classification of data? Is there any advantage in classifying things? Explain with an example in our daily life.

b) From the following data, which shows the monthly household expenditure (in Rs) on food of 50 households.

1904	1559	3473	1735	2760
2041	1612	1753	1855	4439
5090	1005	1823	2346	1523
1211	1360	1110	2152	1183
1218	1315	1105	2628	2712
4248	1812	1264	1183	1171
1007	1180	1953	1137	2048
2029	1583	1324	2621	3676
1397	1832	1962	2177	2575
1293	1365	1146	3222	1396

- i) Obtain the range of monthly household expenditure on food.
- ii) Divide the range into appropriate number of class intervals and obtain the frequency distribution of expenditure.
- iii) Find the number of households whose monthly expenditure on food is:
  - a) Less than Rs. 2000.
  - b) More than Rs.3000
  - c) Between Rs.1500 and Rs.2500.

**(20 Marks)**

6. a) What are the various type of bar diagram? How does the procedure of drawing a histogram differ when class Intervals are unequal in comparison to equal class intervals in a frequency table? Explain with suitable example.

b) The Indian Sugar Mills Association reported that, "Sugar production during the first fortnight of December 2001 was about 3,87,000 tonnes, as against 3,78,000 tonnes during the same fortnight last year 2000. The take off of Sugar from factories during the first fortnight of December 2001 was 2,83,000 tonnes for internal Consumption and 41,000 tonnes for exports as against 1,54,000 tonnes for internal Consumption and nil for exports during the same fortnight last season."

- i) Present the data in tabular form.
- ii) Present these data in diagrammatically.

**(20 Marks)**

7. A measure of dispersion is a good Supplement to the Central value in understanding a frequency distribution. Comment.

What are relative measures of dispersion? Compute the Coefficient of standard deviation from the following data.

**Classes:**        20-40    40-60    60-80    80-100    100-120    120-140

**Frequencies:**    3            6            12          15          9            5

(20 Marks)

8. Define Simple Random sampling. What the methods to draw a random sample. Explain.

In SRSWOR, the sample mean square is an unbiased estimate of the population mean square i.e.  $E(s^2)=S^2$

(20 Marks)

9. What do you mean by Interpolation and Extrapolation? On what assumptions, they are based. Define Graphic method of Interpolation. State its merit and demerits.

From the following data, the figure for the year 1975 is missing. Interpolate the same by Graphic method.

**Year:**        1971    1972    1973    1974    1975    1976

**Profit:**    108     113     111     110     ?        114

(Lakh Rs)

(20 Marks)

10. State the Newton's Method of Equal differences of Interpolation.

The following table shows the expectation of life at different ages. Find the expectation of life at age 16 yrs.

**Age (In Yrs)**        10    15    20    25    30    35    40

**Expectation of life** 35    30    29    27    22    20    17

(In years)

(20 Marks)



**JUNIOR STATISTICAL ASSISTANTS - 2020**

**APPLIED STATISTICS**

**Paper - IV**

*Time Allowed - 3 Hours*

*Maximum Marks-100*

**INSTRUCTIONS**

- i) Attempt any Five questions selecting two questions from Part A and Part B and one question from Part C. All questions carry equal Marks.*
- ii) The answer to each question or part thereof should begin on a fresh page.*
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## PART - A

1. Draft a sample “**Survey Plan**” for collecting data relating to expenditure pattern of the middle class families of your city? Give a short questionnaire to be used for the purpose?
2. Distinguish between the “**Census**” and “**Sampling**” method of collection of data and compare their merits and demerits? Why is sampling method unavoidable in certain situations?
3. What is a **Random Sample**? How do you select random sample using table of random numbers? Which random table has wider acceptance?
4. What do you understand from **Official Statistics**? What statistics is generated in Education Department and how is it useful?

## PART - B

5. Draft a **Blank Table** to show the distribution of personnel in a manufacturing concern according to:
  - i) Sex : Males and Females.
  - ii) Three grades of salary: below Rs.50,000, Rs.50,000-1,00,000 and Rs. 1,00,000 and above.
  - iii) Two periods : 2015 and 2016
  - iv) Three Age Groups (in years) : under 25, 25 to under 40, 40 and above.
6. **Point out the mistakes** on the following table drawn to show the distribution of population, according to sex, age and literacy.

Sex	0-25	25-50	50-75	75-100
Male				
Female				

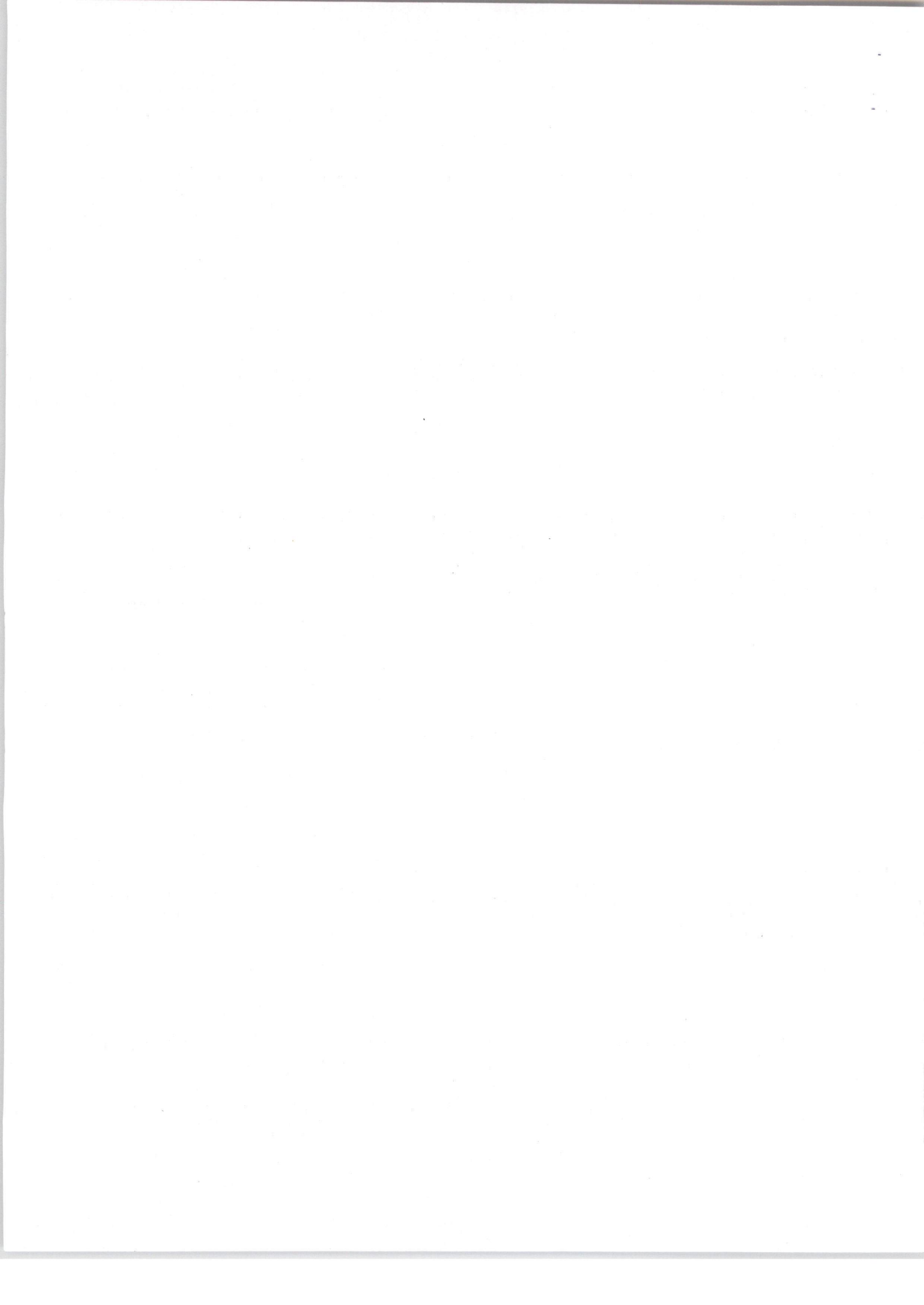
7. Represent the following frequency distribution by means of a **Histogram** and superimpose thereon the corresponding frequency polygon and frequency curve.

Salary (Rs.)	No. of employees	Salary (Rs)	No.of Employees
300-400	20	700-800	115
400-500	30	800-900	100
500-600	60	900-1000	60
600-700	75	1000-1200	40

8. What do you understand from **Index Numbers**? What problems are faced in construction of Index Number?

### PART - C

9. Define **Evaluation**? What is the scope of **evaluation studies**?
10. What are various **Methods of Evaluation**? What is their importance and when are they used?
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**JUNIOR STATISTICAL ASSISTANTS - 2020**

**MATHEMATICS**

**PAPER - V**

**Time Allowed - 3 Hours**

**Maximum Marks-100**

**INSTRUCTIONS**

- i) *Candidates are requested to attempt Five questions selecting at least Two questions from each part. All questions carry equal marks.*
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### PART-A

- Solve the following **quadratic equations** by using the general expression for the roots of Quadratic equation :-
  - $2x^2 - 4x + 3 = 0$
  - $25x^2 - 30x + 11 = 0$ .
- A 700 dry fruit pack costs Rs. 72. It contains some Cashew Kernel and rest as dry grapes. If cashew kernel costs Rs. 96 per kg and dry grapes cost Rs. 112 per kg. What are the quantities of the two dry fruits separately?
- Find three numbers in **Geometric Progression** whose sum is 13 and the sum of whose squares is 91.
- Using **Binomial Theorem**, compute the following:-
  - $(99)^5$
  - $(102)^6$
  - $(10.1)^7$
- Simplify the following **Surds**:-
  - $\frac{\sqrt{6}}{\sqrt{2+\sqrt{3}}} + \frac{3\sqrt{2}}{\sqrt{6+\sqrt{3}}} - \frac{4\sqrt{3}}{\sqrt{6+\sqrt{2}}}$
  - $\frac{7\sqrt{3}}{\sqrt{10+\sqrt{3}}} - \frac{2\sqrt{5}}{\sqrt{6+\sqrt{5}}} - \frac{3\sqrt{2}}{\sqrt{15+3\sqrt{2}}}$

### PART-B

- The cash prize of new car is Rs.90,000. The insurance company calculated its price at any subsequent time according to the rule that the price depreciates at the rate of 5% a year during first two years and at the rate of 10% a year thereafter. What will be the price of the car after (a) 2 Years, (b) 5 years, (c) 10 Years? When will be the price, half of the original price? (Solve by using log).
- The sides of a triangular plate are 8cm, 19 cm & 15 cm. If its weight be 96 grams, what is the weight of the plate per Sq. cm? (Solve by using log).
- Find the **derivative** of:
  - $f(x) = (\sqrt{2x+1})$
  - $f(x) = (2x+1)$ .
- Find the **derivatives** of:
  - $y = (2x+11)^5$
  - $y = (5x+3)^3$
- Find the **derivatives** of:
  - $y = \frac{2x+11}{x^2+2}$
  - $y = \frac{(x-3)(x+2)}{\sqrt{x}}$

**JUNIOR STATISTICAL ASSISTANTS**

**General Administration**

**PAPER - VI**

**Time Allowed : 3 Hours**

**Maximum Marks-100**

**INSTRUCTIONS**

*Please read each of the following instructions carefully before attempting the paper.*

- i) Candidates are requested to attempt five questions selecting at least one from each part. All questions carry equal marks.*
- ii) The answer to each question or part there of should begin on a fresh page.*
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## SECTION - A

1. Write a **D.O.** from Administrative Secretary, Jal Shakti Department to Administrative Secretary, Finance Department regarding release of funds for restoration of Flood Relief Work as the level of water may increase in the next month.
2. Write a **U.O.** from Director, PD&MD to Administrative secretary, School Education Department for seeking progress regarding implementation of Mid Day Meals in Primary and Middle Schools in Jammu & Kashmir.
3. The following letter forming as "P.U.C" was received by Government of J&K in Health & Medical Education Department File No: DHSJ/SDH/2018/345(45) from the Director Health Services, Jammu. **A short Note may be prepared**, indicating further course of action at Administrative Department level, may be put up.

To,  
Secretary to Government,  
Health & Medical Education Department,  
Civil Secretariat, Jammu.

No : DHSJ/SDH/2018/345(45)  
Sub : Construction of SDH, Bishna, Jammu.

Dated : 15:12:2018,

Sir,

I have the honor to refer to G.O. No: 7654/XX, dated: May 23, 2018 on the above subject, and to forward herewith an estimate for Rs. 10.50 Crore along with necessary detailed plans for the construction of SDH, Bishna, Jammu. The project is approved under plan 2018-19 under new works.

The estimate and plans for Rs. 10.50 crore have been prepared by PWD authorities in consultation with the Chief Medical Officer, Jammu. A committee of three experts was also constituted including the District Magistrate, Jammu and it has also since finally approved plans as been forwarded herewith.

There is a budget provision of Rs. 1.00 Crore during the current Financial Year for this project under Head "50-Civil Works - New Works - done by PWD". PWD authorities were consulted by the Chief Medical Officer, Jammu and they are of the view that, if necessary administrative approval and expenditure sanction is accorded by Government during the current financial year, the work can be started forthwith and the current year's budget provision of Rs. 1.00 Crore can be utilized fully.

It is, therefore, requested that necessary Administrative Approval to the enclosed plan and estimates for Rs. 10.50 Crore and expenditure sanction in respect of the amount of Rs. 1.00 Crore may kindly be obtained from government and communicated to this office at an early date.

Enclosures:..... Plans & Estimates

Yours Faithfully  
Sd/-  
Dr. Ratish Mohan,  
Director Health Services,  
Jammu.

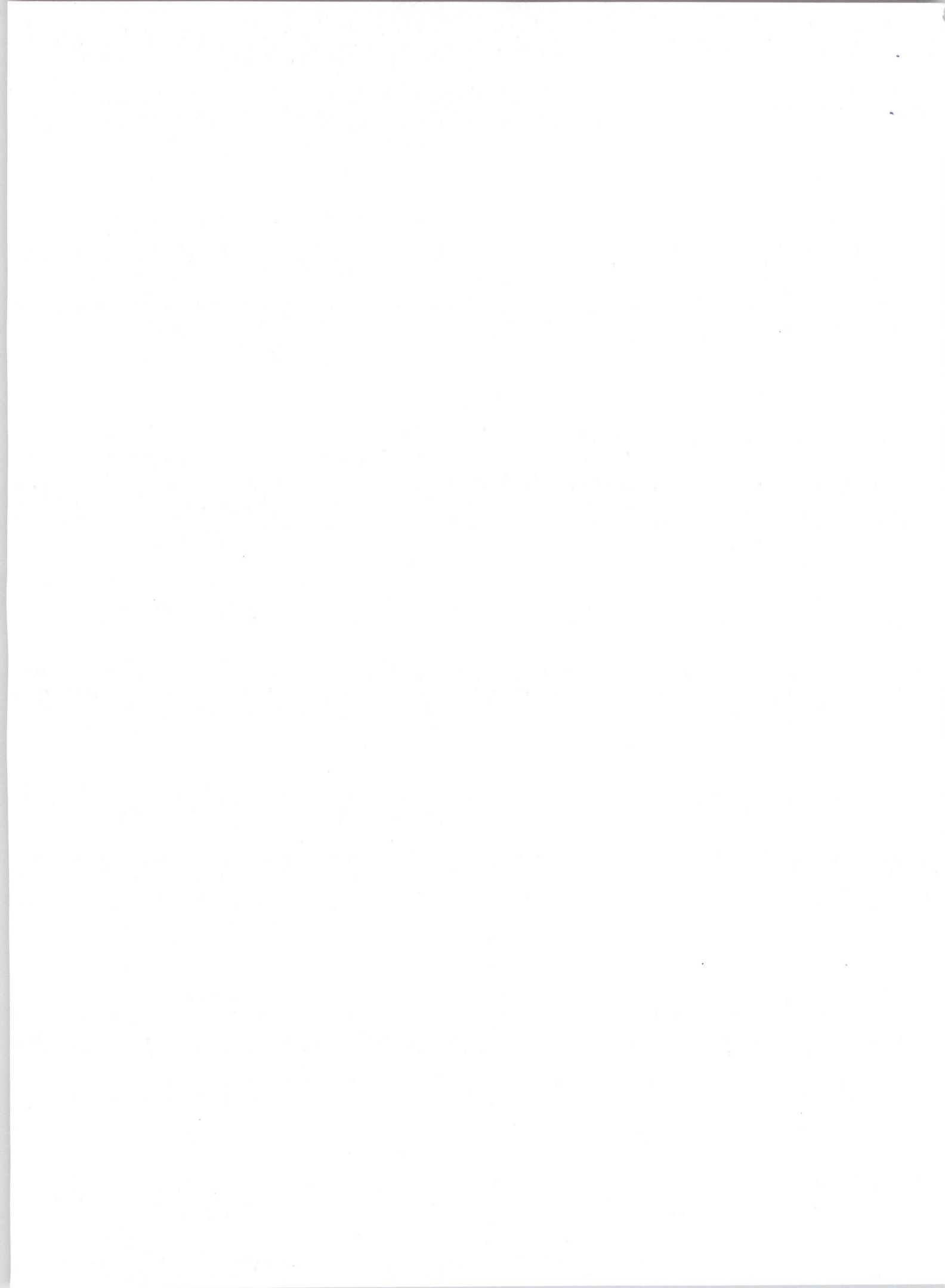


## SECTION-B

4. Explain what is **Administrative set up at District Level** in Jammu & Kashmir and how does it works.
5. Explain the **Structural set up of Statistical Organization in Jammu & Kashmir** through which data is collected for conducting Evaluation Studies and Socio-economic Surveys?
6. Write a note on **Devolution of Powers to Panchayati Raj institutions** in Jammu & Kashmir?

## SECTION - C

7. Write short note on rules governing **Casual Leave & Quarantine Leave** as per J&K CSR, 1956.
  8. Define **Travelling Allowance**? How travelling allowance of a government employee is regulated, who travels by road?
  9. What is **G.P. Fund**? How is special G. P. Fund regulated in Jammu & Kashmir?
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**JUNIOR STATISTICAL ASSISTANTS - 2020**

**Statistics - Practicals**

**Paper - VII**

**Time Allowed - 3 Hours**

**Maximum Marks-100**

**INSTRUCTIONS**

- i) *Answer all Five questions. All questions carry equal Marks.*
- ii) *The answer to each question or part thereof should begin on a fresh page.*
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1. Calculate **Median & Mode** of the data given below. Using them find **Arithmetic Mean**.

<b>Marks</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>
<b>No. of Students</b>	<b>8</b>	<b>23</b>	<b>45</b>	<b>65</b>	<b>75</b>	<b>80</b>

2. Draw a **Pie Diagram** for the following data of Ninth Five Year Plan Public sector outlays:

<b>S.No</b>	<b>Sector</b>	<b>Outlay Percentage</b>
<b>1</b>	<b>Agriculture and Rural Development</b>	<b>12.9%</b>
<b>2</b>	<b>Irrigation, etc.</b>	<b>12.5%</b>
<b>3</b>	<b>Energy</b>	<b>27.2%</b>
<b>4</b>	<b>Industry &amp; Minerals</b>	<b>15.4%</b>
<b>5</b>	<b>Transport Communication, etc.</b>	<b>15.9%</b>
<b>6</b>	<b>Social services and others</b>	<b>16.1%</b>

3. The annual salaries of a group of employees are given in the following table:

<b>Salaries (in Rs.000)</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>
<b>Number of Persons</b>	<b>3</b>	<b>5</b>	<b>8</b>	<b>7</b>	<b>9</b>	<b>7</b>	<b>4</b>	<b>7</b>

Calculate the **Standard deviation** of the salaries.

4. Compute the **Cost of Living Index Number** using Aggregate Expenditure Method & Family Budget Method, from the following information:

<b>Commodity</b>	<b>Units consumed in the Base Year</b>	<b>Price in Base Year</b>	<b>Price in Current Year</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>Wheat</b>	<b>200</b>	<b>1.00</b>	<b>1.20</b>
<b>Rice</b>	<b>50</b>	<b>3.00</b>	<b>3.50</b>
<b>Pulses</b>	<b>50</b>	<b>4.00</b>	<b>5.00</b>
<b>Ghee</b>	<b>20</b>	<b>20.00</b>	<b>30.00</b>
<b>Sugar</b>	<b>40</b>	<b>2.50</b>	<b>5.00</b>
<b>Oil</b>	<b>50</b>	<b>10.00</b>	<b>15.00</b>
<b>Fuel</b>	<b>60</b>	<b>2.00</b>	<b>2.50</b>
<b>Clothing</b>	<b>40</b>	<b>15.00</b>	<b>18.00</b>

5. The following are the annual premiums charged by the Life Insurance Corporation of India for a policy of Rs.1000. Calculate the **Premium payable** at the age of 26.

<b>Age in Years</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>
<b>Premium (Rs).</b>	<b>23</b>	<b>26</b>	<b>30</b>	<b>35</b>	<b>42</b>