MB-16100202010300 Seat No. _____

M. Plan. (Urban & Regio. Planning) (Sem. I) (CBCS) Examination

December – 2017

Planning Techniques

Part - I : Quantitative Research Methods for Planning
Part - II : Remote Sensing & GIS for Planning

Time :   Hours]   [Total Marks :

Part - I : Quantitative Research Methods for Planning

(Part - A)

1   Calculate any two :   **20**

     (1)   Calculate Karl Pearson's co-efficient of correlation :

x :	35	40	42	43	40	53	54	49	51	55
y :	103	107	109	106	102	120	116	146	153	122

     (2)   Estimate the height of a person whose weight is 60 kg. and the weight of a person whose height is 160 cm. from the following data :

$Height\,(cm)$:	165	174	170	162	166	165	168	155	150	180
$Weight\,(kg)$:	64	70	66	65	69	63	66	58	55	73

     (3)   Find $\overline{Y}$ and V($\overline{y}$ st) from the following information :

$$N_1 = 60, \quad \overline{Y}_1 = 8, \quad S_1^2 = 12, \quad n_1 = 10$$

$$N_2 = 30, \quad \overline{Y}_2 = 6, \quad S_2^2 = 10, \quad n_2 = 6$$

$$N_3 = 10, \quad \overline{Y}_3 = 9, \quad S_3^2 = 45, \quad n_3 = 3$$

(4) Calculate Laspeyre's, Paasche's and Fisher's index number from the following data:

Item	Price (Rs.)		Quantity	
	2006	**2016**	**2006**	**2016**
A	40	55	5.5	3.2
B	70	60	8.8	5.4
C	55	85	12.1	10.5
D	90	125	20.2	15.6
E	120	150	15.3	18.9

(5) Below are given the figures of the profit (in '000 rupees) of certain shop :

Year	1987	1988	1989	1990	1991	1992	1993
Profit	60	72	75	65	80	85	95

Fit a straight line trend by the method of least squares and estimate the profit for 1997.

(Part - B)

2 Multiple Choice Questions : (Any **Twenty**)   20
   (1) Probability always lies between _____
       (A) −1 to a   (B) 0 to +1
       (C) −1 to +1   (D) None

   (2) When event A occurs, but event B does not occur then it is denoted by _____
       (A) $A' \cap B'$ (B) $A' \cap B$
       (C) $A \cup B$ (D) $A \cap B'$

   (3) In which method of sampling each member of the population has equal chance of being selected in the sample ?
       (A) Stratified Random Sampling
       (B) Systematic Sampling
       (C) Simple Random Sampling
       (D) Two-stage Random Sample

(4) The population of all the employees of an office is _____.
   (A) Real   (B) Imaginary
   (C) Finite   (D) Infinite

(5) In the Hypothesis Testing, if table value is higher than calculated value then null hypothesis is _____.
   (A) Accepted   (B) Rejected
   (C) Partial rejected (D) Partial accepted

(6) The hypothesis may be true but it is rejected by the test then _____ occured.
   (A) Type I error   (B) Type II error
   (C) No error   (D) None of these

(7) Primary data can be collected through _____
   (A) Personal enquiry (B) Experiments
   (C) Mailed enquiry   (D) All of the above

(8) Purpose of classification of data is _____
   (A) To highlight the salient features
   (B) To condense the data
   (C) To prepare a basis for tabulation
   (D) All of the above

(9) A cumulative frequency curve is called _____
   (A) Pic-chart   (B) Ogive curve
   (C) Frequency curve   (D) Frequency polygon

(10) The correlation co-efficient being +1. If the slope of the straight line in a scatter diagram is _____
   (A) Positive   (B) Negative
   (C) Zero   (D) None

(11) The value of r is always lies between _____
   (A) −1 to 0   (B) −1 to +1
   (C) $-\infty$ to $+\infty$ (D) 0 to +1

(12) bxy is called regression co-efficient of _____
    (A) x on y   (B) y on x
    (C) Both   (D) None

(13) Both regression co-efficient are _____
    (A) Independent of change of origin and scale
    (B) Independent of change of scale and not of origin
    (C) Independent of change of origin and not of scale
    (D) None

(14) If the given information indicates a linear trend, then the trend can be represented by a function _____
    (A) $\sum y = na + b \sum x$ (B) $y = a + bx$
    (C) $y = a + bx + cx^2$ (D) $\sum xy = a \sum x + b \sum x^2$

(15) For a straight line, a = 6.25, b = 1.25 and if value of x is 11, then value of y = _____
    (A) 20   (B) 22
    (C) 6.25   (D) 1.25

(16) Chain base method of index number can be calculated by _____

    (A) $\dfrac{\text{Price of current year}}{\text{Price of preceding year}} \times 100$

    (B) $\dfrac{\text{Price of Current year}}{\text{Price of Base year}} \times 100$

    (C) $\dfrac{\text{Price of Base year}}{\text{Price of preceding year}} \times 100$

    (D) None of the above

(17) Index number is used for _____
    (A) Whole sale price
    (B) Import-export
    (C) Agriculture production
    (D) All of the above

(18) If objective function of company is $Z_{max} = 80x + 120y$ then which level of production can maximize profit ?
(A) (3, 6)   (B) (2, 3)
(C) (6, 3)   (D) (2, 6)

(19) If objective functions of company is $Z_{min} = 3x + 5y$, then which level of production can minimize cost ?
(A) (3, 2)   (B) (4, 2)
(C) (4, 6)   (D) (5, 3)

(20) In input-output analysis xij represents _____ .
(A) The amount used by i^{th} industry from the production of jth industry
(B) The amount used by j^{th} industry from the production of ith industry
(C) The amount sold by i^{th} industry from the production of jth industry
(D) None of the above

(21) Which index number is said as ideal index number ?
(A) Laspeyer's Index number
(B) Paasche's Index number
(C) Fisher's Index number
(D) None of the above

(22) For input-output analysis assumptions are _____
(A) Industry produces only one thing
(B) Industry uses the production of other industries as its raw material
(C) The input-output of industries can be measured in monetary terms
(D) None of the above

(23) Secondary data can be collected from _____
(A) Census reports
(B) Discussion with people
(C) General observation
(D) Measuring instruments

(24) Which of the following is not a include qualitative sample?

(A) Qualification (B) Religion

(C) Beauty (D) Marks of the student

(25) Find odd one.

(A) Bar diagram (B) Pie diagram

(C) Histogram (D) Cumulative frequency

(26) Which of the following is not a characteristics of hypothesis ?

(A) It should be clear and precise

(B) It state relationship between variables

(C) It should be limited in scope

(D) None of the above

(27) If value of bxy = 0.4 and byx = 2.5, then value of r = ?

(A) +1 (B) −1

(C) 0 (D) None

(28) Which formula can be used to calculate Fisher's Index Number ?

(A) $\sqrt{\dfrac{\sum p_1 q_1}{\sum p_0 q_1}}$ (B) $\sqrt{\dfrac{\sum p_1 q_0}{\sum p_0 q_0}}$

(C) $\sqrt{\dfrac{\sum p_1 q_0}{\sum p_0 q_0} \times \dfrac{\sum p_1 q_1}{\sum p_0 q_1}} \times 100$ (D) None

(29) A bag contains 4 white and 3 black balls. What is the probability of drawing a white ball from it?

(A) $3/7$ (B) $5/7$

(C) $4/7$ (D) 1

(30) Type II error occurs when _____

(A) The hypothesis true but it is rejected by the test

(B) The hypothesis false but it is accepted by the test

(C) The hypothesis true but it is accepted by the test

(D) The hypothesis false but it is rejected by the test

Part - II : Remote Sensing & GIS for Planning

Instructions : (1) Attempt all questions

(2) Draw neat sketches whenever necessary

(3) Figure to right indicate full marks

(4) Assume suitable data if necessary.

1 Explain various components of Remote Sensing. What are **10**
the different types of Remote Sensing and how they are
used?

2 What is GIS ? State and explain the components of GIS. **10**
Explain various applications of it.

3 Attempt any four : **40**

(A) Explain importance of map projection. What are the
different projection systems? Explain any one of them.

(B) Explain Geospatial Data and Attribute Data. How they
are linked using GIS ?

(C) What are the elements of raster data model ? What
are the advantages of using a raster data model ?

(D) What is spatial query ? What kind of spatial query we
can ask using GIS?

(E) What is overlay operation ? Give examples of different
overlay operations.

(F) What are Web Map Service (WMS) and Web Features
Services (WFS) ? Explain their usefulness in building
a GIS model.

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