

**Std XII Science/Commerce 2010-11
Past Term End Papers**

STATISTICS - I

A Question numbers 1 to 5 carry 1 mark each [5]

1. When any authorized organization or investigator collects the data for the first time himself it is called _____ .
2. When the variable characteristics associated with a sample is qualitative, the characteristics is called _____ .
3. Class length = _____ - _____ .
4. In order to draw a circle diagram we take the _____ of the volume of data expressed in number for each unit as the radius of the circle.
5. The mean of 5 observations is 62.5. If 5 is added to each observation and the result is divided by 2, the new mean is _____ .

B Question numbers 6 to 11 carry 1 mark each [6]

6. State two limitations of the method of indirect inquiry.
7. Give two points of difference between discrete and continuous frequency distribution.
8. What is manifold classification ?
9. Which type of graph is best suited to represent statistics regarding production and sales, birth rates and death rates?
10. State two characteristics of an ideal measure of central tendency?
11. If the mean of the observation is calculated to be 13, taking the assumed mean as 13, then the sum of the deviations from assumed mean is _____ .

C. Question numbers 12 to 16 carry 2 marks each [10]

12. Write a short note on population inquiry.
13. Prepare an original frequency distribution from the following cumulative frequency distribution.

More than	25	30	35	40	45	50	55	60	65
c.f.	100	96	87	70	45	25	14	6	1
14. The mean of the observation $x_1, x_2, x_3, x_4, 8, 7, 6, 4, 3, 2$, is 7. If the mean of x_1, x_2, x_3 and x_4 is m , find the value of m .
15. Find the mean of the following distribution by the method of cumulative frequency. 10, 12, 13, 15
16. You are a member of an NGO and you are conducting a survey regarding the extent of awareness of aids in the city. Frame four questions you would like to in your questionnaire for this purpose.

D. Question numbers 17 to 21 carry 3 marks each. [15]

17. Write a short note on Importance of graphs and diagrams.
18. The daily consumption of cotton by textile mills of a city are shown in the form of frequency distribution as follows. Find the daily consumption of cotton in bushels per mill.

consumption of cotton (in 1000 bushels)	1	2	3-15	15-25	25-35	35-55
No. of mills	10	8	18	12	40	12

19. Explain the sources of secondary data.
20. In a sample study about the study habits in two towns- Agra and Jaipur, following data were observed.

Agra	52% were males
	25% were coffee drinkers
	16% male coffee drinkers
Jaipur	55% were males
	28% were coffee drinkers
	18% were male coffee drinkers.

 Tabulate the above observations.

21. Draw the histogram of the following frequency distribution.

Class	0-5	5-15	15-30	30-50	50-60
Frequency	8	24	42	32	8

E. Question number 22 carries 4 marks

[4]

22. The following data give the annual expenditure (in Rs) on different categories of two families A and B. Draw the pie diagram for the data.

Category	Expenditure (in Rs)	
	Family A	Family B
Food	40,000	50,000
Rent	25,000	30,000
Clothing	10,000	20,000
Education	10,000	32,000
Savings	5,000	28,000
Total	90,000	1,60,000

F. Question numbers 23 and 24 carry 5 marks each

[10]

23. In a survey of 24 employees of a municipal transport service relating to their age (in years) and daily pocket expense (in Rs) the following bivariate data are obtained. Prepare a bivariate frequency distribution of the data.

Age	26	53	42	37	33	29	48	52	37	41	56	32	50	54	40	48
Expense	40	20	10	30	20	40	20	10	30	40	20	30	20	10	30	10
Age	27	46	42	26	28	40	44	50								
Expense	40	30	30	50	40	30	20	20								

24. The mean of the following frequency distribution of 125 observations is 22.12.

Find the missing frequencies.

Class	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44
Freq	3	8	12	?	35	21	?	6	2

STATISTICS - II**SECTION A**

A Question numbers 1 to 10 are multiple choice questions carrying 1 mark each. [10]

- If the total number of random number of size 2 drawn from a population of N units without replacement is 45 then, find the size of the population.
a. 45 b. 15 c. 12 d. 10
- For two perfectly correlated variable $b_{xy} = 5$, hence $b_{yx} = \underline{\hspace{2cm}}$.
a. 0.2 b. -0.2 c. 5 d. 1
- If $r = -1$, then which equation will be shown for finding the unknown variable x when the value of the variable y is given ?
a. $a + bx$ ($a > 0$) b. $a + bx$ ($a < 0$) c. $a + bx$ ($a = 0$) d. $a + bx$
- U and ϕ are _____ events of each other.
a. Complementary b. Primary c. Exhaustive d. Independent
- Which type of population are 'the students of graduate level of Gujarat University' ?
a. Hypothetical b. Real c. Finite d. Infinite
- If the increase in production of an item for the year 2002 is $13/4$ times that of the base year. Find the index number for the year 2002.
a. 325 b. 425 c. 525 d. 625
- In which method of index number does the base year change every year ?
a. Chain base method b. Fishers' index number
c. Total expenditure method d. Fixed base method
- If A & B are two independent events and $P(A) = 1/3$, $P(B) = 3/5$, then $P(A \cup B) = \underline{\hspace{2cm}}$.
a. $1/5$ b. $-2/5$ c. $11/15$ d/ $3/15$
- Who developed least square method for regression line ?
a. Karl Pearson b. Charles Spearman c. Francis Galton d. C. F. Gauss
- Give the interval of coefficient of determination.
a. $-1 \leq R^2 \leq 1$ b. $-1 \leq R^2 \leq 0$ c. $1 \geq R^2 \geq 0$ d. $1 > R^2 > 0$

SECTION B

B Question numbers 11 to 20 carry 1 mark each [10]

- What is explicit weight ?
- Why is index number called the barometer of the economic activity of a country ?
- What is sample estimation ?
- If A and B are mutually exclusive and exhaustive events, find $P(A \cup B)$ & $P(A \cap B)$.
- State the limitation of scatter diagram.
- When is rank correlation useful ?
- State the parameters of a population data.
- Define an event.
- Define regression coefficient.
- What is the assumption taken into consideration in the study of regression ?

SECTION C

C Question numbers 21 to 32 carry 2 marks each [24]

- The prices of 5 items have changed to 50%, 80%, 110%, 160% & 200% respectively. If the weights of these items are in the proportion of 10 : 6 : 4 : 3 : 2, find the common Price Index Number.
- For an item $\sum p_1 q_0 : \sum p_0 q_0 = 5 : 4$ and $\sum p_1 q_1 = \sum p_0 q_0 = 8 : 5$, then find I_L , I_P and I_F .
- State the points to be considered while determining the size of the sample.
- Select a random sample of size 6 1) with replacement 2) without replacement using the following 10 random numbers. 120, 50, 288, 720, 120, 325, 227, 667, 195, 347.
- If $X = 169\text{cm}$, $Y = 67\text{ kg}$, $S_x = 20\text{ cms}$, $S_y = 3\text{ kg}$ and $r = 0.5$, then find the regression line of X on Y .
- Explain with reasons whether the following statements are true or false.
a. $b_{yx} = 0.05$ $b_{xy} = 24$
b. $b_{yx} = 1.2$ $b_{xy} = 2.1$
c. $b_{yx} = -0.4$ $b_{xy} = 1$

d. $b_{yx} = 0$ $b_{xy} = 1$

27. Let A be any event in a sample space of a random experiment. For the complementary event A' prove that $P(A') = 1 - P(A)$
28. If $P(A) = 0.6$, $P(B) = 0.7$ and $P(A \cup B) = 0.9$, find the probability of difference events $A - B$ and $B - A$.

OR

28. Write the events $A_1 \cup A_2$ and $A_1 \cap A_2$ if the two events A_1 and A_2 of a random experiment are described as given below.
- $A_1 = \{x : 0 < x < 5\}$, $A_2 = \{x : -1 < x < 3, x \text{ is an integer}\}$
 - $A_1 = \{x : x = 0, 1, 2, \dots, 10\}$, $A_2 = \{x : 2 < x < 3\}$
29. If $r = 0.8$, $\Sigma(x - \bar{x})(y - \bar{y}) = 60$, $S_y = 2.5$, $\Sigma(x - \bar{x})^2 = 90$. Find n.
30. Write the characteristics of correlation coefficient.
31. Find the probability of 53 Sundays in a leap year.
32. Information obtained from 16 sample observations of two random variables X and Y is as follows. $\Sigma x = 0$, $\Sigma y = 736$, $\Sigma x^2 = 80$, $\Sigma y^2 = 36299$, $\Sigma xy = 313$
Find the value of $r(x, y)$

SECTION D

D Question numbers 33 to 40 carry 3 marks each [24]

33. Convert the following chain base index numbers of production of a manufacturing industry of a state, into fixed base index numbers taking 2003 as the base year.

Year	2003	2004	2005	2006	2007	2008
Chain base index no.	100	120	160	140	130	150

34. Find the index number for the year 2004 by family budget method from the data of prices and quantity of food items given as under.

Item	1996		2004
	Qty (in kg)	Price (in Rs.)	Price (in Rs)
Wheat	60	5	10
Rice	40	6	18
Bajri	15	4	6
Tuver dal	25	10	30

35. A population of units is divided into two strata of sizes $N_1 = 20$ & $N_2 = 30$ respectively. The observation on the units of a random sample drawn from the first stratum are 20, 30, 50 and 22 and those on the units of a random sample from the second stratum are 100, 104, 105, 110, 111. Using the sample data, find an estimate of the population mean.
36. A random sample of $n = 20$ observation from a population of 400 observations gave the following information. Find the estimate of the total of population observation and its estimated standard deviation.
 $\Sigma y_i = 760$, $\Sigma (y_i - \bar{y}) = 7,600$
37. A box contains 4 red, 3 white and 3 black balls.
- A ball is drawn at random from the box. Find the probability that the ball draw is white.
 - Two balls are drawn at random from the box. Find the probability that the balls drawn are of same colour.
 - Three balls are drawn at random form the box. Find the probability that there is one ball of each colour.
38. 4 couples (husband and wife) attend a party. Two individuals are selected at random from these four couples. Find the probability that the two selected individuals are,
- husband and wife
 - a man and a woman
 - a man and a woman but they are not husband and wife
39. Two judges assign the following ranks to 8 candidates in an elocution competition. Find the rank correlation coefficient between the evaluations of 2 judges.
- | Sr. no. of candidates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------------------|---|---|---|---|---|---|---|---|
| Rank by judge 1 | 4 | 2 | 7 | 1 | 3 | 8 | 6 | 5 |
| Rank by judge 2 | 7 | 1 | 6 | 3 | 2 | 8 | 5 | 4 |
40. For two variables X and Y where $u = (x - 45)$ and $v = (y - 110)$, find b_{yx} , b_{xy} & r^2
 $n = 10$, $\Sigma u = 6$, $\Sigma v = 7$, $\Sigma u^2 = 40$, $\Sigma v^2 = 25$, $\Sigma uv = 30$

SECTION E**E Question numbers 41 to 43 carry 4 marks each. [12]**

41. A transport company dealing with transport goods conducts a sample survey to study the relationship between time of usage of vehicle (truck) and cost of maintenance incurred on them. The data collected from the inquiry are given in the following table.

Time of usage of vehicles (in years)	5	3	3	2	1	2
Annual cost of maintenance (in 10,000 Rs.)	13	10	8	7	5	8

1. Draw a scatter diagram of the data and the regression line of Y on X
 2. If the actual regression line of Y on X is $\hat{y} = 3.35 + 1.93x$ then estimate the value of y when $x = 4$
42. State with reasons whether the following statements are true or false.
1. In computations of rank correlation coefficient if $\Sigma d^2 = 0$ then the rank correlation coefficient is perfect and negative.
 2. If the correlation coefficient between two variables is zero then there is no relation between them.
 3. If the correlation between X and Y is $r = \frac{1}{2}$, the correlation coefficient between 2X and Y is 1.
 4. If 10 observations on two variables X and Y are the permutations of the integers $\{ 1, 2, 3, \dots, 10 \}$ then Karl Pearson's correlation coefficient and Spearman's rank correlation coefficient are equal.
43. a. Write the law of addition of probability of two events
1. when the events are exclusive
 2. when the events are not exclusive
- b. Write the law of multiplication of probability of two events
1. when the events are independent
 2. when the events are not independent

SECTION F**F Question numbers from 44 to 48 carry 5 marks each. [20]**

44. Find
- I_L
- ,
- I_P
- &
- I_F

Item	2005		2003	
	Price	Expenditure	Expenditure	Price
A	8	160	50	5
B	22	110	60	20
C	15	150	80	10
D	50	1,500	500	25
E	300	1,800	1,000	200

45. Calculate correlation coefficient between income and expenditure
- | | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Income | 5,000 | 6,500 | 6,800 | 7,000 | 7,100 | 7,300 | 7,500 | 8,000 |
| Expenditure | 4,000 | 5,500 | 6,000 | 6,000 | 6,500 | 7,000 | 7,000 | 7,500 |
46. The data on age and weight of children randomly selected from participating in a race are given below. Fit the regression line of X on Y and find the value of and compute the coefficient of determination and verify whether the assumption of linearity of regression between the age and weight of children is appropriate or not.
- | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|
| Age (in years) | 8 | 6 | 8 | 5 | 7 | 6 | 9 | 7 |
| Weight (in kg) | 20 | 16 | 18 | 14 | 14 | 10 | 15 | 15 |
47. A random sample of 1000 families is drawn from a population of 10000 families of a city. The sample inquiry of families about the number of children yielded the following result
- | | | | | | | |
|-----------------|-----|-----|-----|----|----|----|
| No. of children | 0 | 1 | 2 | 3 | 4 | 5 |
| No. of families | 510 | 230 | 160 | 60 | 30 | 10 |
- From the sample data find the estimate of the total number of children in the city and estimate its standard deviation.

STATISTICS - III**SECTION A****Question numbers 1 to 10 carry 1 mark each**

1. _____ index Number is used to determine the pay scale, dearness allowance, bonus of the employees.
 - a. wholesale index number
 - b. industrial production index number
 - c. employment index number
 - d. cost of living index number
2. Which is the scientific method of selecting simple random sample?
 - a. rank method
 - b. lottery method
 - c. method of random numbers
 - d. first come first serve method
3. If $r = 0.2$, what will be r between $-2x$ and $4y$.
 - a. 0.2
 - b. -0.2
 - c. 0.4
 - d. 0.8
4. The correlation coefficient is _____ mean of regression coefficient.
 - a. arithmetic mean
 - b. simple average
 - c. harmonic mean
 - d. geometric mean
5. Which of the following result is true in case of probability of two mutually exclusive but not exhaustive events A and B.
 - a. $P(A \cup B) = 0$
 - b. $P(A \cap B) = 0$
 - c. $P(A \cap B) = 1$
 - d. $P(A \cup B) = 1$
6. What is the standard deviation of a binomial probability distribution?
 - a. npq
 - b. np
 - c. $(npq)^2$
 - d. \sqrt{npq}
7. What is the area of the region under normal curve bound by vertical lines $\mu \pm 3\sigma$?
 - a. 0.6826
 - b. 0.9500
 - c. 0.9545
 - d. 0.9973
8. Write the other name of trend.
 - a. long term fluctuatins
 - b. seasonal fluctuations
 - c. cyclical fluctuation
 - d. random fluctuations
9. The n^{th} term of a geometric progression ar, ar^2, ar^3, \dots is _____.
 - a. $a r^{n-1}$
 - b. $a r^n$
 - c. $a r^{n+1}$
 - d. $\frac{a[r^n - 1]}{r - 1}$
10. Δy_0 means _____.
 - a. $y - y_0$
 - b. $y_0 - y_1$
 - c. $y_1 - y_0$
 - d. $y_2 - y_1$

SECTION B**Question numbers 11 to 20 carry 1 mark each.**

11. State the methods of assigning explicit weight.
12. Which tables of random numbers are most commonly used? When were they prepared?
13. Give two examples of variables, between which there exist a negative correlation?
14. The regression lines of Y on X and X on Y obtained from a bivariate data are $y = 58 + 0.08x$ and $x = -99 + 2.5y$ respectively. Find the correlation coefficient between x and y.
15. Arrange the probabilities $P(A)$, $P(A \cup B)$, $P(A \cap B)$, $P(A) + P(B)$ in decreasing order of magnitude.
16. If $p < \frac{1}{2}$, state the type of skewness.
17. If $P(Z \leq 1 + C) = 0.5$, find the value of constant C.
18. Write the equation of finding the value of 'a' and 'b' by least square method of time series.
19. For a geometric progression $T_1^2 = T_2$ and $T_3 = 27$ find T_2
20. State the Newton's formula of linear interpolation.

SECTION C**Question numbers 21 to 32 carry 2 marks each**

21. The price of an item in the year 2005 has increased to Rs. 1140 from the price of Rs. 570 in 2000. Find the price index of the item and point out the percentage increase or decrease in the price of the item.
22. State the characteristics of a good sample.
23. $S_x = 2.50$, $S_y = 20$, $r = 0.60$ Find the covariance
24. State the properties of regression coefficient.
25. A box contains 3 coins each of Re 1, Rs 2 and Rs 5. Write the sample space of the experiment of drawing two coins from the box.
26. A and B are independent events and $P(A) = 0.32$, $P(B) = 0.75$.
Find (i) $P(A \cup B)$ (ii) $P(A' \cap B')$

OR

26. If three coins are thrown simultaneously, find the probability of getting two heads and one tail.
27. For a binomial distribution with $n = 3$ and $p = 0.4$, it is given that $P(0) = 0.216$.

- Using recurrence formula for the binomial distribution, find $P(1)$ & $P(2)$.
28. Two slips are drawn at random from 5 different slips numbered 1 to 5. Find the probability distribution of the sum obtained on the two slips.
29. Mr. A plays a game and his probability to win the game is 0.6. Find the probability that he wins 2 games out of 3 games. OR
29. State the properties of a binomial distribution.
30. Write the probability density function of a normal distribution with notations.
31. The following information is available on the variable quantity y_t of the time series for the first 9 months.
 $n = 9, \Sigma y_t = 118, \Sigma t^2 = 285, \Sigma ty_t = 710.4$
 Fit the trend line to the time series data.
32. For geometric progression it is given that $S_n = 1.24, a = 1$ and $r = 0.2$. Find n .

SECTION D

Question numbers 33 to 40 carry 3 marks each.

33. Exports (in lakh Rs)

Item	1998	1999	2000	2001
A	20	23	25	32
B	10	15	18	27
C	25	32	40	56

Compute general index number for export from the data by fixed base method taking 1998 as the base year.

34. The results of a sample inquiry are given below

Stratum	Stratum size	Sample size	Sample mean	Sample variance
A	150	15	240	144
B	250	25	280	81

Find an estimate of population mean and its estimated variance.

35. Obtain an estimate of population total and estimated variance of the estimate of population total from the following data collected by a sample inquiry.

$$N = 1500, n = 200, \bar{y} = 500, \Sigma (y_i - \bar{y})^2 = 39800$$

36. Find the rank correlation coefficient

X	1.5	2.5	0.5	2.0	1.5	2.0	1.0
Y	3	5	2	5	4	6	6

37. Explain the meaning of regression with its uses.

OR

37. Recognise the independent and the dependent variable from the following pairs

- consumption of electricity and its bill
- number of vehicles and number of accidents
- use of fertilizers and yield of crops
- price of milk and price of tea
- consumption and price
- sales and profit

38. If $P(A) = 1/3, P(B) = 3/4$ and $P(A \cup B) = 11/12$. Find $P(A/B)$ and $P(B/A)$

39. There are 2 white and 3 red balls in one box and 2 red and 4 black balls in another box. A box is selected at random and a ball is drawn at random from it. Find the probability that the ball drawn is red.

40. State the assumption underlying the theory of interpolation and extrapolation.

SECTION E

Question numbers 41 to 43 carry 4 marks each

41. The mean and standard deviation of a normal distribution are 12 and 3 respectively. Find the range of 60% of the observation located in the middle of the distribution.

OR

41. The marks obtained by 10000 students who appeared in a talent search test of 70 marks are normally distributed with mean and standard deviation 30 and 10 marks respectively. Find the estimated number of students who get less than 25 marks. If students who get more than 45 marks are to be awarded scholarship for higher studies, find the number of students who will get scholarship.

42. The sale y_t (in '000 Rs.) in a readymade garment store for the day of the week is as follows

$$y_t = 125, t = 1, 3, 5, 7$$

$$y_t = 200, t = 2, 4, 6$$

Fit the linear trend line to the data.

43. A sum of Rs. 150 is to be distributed among 4 persons A, B, C and D in such a way

that the amounts received by them are in geometric progression. Person A receives the least amount and D gets the most. If the sum of the amount received by A and D is 90 find the amount received by B.

OR

43. Find the maximum value of n such that the sum S_n of the first n natural numbers of G.P 2, 4, 8, 16 does not exceed 4094.

SECTION F

Question numbers 44 to 47 carry 5 marks each

44. Find the index number for the group from the following

Item	Price		Quantity
	2004	2007	2004
Wheat	1.5	2.1	15
Rice	1.9	2.6	5
Bajra	2.0	2.8	5
Dal	2.0	4.0	4
Oil	3.5	4.9	3
Sugar	8.0	10.0	2

45. Find Karl Pearson's coefficient of correlation.

Price	171	185	195	201	212	212	230	241	253	256
Stock	207	225	228	231	232	236	252	269	258	258

46. Obtain the regression line of y on x and estimate y if $x = 3$, also at this time find the error of approximation.

X	5	4	3	2	1	2
Y	13	10	8	7	5	8

47. The information regarding the price per kg and the quantity of supply of an item is given in the following table. Find the unknown quantity of supply by the method of Binomial Expansion.

Price per kg (in Rs.)		10	15	20	25	30	35
Quantity of supply (in '000kg)		2	5	—	20	30	32

OR

47. From the data given below obtain the estimate of y for $x = 2$ and $x = 4$ by Langrange's method.

X	0	1	3
Y	5	9	35

ECONOMICS-I**A Question numbers 1 to 10 are multiple choices questions carrying 1 mark each [10]**

1. The knowledge of which of the following subjects is useful to understand the analysis of economics.
a. chemistry b. physics c. geometry d. history
2. Who presented the physical quality of life index ?
a. Davis Morris b. United Nations Development Program
c. Marshall d. Pascal and Fernet
3. With what income less than given below, a country is called a developing country?
a. 735 \$ b. 375 \$ c. 745 \$ d. 537 \$
4. When was the RBI established?
a. 1955 b. 1935 c. 1953 d. 1945
5. In India the first oil fields were found in _____.
a. Gujarat b. Maharashtra c. Assam d. Bihar
6. The transportation of gas is taken care by the _____.
a. Airport Authority of India b. Gas Authority of India
c. Indian Oil Corporation d. Both b and c
7. What was the percentage rate of inflation during the planning period in total?
a. 4 to 5 b. 7 to 9 c. 6 to 7 d. 8 to 9
8. When was the first planning commission created?
a. 1947 b. 1952 c. 1950 d. 1951
9. What are economic decisions based on market systems known as?
a. globalization b. liberalization c. privatization d. disinvestment
10. To what extent the total population of India increased during the decade 1901 to 1951 A D?
a. one b. one and half c. three d. three and half

B Question numbers 11 to 20 carry 1 mark each [10]

11. Give the full form of CSO.
12. How are graphs and figures useful in economics ?
13. The contribution of which sector decreases with economic development?
14. Where and when did the industrial revolution take place?
15. By whom are the ports of India managed?
16. What is meant by a capitalist economy?
17. What do you mean by money order economy?
18. Why did India have to undertake economic reforms in 1991?
19. Why has populations been termed as the 'black night enemy'?
20. Why has the year 1921 termed as the year of great divide?

C Question numbers 21 to 34 carry 2 marks each [28]

21. What is comparative study? Explain its types.
22. What is the importance of statistical data in deciding the size of economics event?
23. 'Rich India is inhabited by poor people'. Explain this statement.
24. Though India is an agricultural country its contribution towards the national income is less. Explain.
25. What is Green Revolution . Explain
26. What is included in the secondary sector in the occupational structure?
27. What is infrastructure? State the types of infrastructure.
28. How much percentage of National Income is spent on education? At what level of education more money is spent?
29. What is the difference between self dependence and self reliance?
30. Why did India select to adopt economic planning after independence?
31. Explain the main objectives of privatization in India
32. What were the restriction imposed on the private sector before the introduction of economic reforms 1991?
33. Explain the stages of demographic transition.
34. State the objectives of population policy framed under Dr. M. S. Swaminathan.

D Question numbers 35 to 43 carry 3 marks each [27]

35. What are the points to be remembered while presenting the statistical data through graphs and diagrams ?

36. Explain the Human Development Index as an indicator of economic development.
37. Explain 'Agricultural sector before independence.'
38. Explain the changes that took place in the industrial sector during the planning period.
39. Explain the importance of economics infrastructure.
40. Describe the different modes of communications.
41. What is globalization? To what extent India was benefited due to this reform?
42. Explain any 3 limitations of planning.
43. Explain any three measures of population control.

E Question numbers 44 to 49 carry 5 marks each [25]

44. Present the following data in collateral bar diagram and analyse it.

Year	Estimate poverty in India (%)	
	Rural	Urban
1987-88	39.1%	38.2%
1993-94	37.3%	32.4%
1999-00	27.1%	23.6%

45. India is a developing country. Explain this statement with reference to characteristics of a developing country.
46. What do you mean by planning? Discuss the main objectives of planning?
47. Explain the meaning of Direct Foreign Capital Investment and evaluate the policy of Indian Government regarding the Direct Foreign Capital Investment.
48. Explain the causes of high birth rate in India.

ECONOMICS-II**Question numbers 1 to 10 are multiple choices questions carrying 1 mark each [10]**

1. The knowledge of which of the following subjects is useful to understand the analysis of economics.
a. chemistry b. physics c. geometry d. history
2. Who presented the physical quality of life index ?
a. Davis Morris b. United Nations Development Programme
c. Marshall d. Pascal and Fermet
3. With what income less than given below, a country is called a developing country?
a. 735 \$ b. 375 \$ c. 745 \$ d. 537 \$
4. When was the RBI established?
a. 1955 b. 1935 c. 1953 d. 1945
5. In India the first oil fields were found in _____.
a. Gujarat b. Maharashtra c. Assam d. Bihar
6. The transportation of gas is taken care by the _____.
a. Airport Authority of India b. Gas Authority of India
c. Indian Oil Corporation d. Both b and c
7. What was the percentage rate of inflation during the planning period in total?
a. 4 to 5 b. 7 to 9 c. 6 to 7 d. 8 to 9
8. When was the first planning commission created?
a. 1947 b. 1952 c. 1950 d. 1951
9. What are economic decisions based on market systems known as?
a. globalization b. liberalization c. privatization d. disinvestment
10. To what extent the total population of India increased during the decade 1901 to 1951 A D?
a. one b. one and half c. three d. three and half

B Question numbers 11 to 20 carry 1 mark each [10]

11. Give the full form of CSO.
12. How are graphs and figures useful in economics ?
13. The contribution of which sector decreases with economic development?
14. Where and when did the industrial revolution take place?
15. By whom are the ports of India managed?
16. What is meant by a capitalist economy?
17. What do you mean by money order economy?
18. Why did India have to undertake economic reforms in 1991?
19. Why has populations been termed as the 'black night enemy'?
20. Why has the year 1921 termed as the year of great divide?

C Question numbers 21 to 34 carry 2 marks each [28]

21. What is comparative study? Explain its types.
22. What is the importance of statistical data in deciding the size of economics event?
23. 'Rich India is inhabited by poor people'. Explain this statement.
24. Though India is an agricultural country its contribution towards the national income is less. Explain.
25. What is Green Revolution . Explain
26. What is included in the secondary sector in the occupational structure?
27. What is infrastructure? State the types of infrastructure.
28. How much percentage of National Income is spent on education? At what level of education more money is spent?
29. What is the difference between self dependence and self reliance?
30. Why did India select to adopt economic planning after independence?
31. Explain the main objectives of privatization in India
32. What were the restriction imposed on the private sector before the introduction of economic reforms 1991?
33. Explain the stages of demographic transition.
34. State the objectives of population policy framed under Dr. M. S. Swaminathan.

D Question numbers 35 to 43 carry 3 marks each [27]

35. What are the points to be remembered while presenting the statistical data through graphs and diagrams ?
36. Explain the Human Development Index as an indicator of economic development.

37. Explain 'Agricultural sector before independence.'
38. Explain the changes that took place in the industrial sector during the planning period.
39. Explain the importance of economics infrastructure.
40. Describe the different modes of communications.
41. What is globalization? To what extent India was benefited due to this reform?
42. Explain any 3 limitations of planning.
43. Explain any three measures of population control.

E Question numbers 44 to 49 carry 5 marks each [25]

44. Present the following data in collateral bar diagram and analyse it.

Year	Estimate poverty in India (%)	
	Rural	Urban
1987-88	39.1%	38.2%
1993-94	37.3%	32.4%
1999-00	27.1%	23.6%

45. India is a developing country. Explain this statement with reference to characteristics of a developing country.
 46. What do you mean by planning? Discuss the main objectives of planning?
 47. Explain the meaning of Direct Foreign Capital Investment and evaluate the policy of Indian Government regarding the Direct Foreign Capital Investment.
 48. Explain the causes of high birth rate in India.
-

ECONOMICS-III**SECTION A****A. Question numbers 1 to 10 are multiple choice questions carrying 1 mark each. [10]**

1. Which of the following sciences is Economics ?
a) monetary b) social c) physical d) modern
2. In which indicator of Economic development is per capita income, knowledge and health included ?
a) national income b) per capita income
c) physical quality of life index d) human development index
3. What is the most essential requirement for human development.
a) primary education b) higher education c) secondary education d) literacy
4. What are economic decisions based on market systems known ?
a) Globalisation b) liberalisation c) privatization d) disinvestment
5. What was the population growth rate in India in 2001 ?
a) 2.1% b) 1.9% c) 1.8% d) 1.6%
6. Which type of unemployment is mainly found in developed countries ?
a) disguised b) seasonal c) educated d) cyclical
7. In which of the following countries given below urban population is around 70% to 75% .
a) India b) China c) USA d) Indonesia
8. Farmers having 4 to 10 hectares of land are classified as _____ farmers.
a) marginal b) small c) medium d) big
9. Working population means population in the age group
a) 12 – 45 years b) 15 – 60 years c) 15 – 45 years d) 25 – 50 years
10. In which city was the first global meet for environmental problem held ?
a) Rio-De-Janero b) Stockholm c) Johanesberg d) New York

SECTION B**B. Question numbers 11 to 20 carry 1 mark each [10]**

11. What are the hurdles in the development of waterways.
12. What do you mean by buffer stock ?
13. Explain the importance of infrastructure in the development of agricultural sector.
14. Why is it not possible to utilize the non traditional source of energy fully.
15. At present which five year plan is in operation in India ? What growth in national income is aimed at ?
16. Which subject helps in analysis of data related to economics ?
17. Which year is called the year of great divide ?
18. In 1947, what was the share of industries in employment and national income in India ?
19. What is industrial unemployment ?
20. State two push base factors of urbanization ?

SECTION C**C. Question number 21 to 34 carry 2 marks each [28]**

21. What is the difference between economic growth and economic development ?
22. After the economic reforms, how many units are left with the public sector? Which are they?
23. National income is not considered to be an accurate measure for economic development. Explain.
24. What is outward looking policy ? Explain
25. Explain the stage of population explosion.
26. What do you understand by Green National Income ? Explain.
27. Explain two main factors for urbanization in India.
28. Why has the problem of educated unemployment increased in India ?
29. The marginal farmers of India are “born in debt, live in debt and die in debt.” Explain this statement.
30. Give two points of difference between Institutional changes and Technological changes.
31. There is inequality in the distribution of income in India. Explain.
32. What is Green Revolution ? In which main crops green revolution was seen in India ?
33. What is included in the qualitative changes in the industrial sector ?
34. What are the main forms of telecommunication ?

SECTION D**D. Question numbers 35 to 43 carry 3 marks each [27]**

35. Explain : The evaluation of effects of economic reforms in India.
36. What is the situation of social infrastructure in our country since independence.
37. What are the problems faced by large and medium scale industries in India.

38. What is the importance of statistical data in relation to economic problems ?
39. Describe the general measures to reduce unemployment.
40. "The effects of population increase on savings, the form of investment and environment are controversial." Discuss the statement
41. Give the difference between absolute poverty and relative poverty.
42. Explain human development post independence era.
43. What is privatization ? Explain with examples.

SECTION E

E. Question numbers 44 to 48 carry 5 marks each.

44. Define planning. Give the limitation of planning in India.
45. Urbanisation policy are the two sides of the same coin. Explain
46. Industrialisation is important for economic development. Explain.
47. Explain the main components of environment policy.
48. Present the following information regarding the percentage of poverty in the rural and urban areas in India in a diagram and analyse it.

Year	Rural area	Urban area
1973-74	56.4	49.0
1987-88	39.1	38.2
1993-94	37.3	32.4
1999-00	27.1	23.6

36. Explain three occupational structure of the economy.
37. Sustainable development is more theoretical but an important concept. Explain
38. Write a note on different health centres opened in rural areas by the government as a part of social infrastructure.
39. What is liberalization? What are its effects in the Indian economy?
40. Discuss National Security Help as a programme to reduce poverty?
41. Explain the reasons of low death rate in India?
42. Distinguish between unemployment in developed and a developing countries.
43. Explain the classification of Industries on the basis on ownership.

SECTION E

Question numbers 44 to 48 carry 5 marks each

[25]

44. Explain the achievements of Indian Planning.
45. How does urbanization take place? Discuss the positive and negative effects of urbanization.
46. Analyse the main problem of Indian Agriculture.
47. Discuss the importance of industries in the Indian Economy.
48. The following is the area under cultivation with improved seeds in percentage. Draw a bar diagram for the data given and analyse it.

Crops	1980-81	1997-98
Wheat	72	86
Rice	45	74
Maize	26	57

ENGLISH- II**Section : A : Textual Prose**

I. Select the correct alternative and rewrite the complete sentence:- [3]

1. The police checked Ladhu's bag to see if
 - a. he had stolen any jewellery.
 - b. he was hiding a high-caste child in it.
 - c. he was stealing grains from the farm.
2. Mr. Acharya feels that there is no need to be gruff and rude while saying 'no'. An _____ response is appreciated every time.
 - a. obliging
 - b. honest
 - c. impulsive
3. According to the father, the moth would not get anywhere chasing the stars because...
 - a. it is not what a moth should do.
 - b. the society is not co-operative.
 - c. the lamps are the things for a moth to hang around.

II. Read the following passage carefully and answer the questions given below it:- [5]

The doctor explained to us that the pathogen called *Human Immuno-deficiency Virus* infects persons but does not induce illness for quite sometime. This period can be prolonged by administering a combination of anti-*HIV* drugs. Actually, *AIDS* has no symptoms of its own. *HIV* attacks a person's immune system and weakens it so much so that the patient finds it increasingly difficult to resist the onslaught of diseases like pneumonia and tuberculosis. Such diseases, called *Opportunistic (Opportunistic) Infections (OI)* become life-threatening in spite of therapies especially directed to treat them. Eventually, the patient dies.

Questions:

1. What does HIV stand for? Can it be diagnosed early? Why?
2. What is the impact of the pathogen on the immune system?
3. Find words from the passage which means the same as –'treatment intended to relieve or heal a physical illness' and fierce attack'.
4. Give adjectives of : 'virus' , 'system'.
5. Use 'onslaught' in a sentence of your own.

III. Answer the following in 6-7 sentences:-

[12]

1. "Don't leave your personal diaries lying around". Why does Ruskin Bond say so?
2. Describe Jakhra's tragic end.
3. How did the moth, cope with his failure of not reaching his goal? What was the reaction of the society to this?
4. Describe Drona as a royal elephant.

Section B – Textual Poetry and supplementary Reader

IV. Read the following stanza carefully and answer the questions that follow:-

[2]

How happy is he born and taught
That serveth not another's will;
Whose armour is his honest thought
And simple truth his utmost skill?

Questions:

1. What is the armour of the 'happy man'?
2. What is the secret of happiness of the 'happy man'?

V. Read the following stanza carefully and answer the questions that follow:-

[3]

Turn, turn my wheel ! 'Tis nature's plan
The child should grow into a man,
The man grows wrinkled, old and gray,
In youth the heart exults and sings,
The pulses leap, the feet have wings,
In age the cricket chirps, and brings
The harvest home of day.

Questions:

1. What is nature's plan?
2. How does the poet glorify the youth?
3. Name and explain any one figure of speech from the above lines.

VI. Answer the following in four or six sentences each: -

[6]

1. How can the other senses compensate the blind boy for the loss of sight?
2. Why do you think that the poet does not want to free himself of all fetters?
3. How does Alexander Pope describe a 'happy man'?

VII. Answer the following in seven or eight sentences each:-

[9]

1. What is the tale of the king according to the grandmother in the story 'Scattered Ashes'?
2. What qualities make M.S.Subbulakshmi the 'nightingale of the nation'?
3. Examine the twist in the tale at the end of Saki's story.

Section C – Grammar

VIII. Use the appropriate form of the words given in the brackets and rewrite the sentences:- [5]

1. We _____ [come] to this house in 1975 and _____ [live] here ever since.
2. Many a boy _____ [was/were] present.
3. The boys were _____ about their behaviour. [apology]
4. The man used a _____ to cut the pieces. [chop]
5. The girl who won the beauty contest is proud. She should be _____. [Use the opposite of the underlined word]
6. His _____ is improving. [pronounce]
7. _____ goes hand in hand with order. [Use synonym of 'liberty']
8. The _____ has made wearing of helmets compulsory for the _____ of the people. [govern, safe]

IX. Rewrite the given sentences selecting the appropriate meaning of the idioms / phrases:- [3]

1. He is so thoughtless, every time he opens his mouth, he puts his foot in it. [to kick someone, to make a big blunder, to hurt someone's feelings]
2. The great immigration rush was a long way off. [unreachable, far away, closed down]
3. The efficients are emitted by extraction or manufacturing process of the plastic. [to be surprised, to be saved, to be secreted]

X. Given below is the conversation between Kumar and Rahim. Complete the following, reporting what they discussed :- [4]

Kumar : This food smells good!

Rahim : If you think that it smells good, it means you're hungry.

Kumar : This cafeteria serves good food always. Whenever buses halt here enroute their journey, travelers enjoy some special delicacies.

Rahim : Yes, it is because they use good oil and fresh vegetables.

Kumar : Let's go taste something today.

Kumar remarked.....Rahim told him.....Kumar agreed.....

Enjoyed by allKumar suggested.....

XI. Transform as directed:-

[8]

1. At six in the evening when I walked home it was dark again. [Make Simple]
2. There was little to remind me of India. [Add a Question tag]
3. I will wring out rags in boiling water and lay them on his stomach. [Change Voice]
4. Stars aren't the things to hang around. [Make affirmative]
5. I'm sorry but we can't use your blood. [Make Complex]
6. Ladhu thought of Jakhra's mother who was as rosy and as charming. [Change degree]
7. Jakhra had achieved that difficult feat through the magic power. [Make Negative]
8. On the other hand, not saying 'no' can be too much of a good thing and can actually make you less productive. [Remove 'too']

Section D – Reading

XII. Read the following poem carefully and answer the questions given below:-

[5]

*The voice said, 'We are at War'
 And I was afraid, for I did not know what this meant.
 My sister and I ran to our friends next door
 As if they could help. History was lessons learnt
 With ancient dates, but here
 Was something utterly new,
 The radio called the wireless then, has said
 That the country would have to be brave.
 There was much to do.*

Questions:

1. What frightened the poet?
2. Why did she and her sister go next door?
3. How did they know of the war 'then'?
4. 'History was lessons learnt, with ancient dates, but here was something utterly new.'
Why does the poet say thus?
5. What is the message that the poet wishes to convey?

XIII. Read the following extract carefully and answer the questions given below:- [5]

He pressed onwards all alone till he reached the regions covered with perpetual snow. There by day it was burning hot and at night it was freezing cold. Going still further he found on a plateau, covered with solid ice, a man crying in agony as blood dripped down his body; for a toothed iron disc was whirling round his head saving through the bones of his skull. It was a most painful sight. The scholar hastened to this man and said, "What is the meaning, Sir, of the ordeal you are suffering? Is there anything I can do for you? Please tell me."

At this the man started laughing, while the toothed iron disc left his head to settle on the scholar's head. "Now", he said mockingly, "Now you know the answer. Once I came here, dear scholar, with a quill in my hand and found another man in this very plight. And the moment I asked him what he was doing in this God-forsaken place, his disc settled on my head. You wait here till another quill-carrying fortune seeker turns up."

Questions:

1. Where did the scholar finally reach?
2. What happened as soon as the scholar spoke to the man?
3. If you were the scholar, what would you have done on seeing the man facing the torture?
4. Find out from the paragraph the meanings of the following words which mean the same as:
 - a. unending
 - b. predicament
5. The scholar hastened to this man and said,
 "What is the meaning, Sir, of the ordeal you are suffering? Is there anything I can do for you? Please tell me." [Write in Reported speech]

XIV. Read the following extract and make a précis reducing it to 1/3rd its size, giving it a suitable title. [5]

Are you routinely disrespectful of your teachers? Of course not, you might say. Sure, you might have given a few (or all) of them funny nicknames. Pretty harmless stuff. All students do it. (And for all we know, teachers probably have equally funny, if not even funnier, nicknames for their students. So it's quits.

No, referring to your teachers by funny nicknames amongst yourselves is not showing them disrespect. It's part and parcel of being students, of occasionally thumbing a nose at figures of authority, just for the heck of it.

But – without realizing it – it's only too likely that you do, openly and to their face disrespect – your teachers. How do you disrespect – really disrespect – your teachers as teachers? You disrespect them when you accept anything and everything they tell you without question, even when you find it difficult to understand or believe what they're telling you.

'When you blindly follow your teachers' teachings, when you take notes of whatever they're saying in the class without thinking about what you are noting down, you are disrespecting your teachers. You are disrespecting them not only as individuals; you are disrespecting their profession as a whole. You are treating them as guards manning a security check which you have to get through by unthinkingly following instructions. What is this security barrier that you have to get past in the classroom? Exams, of course. Particularly the big, bad 'B' word – the BOARDS. The nightmare of all students.

The need to get through this scary security check of exams has become the main concern

of most, if not all students. It's a frightening situation. And a tragic situation. Both for students and for teachers. Because, out of examophobia – a fear of exams, and the results you get in those exams – neither students nor teachers can do their jobs properly. And that to learn and to teach.

Learning and teaching are not two separate jobs, but one. While teaching – properly teaching – a good teacher learns as much from good students, as the students learn from their teacher. And good students are those who are respectful of their teachers in the true sense. Not by unthinkingly following their teachers' instructions like programmed robots (and keeping their robot fingers crossed that this will help them pass in their exams, particularly the dreaded Boards) but by learning to question what they can't follow in what is being taught.

It is not disrespectful to question your teachers, if your teachers are good teachers (teachers who learn from you as much as they want to teach you). What *is* disrespectful is not to question your teachers when you feel that what they are teaching you raises more questions than supplies answers.

Just for a moment don't think of the questions that will be asked of you in the next exams. Just for a moment, think of the questions you would like to ask your teachers in class. Just for a moment, think of showing some *real* respect for your teachers. Not by sucking up to them, but by helping them to learn from you.

XV. Read the following extract carefully and make sensible notes on the same .Use at least four abbreviations:- [5]

Section E– Writing

XVI. Your school has celebrated its Silver Jubilee on completion of its meritorious service to the cause of education. Now write a report of this occasion to be published in 'The Times of India', Ahmedabad. [5]

XVII. You are Mohan/Mohini Kumar from 23,Somabaug Road, Camp Area, Vadodara. Write an Application in response to the following advertisement. 'WANTED Marketing Executives' all over Gujarat State. Apply giving details of qualifications, experience, expected salary, etc. to Mr. Suresh Agrawal, Plastic Industries, K.K.Marg, Vadodara. [7]

XVIII. Write an essay of about 250 words on any one of the following:- [8]

Road Rage

[Increasing incidents of deaths – accidents - endemic disorder-lack of self discipline – sense of superiority due to owning bigger vehicle – family and work related stress – city layout, jams-absence of severe penalty for Defaulters]

OR

English – The Window to Knowledge

[International Language – wide sphere – exploration of knowledge through the internet – language of professionals – wider knowledge – builds confidence]

ACCOUNTS-I**Section-A**

Question No.1 to Question No.10 are multiple choice questions. From the given options, select the correct one. Each question carries one mark. [10]

1. What is interest on partner's capital for a partner?
a. Expenses b. Payables c. Income d. loss
2. Where would you disclose dead stock of Rs. 300 in final accounts, which is given in trial balance?
a. Dr. to trading account b. Cr. to trading account c. Dr. profit and loss account
d. Assets side
3. Which reserve is created on good debtors —
a. Bad debt reserve b. General reserve c. Discount reserve d. Capital reserve
4. Good will is —
a. A tangible asset b. Intangible asset c. A fictitious asset d. not an asset
5. Workmen profit sharing fund is —
a. An asset of firm b. A liability of firm. c. A loss of firm d. Profit of firm
6. To give public notice of retirement of an active partner is —
a. Advisable b. legally required c. Voluntary d. Compulsory
7. If a partner brings his share of goodwill in cash, in which proportion will be credited to old partner's capital account?
a. Profit-loss ratio b. Profit-loss new ratio c. Sacrifice ratio d. equal ratio
8. Reconstruction of partnership means —
a. Change in profit sharing ratio amongst existing partners
b. Admission of a new partner in a partnership fund
c. Retirement or death of an existing partner
d. All of the above
9. Another name of profit and loss adjustment is —
a. Profit and loss account b. Profit and loss appropriation account
c. Revaluation account d. None of the above
10. A gets half of B's share and C gets $\frac{1}{3}$ rd of A's share. What will be the new profit and loss ratio?
a. 1:1:1 b. 3:6:1 c. 2:2:1 d. 2:6:1

Section –B

For Question 11-20, give answer in one or two lines. Each question carries one mark

[10]

11. Mention the purpose of partnership deed.
12. Why is revaluation account prepared at the time of reconstruction of partnership?
- 13 While calculating partners gain if answer comes to negative then what it suggests.
14. What does debit balance of profit and loss adjustment account indicate?
15. How is the value of goodwill, when there is keen competition in the business?
16. State any two objectives to prepare annual accounts of a partnership firm.
17. Why does a partner get retired?
18. Mention any two factors affecting the valuation of goodwill.
19. Define super-profit.
20. Name any three reserve which are not distributed amongst partner at the time of Death of Retirement of a partner?.

Section C

Answer briefly for Questions 21-30, Each question carries two marks. [20]

21. Mita withdraws Rs.200/- in the beginning of the every month while Milind withdraws Rs.200 at the end of every month. If Interest on drawing has to be calculated at 12%, then what amount of interest will be paid for each partner.
22. Amount of closing capital of Asha is Rs.16,000 after giving effect for current year's drawing of Rs.1000 and divisible profit of Rs.1500. How much interest on opening capital at 5%p.a.?
23. A and B are the partners of a partnership firm sharing profit and loss equally. They decided to change their profit loss sharing proportion to 1:3 for future. Calculate sacrifice ratio.
24. X and Y are partners sharing profit in the ratio of 3:2. They admitted C for $\frac{1}{6}$ th share in profit. Z would receive his share from A and B in the proportion of 2:1. Compute new profit sharing ratio.
25. M and N are partners sharing profit and loss in equal proportion. They admitted Z to give $\frac{1}{3}$ rd share in the partnership. Z brought cash, other assets and liabilities as capital are:
1. Cash Rs.8000
 2. stock Rs.12000
 3. Creditors Rs.5000
 4. Bills payable Rs.2000
 5. Debtors Rs.2000
- Pass the journal entry.
26. Rita, Meeta and Geeta are partners sharing the profit loss in the ratio of 5:3:2. Geeta gets retired. Geeta does not withdraw her due amount of Rs.2,00,000 from the business and retains it as a loan in the firm. Reeta and Meeta agrees to give $\frac{1}{5}$ th of the share in profit to Geeta in place of interest, for her dues. Determine the new ratio.
27. A and B are the partners sharing profit and loss in the ratio of 3:2. They admitted R to give $\frac{1}{4}$ th share in their partnership firm. R would bring his capital in cash amounting to the $\frac{1}{4}$ th of the net assets of new company. The net assets of firm are 42,000. Determine the capital amount to be brought in by R in the firm.
28. Differentiate between Fixed capital account method and Fluctuating capital account .
29. By using the appropriate average, determine the value of goodwill on the basis of six years purchase:
- | Year | 2001 | 2002 | 2003 | 2004 |
|--------|--------|--------|--------|--------|
| Profit | 20,000 | 15,000 | 20,000 | 17,000 |
30. A, B and C are partners of a firm. The proportion of their capitals is 3:2:1. C is to be paid 6% commission on profit after charging his commission. If profit of the firm , for the year ending on 31.03.2005 is Rs.20,988, what amount should C get ?

Section D

Answer briefly for Questions 31 to 40. Each question carries three marks. 30M

31. Pass adjustment entries for the following adjustments:
- a. Rent receivable is Rs.10000.
 - b. 12% interest for eight months is receivable on a loan of Rs.24000 given to Sameer.
 - c. Provide 10% depreciation on furniture of Rs.35,000.
32. P, Q and R are partners sharing the profit and loss in the ratio of 2:2:1. P is retiring

- from the firm and his share in the business is purchased by the remaining partners for Rs.60,000. For which Q pays Rs.40,000 and P pays Rs.20,000. Determine their new profit loss sharing ratio.
33. From the following information compute the value of goodwill at two years purchase of average profit on the basis of last five years:
- | Year | 2000 | 2001 | 2002 | 2003 | 2004 |
|------|--------|--------|--------|--------|--------|
| | 52,500 | 55,000 | 60,000 | 70,000 | 81,000 |
34. Ami, Aastha and Aesha are partners of a partnership firm sharing profit in equal proportion. They have decided to change their profit and loss sharing proportion to 1:2:3 and decided to have the goodwill at Rs.45,000. Goodwill account is not disclosed in the books. From the above information, pass journal entries for each of the following case:
1. When full amount of goodwill is to be shown in the books of the firm.
 2. When partners do not desire to show goodwill account in the books.
 3. When the effect of goodwill is to be given directly to the partners capital account (without creating goodwill account)
35. Ram and Shyam are partners in a partnership firm. Between them the proportion of sharing profit and losses is 2:1. On 31-3-04, following balances appeared in the books of their firm
1. Reserve fund (credit bal.) Rs. 6,000
 2. Employees Accident Compensation Fund (credit bal.) Rs.9,000
 3. Profit and loss a/c (Cr. balance) Rs.12,000
36. State the circumstances of retirement of a partner according to the Indian Partnership Act.
37. Priyal, Sneha and Ritika are partners of a firm. Their capital as on 1-1-04 was Rs.80,000, Rs.60,000 and Rs.160,000 respectively. After distributing profit for the year 2004, it was found that interest on capital at 8%p.a. was omitted to be calculated. Pass journal entry for rectifying the mistake.
38. Shah, Patel and Patil are partners sharing the profit and loss in the proportion 1:2:3. When Patil retired, the following journal entry was passed for the goodwill.
- | | | | |
|---------------------|----|---------------------|------|
| Shah's capital a/c | Dr | 2400 | |
| Patel's capital a/c | Dr | 1200 | |
| | To | Patil's capital a/c | 3600 |
- Determine the new profit-loss sharing ratio of Shah and Patel.
39. Jyoti, Deepak and Rohni are partners sharing profit and losses in proportion of 3:2:1. Jyoti and Deepak have given guarantee that Roshni must get at least Rs.18000 out of profits. If, for the year ending on 31.03.2005 the profit of the firm is Rs.90,000, then how the profit will be distributed among partners?
40. Ashit and Ashim are partners sharing profit and losses in equal ratio. They admitted Arit in the partnership with condition to give $\frac{1}{5}$ th share in profit. Arit has brought Rs.5000 in cash towards goodwill in business. At the time of admission of Arit, goodwill account stood at Rs.20,000 in the books of the firm. If the goodwill is shown at its old value in the books of the firm, then pass necessary journal entries.

Section-E

Question No41 and 42 are essay type questions. Each question carries 10 marks. [30]

41. Chavi and Chaya are partners of a firm sharing profit and loss in the ratio 2:1. The balance sheet of the firm as on 31.12.2006 is as under

Balance Sheet as at 31.12.2006

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Capital Account		Furniture	20,000
Chavi-20,000		Building	50,000
Chaya- <u>60,000</u>	80,000	Stock	5,000
Profit and loss A/c	6,000	Debtors	15,000
Creditors	10,000		
Bills Payable	2,000	Cash Balance	8,000
	<u>98,000</u>		<u>98,000</u>

On the date of balance sheet, partners admitted Chetna as a new partner with the following conditions:

1. Chetana would bring necessary amount in cash towards capital on the basis of his profit loss ratio and Rs.5000 in cash towards goodwill.
2. New value of the building is Rs.60,000.
3. Increase the value of furniture by Rs. 2,000.
4. Provide 10% bad debt reserve on debtors.
5. Outstanding income of Rs.1000 is not recorded in the books , which is to be recorded.
6. New profit loss sharing ratio is determined at 2:2:1.

From the above information prepare necessary account and balance sheet in the books of firm.

42. P,Q and R are partners in equal proportion. The balance sheet of their firm as at31.12.03 is as under:

Balance Sheet as at 31.12.2003

Liabilities	Amount (Rs.)	Assets	Amount (Rs.)
Capital Account		Land Building	12,000
P 15000		Furniture	6,000
Q 12000		Motor car	9,000
R 9000	36,000	stock	7,500
General reserve	3000	Debtors	22,500
Creditors	17,000		
Bills Payable	1,000		
			<u>57,000</u>
	<u>57,000</u>		

R retired on 1.1.04.on the same day, the following terms are decided;

1. Increase the value of land building and furniture by 10%.
2. Reduce stock value by 500.
3. Debtors of Rs.600 are bad and to be written off.
5. Bills Payable of Rs.200 are now not payable.

When R retires, the goodwill is determined for Rs.7200.The accounting treatment only for the share of the goodwill of R is to be given and the same is to be shown in the balance sheet .Retain the dues of R as a loan in the firm.

Prepare the necessary accounts to incorporate the above transactions and also prepare balance sheet after retirement of R.

43. Lal ,Bal and Pal are partners of a Partnership firm. Prepare the final accounts from the trial balance as at 31.3.2005 and adjustments.

Trial balance as at 31.03.2005 of partnership Firm of Lal , Bal and Pal

Debit balance	Amount Rs	Credit balance	Amount Rs
Capital Pal	12,000	Capital Lal	1,20,000
Drawings Lal	12,000	Capital Bal	1,20,000
Bal	12000		
Pal	6000		
Stock(1.4.2004)	60,000	Sales	3,00000
Purchases	1,20,000	Creditors	13,600
Sales return	3600	Interest	1440
Carriage inward	6000	Bad debt reserve	2400
Sundry debtors	72,000	Discount	2160
Trading expenses	14,400	Purchase return	2400
Wages-production	24000		
Factory rent	3000		
Furniture	5280		
Bills receivable	2400		
Advance income tax	240		
Furniture depreciation writtenoff	720		
Loose tools	24000		
Travelling expenses	7200		
Salaries	24000		
Machines(Including office machine)	72000		
Lease hold Property	24000		
Discount	2640		
Taxes and insurance	1200		
Loan	24000		
Bank balance	27600		
Cash balance	1720		
	5,62000		5,62000

Adjustments:

- 1.The closing stock was Rs.90,000
- 2 .Charge 5% interest on capital.
3. From the divisible profit Pal is entitled to receive Rs .2400 before distribution of it. Subsequently the remaining profit is distributed in the proportion of 2:2:1.
4. The manager of the firm is allowed 10% commission on the profit after deduction of such commission .
5. Provide a depreciation @ 5% on machines and @10% on loose tools.
6. A salary Rs.2400is prepaid.
7. Bad debt reserve is to be increased by Rs.4800.
8. From bills receivable one bill of Rs.1200 is found to be irrecoverable.

BUSINESS ORGANISATION-I**Section: A**

Questions 1 to 10 are multiple-choice questions. Choose the correct option and Write its serial letter. Each question carries one mark. (10M)

- 1.The simple method of implementing knowledge means-----
a) Science b) Art c) Profession d) Business
- 2.What is POSDCORB ?
a) Planning b) Organizing c) Functions of Management d) Functions of administration
- 3.Administration is a part of ---
a) Policies b) Decisions c)Targets d)Management
- 4.Who undertakes the work of preparing budgets in big units ----
a) General manager b) Budget committee c) Budget officers d) Expert officers
- 5.In _____ Organization authority and responsibility flow line ally from the top to the bottom level.
a) Line organization b)Functional organization c)Matrix organization d)Committee organization
- 6.In the process of delegation of authority, authority is _____?
a) Assigned b) Distributed c) Conferred d)Created
- 7.On account of promotion of employees his ----
a) Authority and responsibility increases
b) Authority only increases
c) Salary increases
d) Responsibility only increases
- 8.The amount which is paid to candidate in apprentice training is called _____.
a) Brokerage b) Wages c) Commission d) Stipend
- 9.To verify the success of plan on experimental basis _____.
a) Experts should be hired b) Opinions should be invited
c) Supporting plane should be prepared d) Implementation of plane should be made
10. Learning while working method is----
a) Complex b) Private c) Short and simple d) Lengthy and complex

Section B

Answer the following questions in one-two sentences.

Question 11 to 20 carries 1mark each. (10M)

- 11.Define managerial function.
- 12.State the functional areas of Management.
- 13.Which factors are to be considered while evaluating alternative plans?
- 14.Give two merits of informal organization.
- 15.State various types of budgets.
- 16.When is scientific recruitment possible?
- 17.When decentralization of authority is suitable in a business unit ?
- 18.Why staff cannot be treated as a raw material for production?
- 19.Define scientific management.
- 20.Give the names of institutes giving training of management science.

Section- C

Answer the following questions in brief. Question 21 to 35 carries 2marks each.

(30M)

- 21.State the main features of management.
- 22.Explain any four benefits of scientific management.

23. Explain Management is a human activity.
24. Differentiate between top level management and middle level management.
25. State any two limitations of budget.
26. Explain the Principle of Harmony of group.
27. Differentiate between formal and informal group.
28. Which functions are included in staffing .
29. State the important points of conferment of authority.
30. Explain a) Fatigue study b) Motion Study
31. Differentiate between centralization and decentralization.
32. Explain any two characteristics of staffing.
33. State the reasons of recruitment.
34. Discuss any two reasons for retirement.
35. Explain –Management as a profession.

Section- D

Answer the following questions to the point. Give answer in maximum 50 words.

Question 36 to 45 carries 3marks each.

(30M)

36. State the Limitation of scientific management.
37. Explain the interrelations among the different levels of management.
38. Explain the process of preparing Report.
39. Explain the importance of training.
40. Differentiate between Promotion and Demotion.
41. Explain- “Employees are the limb of business”.
42. State the limitations of Functional organization.
43. Discuss- ‘There are three pillars of the tripod of delegation of authority.’
44. Give three suggestions to make committee organization effective.
45. Discuss- “Planning allows us to master change”.

Section – E

Answer the following questions in detail. Give answer in maximum 100 words.

Question 46 to 49 carries 5marks each.

(20M)

46. Explain in detail the limitations of Planning.
47. Give the meaning of organization and explain its formation.

OR

Explain Line organizations in detail.

48. Give the meaning of recruitment. Explain external sources of it.
49. What is Planning? Explain its characteristics.

BUSINESS ORGANISATION- II**Section: A**

Questions 1 to 10 are multiple-choice questions. Choose the correct option and write its serial letter.
Each question carries one mark. (10M)

1. Administration is a part of ---
A) Policies b) Decisions c) Targets d) Management
2. The simple method of implementing knowledge means-----
a) Science b) Art c) Profession d) Business
3. Who undertakes the work of preparing budgets in big units ----?
a) General Manager b) Budget committee c) Budget officers d) Expert officers
4. What is POSDCORB?
a) Planning b) Organizing c) Functions of Management d) Functions of administration
5. In _____ Organization authority and responsibility flow line ally from the top to the bottom level.
b) Line organization b) Functional organization c) Matrix organization d) Committee Organization
6. On account of promotion of employees his ----
a) Authority and responsibility increases
b) Authority only increases
c) Salary increases
d) Responsibility only increases
7. The amount which is paid to candidate in apprentice training is called _____.
a) Brokerage b) Wages c) Commission d) Stipend
8. In the process of delegation of authority, authority is _____.
a) Assigned b) Distributed c) Conferred d) Created
9. Learning while working method is----
a) Complex b) Private c) Short and simple d) Lengthy and complex
10. To verify the success of plan on experimental basis _____.
a) Experts should be hired b) Opinions should be invited
c) Supporting plane should be prepared d) Implementation of plane should be made

Section B

Answer the following questions in one-two sentences. Question 11 to 20 carries 1mark each. (10M)

11. State various types of budgets
12. Name the functional areas of Management.
13. Which factors are to be considered while evaluating alternative plans?
14. Give two demerits of informal organization.
15. Define manager.
16. When is scientific recruitment possible?
17. When centralization of authority is suitable in a business unit?
18. Why staff cannot be treated as a raw material for production?
19. Define scientific management.
20. Give the names of institutes giving training of management science.

Section- C

Answer the following questions in brief. Question 21 to 35 carries 2marks each. (30M)

21. State the main features of management.
22. Explain any four benefits of scientific management.
23. Explain –Management as an art.
24. Differentiate between top level management and bottom level management.
25. Discuss any two reasons for retrenchment.
26. Explain the Principle of division of labour.
27. Differentiate between formal and informal group.

28. Which functions are included in staffing?
29. State the important points of conferment of authority.
30. Explain a) Fatigue study b) Motion Study
31. State any two characteristic of budget.
32. Explain any two points showing the importance of staffing.
33. State the reasons of recruitment.
34. Differentiate between centralization and decentralization
35. Explain - Management is a continuous activity.

Section- D

Answer the following questions to the point. Give answer in maximum 50 words.

Question 36 to 45 carries 3marks each.

(30M)

36. Differentiate between Promotion and Demotion.
37. Explain the interrelations among the different levels of management.
38. Discuss- "Planning allows us to master change".
39. Explain the objectives of training.
40. State the merits of scientific management
41. Explain- "Efficient staff is an invaluable asset of an enterprise".
42. State the limitations of Functional organization.
43. Discuss- 'There are three pillars of the tripod of delegation of authority.'
44. Give three suggestions to make committee organization effective.
45. Explain the process of preparing Report.

Section – E

Answer the following questions in detail. Give answer in maximum 100 words.

Question 46 to 49 carries 5marks each.

(20M)

46. Explain in detail the limitations of Planning.
47. Give the meaning of organization and explain its formation.

OR

Explain Line organizations in detail.

48. Give the meaning of recruitment. Explain external sources of it.
49. What is planning? Explain its characteristics.

BUSINESS ORGANISATION-III**Section: A**

Questions 1 to 10 are multiple-choice questions. Choose the correct option and write its serial letter.
Each question carries one mark. (10M)

1. Communication is the process of making the other person aware of the message and-----
a) To control the message b) Of direction c) Of coordination d) To give understanding
2. Success of principles of management depends upon ----
a) Human nature b) Manager c) Machine d) Organizing
3. Which is the responsibility of business to protect zero pollution?
a) Economic responsibility b) Legal responsibility
c) Moral responsibility d) Voluntary responsibility
4. Who is the author of Principle of Scientific Management?
a) F.W.Taylor b) Dr.G.R Terry c) Peter F. Drucker d) Koontz and O'Donnell
5. In _____ Organization authority and responsibility flow line ally from the top to the bottom level.
c) Line organization b)Functional organization c)Matrix organization d)Committee Organization
6. Which industry was nationalized in India after independence?
a) Railway b) Vehicles c) Ship d) Cloth
7. -----is an element of directing.
a) Planning b) Control c) Supervision d) Staffing
8. The first step of the process of delegation of authority is_____
a) Assignment of responsibility b) a qualified person c) delegation of authority d) the determination of accountability
9. The main reason for industrial dispute is----
a) Worker's behavior b) Wages c) Manager's behavior d) Lack of facilities.
10. The budget covering various divisional budgets is called-----
a) Financial budget b) Cash budget
c) Production budget d) Master budget

Section B

Answer the following questions in one-two sentences. Question 11 to 20 carries 1mark each. (10M)

11. Write the suitability of line organization.
12. Which things are chiefly included in Management?
13. What is essential for planning?
14. Clarify the meaning of Co-partnership.
15. Explain the term HRM
16. When the corrective action not taken?
17. Give the order of hierarchy needs suggested by Abraham Maslow.
18. What is accountability?
19. Give the full form of GATT.
20. Write any two functions of the NGO working for the consumer protection.

Section- C

Answer the following questions in brief. Question 21 to 35 carries 2marks each. (30M)

21. What is social security scheme for employees?
22. What are the benefits of management to society?
23. In which six groups Henry Fayol has divided the activities of industrial organization?

OR

Explain the nature of the principle of management.

24. State the four benefits of decentralization.
25. State the reasons of demotion.

26. Discuss-World is global village.

OR

Increase in national income is a favorable factor to business.-Discuss.

27. Write any two barrier of communication.

OR

‘See and Know’ is a better motto than ‘Read and Learn’.-Still the importance of reporting had not been decreased. Explain.

28. What is stating principle of trusteeship of Gandhiji about consumer?

29. Explain any four advantages of centralization..

30. Explain a) Fatigue study b) Motion study.

31. What are eco-friendly products?

32. Explain the difference between recruitment and selection.

33. ‘Scope of direction is wide’-Explain.

34. What do you mean by human rights?

35. ‘Business and society are inseparable’-Explain.

Section- D

Answer the following questions to the point. Give answer in maximum 50 words.

Question 36 to 45 carries 3marks each.

(30M)

36. Describe the stages in the process of budgeting.

37. Explain the following principles:

- a. Principle of authority and responsibility b. Principle of order.
c. Principle of stability of tenure.

38. There are three pillars of the tripod of delegation of authority-discuss.

OR

There is thin line of distinction between delegation and decentralization.

39. Bring out clearly the difference between training and development.

40. State the demerits of piece wage system.

OR

Discuss the elements of an ideal wage system.

41. Write a short note on the importance of leadership.

42. Explain the negative aspects of economic environment in India after1991.

43. Explain the importance of control.

44. Describe the scope of Market management.

OR

Explain the functions of financial management.

45. Bring out the difference between oral and written communication.

Section – E

Answer the following questions in detail. Give answer in maximum 100 words.

Question 46 to 49 carries 5marks each.

(20M)

46. Give an idea about the responsibilities of consumer.

47. State the types of organization. Discuss committee organization in detail.

OR

Give the meaning of organization and explain its characteristics.

48. State the types of training and explain in brief the types of training for workers.

49. What is planning? Explain its stages.

OR

Discuss the elements of planning.

MATHEMATICS-I
SECTION A

1 – 15

(15m)

1. If $\lim_{x \rightarrow 0} kx \operatorname{cosec} x = \lim_{x \rightarrow 0} x \operatorname{cosec} kx$ then $k =$
- a) ± 1 b) 2 c) 0 d) does not exist
2. If $y = x^{n+1}$ then $\frac{d^n y}{dx^n} =$ _____.
- a) $(n+1)!x$ b) $(n+1)!$ c) $n!x$ d) $n!$
3. $\lim_{n \rightarrow \infty} \left[\frac{1}{n^2+1} + \frac{4}{n^2+1} + \frac{9}{n^2+1} \dots n \text{ terms} \right]$
- a) 1 b) $\frac{2}{3}$ c) $\frac{1}{3}$ d) 0
4. $\int e^{x \log a} e^x dx =$ _____
- a) $(ae)^x + c$ b) $\frac{(ae)^x}{\log(ae)} + c$ c) $\frac{e^x}{1+\log(ae)^x} + c$ d) none of these
5. $\int [x] dx =$ _____ $(-2 < x < -1)$
- a) $-x + c$ b) $-2x + c$ c) $-x^2 + c$ d) $x^2 + c$
6. Horizontal Range of the particle is R, then it's maximum height is
- a) R b) $\frac{R}{2}$ c) $\frac{R}{4}$ d) 2R
7. Length of subtangent at any point of the curve is constant, then its equation is
- a) $x = ce^{ky}$ b) $y = ce^{kx}$ c) $y^2 = 2ce^x$ d) $x^2 = 2ce^y$
8. Centroid of the $\triangle ABC$ with vertices A(0, 0), B($\cos \alpha$, $\sin \alpha$) and C($\sin \alpha$, $-\cos \alpha$) and lies on line $y - 2x = 0$ then $\alpha =$
- a) $\tan^{-1}(2)$ b) $\tan^{-1}(-1/2)$ c) $\tan^{-1}(1/3)$ d) $\tan^{-1}(-3)$
9. Which of the following is (p - α) form of the line $lx + y + z = 0$
- a) $x \cos\left(\frac{\pi}{4}\right) + y \sin\left(\frac{\pi}{4}\right) = \sqrt{2}$
- b) $x \cos\left(-\frac{\pi}{4}\right) + y \sin\left(-\frac{\pi}{4}\right) = 2$
- c) $x \cos\left(\frac{-3\pi}{4}\right) + y \sin\left(\frac{-3\pi}{4}\right) = \sqrt{2}$
- d) $x \cos\left(\frac{\pi}{4}\right) + y \sin\left(\frac{\pi}{4}\right) = 2$
10. From which of the following point line perpendicular to the tangent of the circle $x^2 + y^2 + 2x - 2y + 1 = 0$ passes?
- a) (-1, 1) b) (-1, -2) c) (-1, 2) d) (-1, 1)
11. Line $y = mx + c$ is tangent to the parabola $y^2 = 4a(x + a)$ then $am + \frac{a}{m} =$ _____ $(a > 0)$
- a) $2c$ b) $-c$ c) c d) $\frac{-3}{2}c$
12. If the equation $\frac{x^2}{2-r} + \frac{y^2}{r-3} = 1$ represent ellipse then _____.
- a) $r > 2$ b) $2 < r < 5$ c) $-2 < r < 1$ d) $-5 < r < 2$
13. If equation $5x^2 + \lambda y^2 = 20$ represent the rectangular hyperbola then
- a) $\lambda = 5$ b) $\lambda = 4$ c) $\lambda = -5$ d) $\lambda = -4$
14. $p \neq 0$ is the value of the co-ordinate at which sphere $x^2 + y^2 + z^2 - 3x - 3y - 3z = 0$ intersects the axis other than origin, then $p =$
- a) $p = 1$ b) $p = \frac{1}{2}$ c) $p = 0$ d) $p = 3$
15. If $(\vec{x} \wedge \vec{y}) = \frac{\pi}{4}$ and $|\vec{x}| = 4$, $|\vec{y}| = 2$ then $|\vec{x} \times \vec{y}| =$ _____.
- a) 2 b) 4 c) $\frac{1}{2}$ d) $\frac{3}{4}$

SECTION B

16 – 30

(15m)

16. Find approximate value of $\sin^{-1}(0.49)$.
17. Solve the differential equation $x(1 + y^2)dx - y(1 + x^2)dy = 0$
18. Sum of two numbers is 45 and product of square of one with other number is maximum, then find the numbers.
19. If $\int_{-1}^4 f(x)dx = 4$ and $\int_2^4 3 - f(x)dx = 7$ then find $\int_2^{-1} f(x)dx$
20. Obtain: $\int x^{\sin x} \left(\frac{\sin x + \cos x + \log_e x^{\sin x}}{x} \right) dx$
21. What will be height of the particle if its projected in vertical upwards with speed 4.9m/sec.?
22. $\int \frac{dx}{x(x^{2010} + 1)} \quad (x > 0)$
23. Find the equation of the line which makes an angle $\frac{\pi}{3}$ with x axis whose y intercept is $\sqrt{3}$ unit.
24. Midpoint of the chord of circle $x^2 + y^2 = 25$ is $(2, -3)$, then find its equation.
25. Get the equation of the auxiliary circle of the curve $\frac{x^2}{16} - \frac{y^2}{9} = 1$.
26. Find the projection of (a, b, c) on the x axis and its magnitude.
27. If $\vec{a}, \vec{b}, \vec{c}$ are mutually orthogonal unit vectors and $\vec{a} \times \vec{b} = \vec{c}$. Prove that $\vec{b} = \vec{c} \times \vec{a}$.
28. Prove $\frac{x}{2} = \frac{y}{-3} = \frac{z}{1}$ and $\frac{x-2}{3} = \frac{y-1}{5} = \frac{z+3}{2}$ are skew.
29. $x \in (0, \frac{\pi}{2})$ and $f(x) = \tan x - x$ then prove that $\tan x > x$ (using derivatives).
30. Evaluate $\lim_{x \rightarrow \infty} \left(\frac{x^2 + 2x + 3}{x^2 + x + 1} \right)^x$

SECTION C

31 – 40

(20m)

31. For which value of k , points $(k, 2 - 2k), (-k + 1, 2k)$ and $(-4 - k, 6 - 2k)$ are collinear?
32. Prove that line segment on any tangent to the parabola between the point of contact and the directrix subtends a right angle at the focus.
33. Find the co-ordinates of the endpoints of the latus rectum of the ellipse $\frac{x^2}{16} + \frac{y^2}{25} = 1$
34. Show that the point of intersection of the asymptotes and the directrices are the auxiliary circle.
35. Prove that angle in a semicircle is a right angle.
36. $\lim_{x \rightarrow \frac{\pi}{2}} \frac{\sin(x - \frac{\pi}{2})}{2 \cos x - 1}$. Evaluate.
37. $x, y \in R, f(x + y) = f(x) \cdot f(y)$. If $f(x) = 1 + xg(x)$ and $\lim_{x \rightarrow 0} g(x) = 1$ then find $f'(x)$
38. Using mean value theorem prove that $\frac{x}{1+x^2} < \tan^{-1} x < x \quad (x > 0)$
39. Evaluate $\int \operatorname{cosec}^3 x dx$.
40. Solve $\frac{dy}{dx} + \frac{y}{x} = \log x$

SECTION D

41 – 50

(30m)

41. If no three of A, B, C, D are collinear and they are all in the same plane, prove that area of $\Delta PAB +$ area of $\Delta PBC +$ area of $\Delta PCA \geq$ area of ΔABC .
42. If $a > 0$ find the equation of the circle that touches each of the lines $x = 0, x = a$ and $3x + 4y + 5a = 0$.
43. Prove that for an equilateral triangle, Centroid and incentre are the same point. Hence find the incentre of ΔABC where A is (6, 4, 6), B is (12, 4, 0) and C is (4, 2, -2).

44. Find the shortest distance between the lines $x = 1 + t, y = 1 + 6t, z = 2t$ $t \in R$ and $x = 1 + 2k, y = 5 + 15k, z = -2 + 6k$ $k \in R$
45. Find the equation of the line of intersection of the planes $x + y + z = 3$ and $2x + y + 3z = 7$
46. Evaluate $\int_0^1 \frac{e^{-x} dx}{1+e^x}$
47. Obtain the area enclosed by $\frac{x^2}{25} + \frac{y^2}{16} = 1$ and two axes.
48. Find $\int \frac{\sin^7 x}{\sin x} dx$
49. Solve $\frac{dy}{dx} = \cos(x+y) + \sin(x+y)$
50. Acceleration of the particle is constant and it covers the distance 600m and 720m in 10 and 12 seconds respectively. Find its initial velocity.

SECTION E

51 – 54

(20m)

51. Show that the quadrilateral formed by the lines $ax \pm by + c = 0, ax \pm by + c = 0$ is a rhombus and that its area is $\frac{2c^2}{|ab|}$
52. Find: $\lim_{x \rightarrow 1} \frac{x^{n+1} - (n+1)x + n}{(x-1)^2}$ ($n \in N$)
53. If $ky = \sin(x+y)$ then prove that $\frac{d^2y}{dx^2} + \left(1 + \frac{dy}{dx}\right)^2 \cdot y = 0$
54. Find $\int \sqrt{\tan x} + \sqrt{\cot x} dx$
- OR
- $\int x \log\left(\frac{x+1}{x}\right) dx$

PHYSICS-I
SECTION -A

- **Question Nos. 1 to 16 are multiple choice questions. Each carries one mark. Choose the correct answer (a or b or c or d) from the given alternative response and write it. 16**
1. Two identical metal spheres A and B carry same charge q . When the two spheres are at distance r from each other, the force acting between them is F . Another identical sphere C is first brought in contact with A, then it is touched to sphere B and then separated from it. Now the force acting between A and B at the same distance is _____.
(a) F (b) $2F$ (c) $3F/8$ (d) $F/4$
 2. An electric dipole is placed at the centre of a sphere. The flux passing through the surface of the sphere is _____.
(a) Infinity (b) zero
(c) can not be found (d) $2q/\epsilon_0$
 3. The dimensions of permittivity $[\epsilon_0]$ are _____. Take Q as the dimension of charge
(a) $M^1 L^{-2} T^{-2} Q^{-2}$ (b) $M^{-1} L^2 T^{-3} Q^{-1}$ (c) $M^{-1} L^{-3} T^2 Q^2$ (d) $M^{-1} L^3 T^{-2} Q^{-2}$
 4. If the hot junction is made cold and the cold junction is made hot the _____.
(a) direction of e.m.f. does not change. (b) direction of the current gets reversed.
(c) direction of current does not change. (d) current is not obtained.
 5. A wire of resistance R is cut into n equal parts. These parts are then connected in parallel. The equivalent resistance of the combination is
(a) nR (b) R/n (c) n/R (d) R/n^2
 6. A stationary charged particle does not experience any net electromagnetic force then _____.
(a) magnetic field may be zero or nonzero. (b) magnetic field must be zero
(c) electric field may be zero or non zero. (d) electric field must be zero.
 7. A wire of $2m$ is bent in the form of a circular loop. The magnetic moment of the loop when $1A$ current flows through it is _____ Am^2 .
(a) 2π (b) $1/\pi$ (c) $\pi/2$ (d) $\pi/4$
 8. The speed of a charged particle in a Cyclotron is independent of _____.
(a) its mass (b) its charge (c) its linear speed (d) magnetic field
 9. An inductor stores energy in its _____.
(a) electric field (b) conducting wire
(c) magnetic field (d) electric and magnetic field
 10. Speed of a particle moving through a magnetic field is increased then the radius of curvature of its trajectory will _____.
(a) decrease (b) increase (c) not change (d) becomes half
 11. _____ law is integral form of Biot Savart's Law.
(a) Coulomb's (b) Gauss's (c) Ampere's (d) Newton's
 12. Relative permeability of one substance is 0.075 , its magnetic susceptibility is _____. (a) 0.925
(b) -0.925 (c) 1.075 (d) -0.075
 13. At a place, B_h of earth's magnetic field is $\sqrt{3}$ times its B_v component. The angle of dip at that place is _____.
(a) 0 (b) $\pi/3$ (c) $\pi/6$ (d) $\pi/2$

SECTION - B

- **Questions , 17 to 32 are very short questions, each carrying ONE mark.**
14. State the law of conservation of electric charge.
 15. What is electric field intensity?
OR
State Gauss's theorem.
 16. Give an example of a dipole in a non-uniform electric field.
 17. Draw an equipotential surface if there exist a uniform electric field along X-axis.
 18. State Joule's Law.
 19. What is Meissner Effect?
 20. Draw the graph of resistivity versus temperature for nichrome and silicon.
OR
What is thermoelectricity?
 21. At room temperature, electrical conductivity of electrolytes is 10^{-5} to 10^{-6} times that of a metal. State two reasons for this.
 22. State Biot Savart's Law.
OR
State the principle on which the galvanometer works.

23. What are eddy currents?
24. State the resonance condition for cyclotron.
25. State Ampere's circuital law.
26. The susceptibility of a magnetic material is 0.9853. Identify the type of the magnetic material. Draw the modification of the field pattern when a specimen of this material is kept in a uniform magnetic field.
27. What is angle of declination?
28. hiopu
29. gukl
30. ljh
31. lhl
32. Under what condition an electron moving in a magnetic field experiences (i) no force (ii) maximum force.

OR

Write one difference between the paramagnetic and ferromagnetic substance.

SECTION - C

- **Questions , 33 to 48 are short answer type questions, each carries TWO mark. 32**

33. Explain the behaviour of an electric dipole in an uniform electric field.
34. Derive an expression for the electric field due to a uniformly charged infinite plane sheet.

OR

Derive an expression for the electric field due to a uniformly charged thin spherical shell at a point outside the shell.

35. Obtain the expression for energy stored in a charged capacitor.
36. Obtain the expression for the electric susceptibility of the dielectric material.
37. Deduce the relation between the resistivity and relaxation time of a conductor and hence show that resistivity increases with temperature in a conductor.

OR

Explain terminal voltage of a battery with the help of diagram.

38. Explain Peltier effect.
39. What is shunt? Obtain the formula for shunt.
40. Explain charging process in a lead storage cell, using necessary circuit.
41. Using Ampere's circuital law, obtain equation for magnetic intensity of a solenoid.
42. Obtain an equation of Lorentz force.

OR

Obtain the expression for the force acting between two conducting wires placed parallel to each other and carrying currents in the same direction.

43. Write Faraday's law of electromagnetic induction when a conducting rod is moving perpendicular to the magnetic field. Explain the reason behind the induced emf.
44. What is self induction? Derive the formula for self inductance of a circuit.
45. Explain the effect of temperature on ferromagnetic substances and define its curie temperature.

OR

What is the source of earth's magnetic field? Explain.

46. Define coercivity and retentivity. On this basis how will you distinguish between soft iron and steel.
47. Give two points of difference between the radiative and inductive components of electromagnetic radiation.
48. Explain the principle of potentiometer with the help of a diagram.

SECTION - D

- **Answer the questions , 49 to 60 as directed. Each carries THREE mark. 36**

49. Two spheres having same radius and mass are suspended by two strings of equal length from the same point, in such a way that their surfaces touch each other. On depositing total 4×10^7 C charge on them, they repel each other in such a way that in equilibrium the angle between their strings become 60° . If the distance from the point of suspension and to the center of the sphere is 20 cm, find the mass of each sphere. $K = 9 \times 10^9$ SI and $g = 10$ ms⁻².
50. The surface charge density of a very large surface is equal to -3.0×10^{-6} Cm⁻². From what distance should an electron of 150 eV energy be projected towards the plane so that its velocity becomes zero on reaching the plane? Charge on an electron is 1.6×10^{-19} C, $1\text{eV} = 1.6 \times 10^{-19}$ J, $\epsilon_0 = 9 \times 10^{-12}$ SI.

51. Q amount of electric charge is residing on a conducting sphere having radius equal to R_1 . This sphere is connected to another conducting sphere of radius R_2 by a conducting wire. Calculate the electric charge on each of the spheres. The two spheres are separated by a large distance.

OR

15×10^6 V magnitude of electric potential is established on the spherical shell of a van-de-Graf. The dielectric strength of the air surrounding the spherical shell is equal to 5×10^7 Vm⁻¹. Calculate the minimum radius of the required spherical shell.

52. The tungsten filament of the bulb has resistance equal to 18Ω at 20° C temperature. A current of 0.185 A flows, when 30 V is connected to it. If $\alpha = 4.5 \times 10^{-3} \text{ K}^{-1}$ for a tungsten, then find the temperature of the filament.

53. The atomic weight of copper is equal to 63.54 g/mol. Its density is equal to $8.9 \times 10^3 \text{ kgm}^{-3}$. If there is 1 valance electron per copper atom, calculate the number density of electron. Avogadro's number is equal to $6.02 \times 10^{23} \text{ mol}^{-1}$.

OR

An electron is moving on a circular path of radius 5.3×10^{-11} m with a constant speed $2.2 \times 10^6 \text{ ms}^{-1}$. Calculate its frequency and the electric current formed due to it.

54. A D.C motor draws 10 A current when it works on a 30 V supply. Find resistance of its winding if its efficiency is 40 %.

55. Distance between two very long parallel wires is 0.18 meter. The currents of 8 A and 12 A are flowing in the same direction in the two wires respectively. Find a point on a perpendicular line joining the wires, where the field intensity is zero.

56. A charge Q is uniformly spread over a disc of radius R, made from a non- conducting material. This disc is now rotated about its geometrical axis with frequency f. Find the magnetic field generated at the center of the disc.

OR

Write the equation of magnetic force acting on a particle moving through a magnetic field. Using it obtain Newton's equation of motion and show that kinetic energy of the particle remains constant with time.

57. Two long solenoids are of equal length l and the smaller solenoid having a cross-sectional area A is placed within the larger solenoid in such a way that their axes coincide. Find the mutual inductance of the system.

58. Two similar bar magnets have magnetic dipole moment 1.0 Am^2 each. These are kept in a plane in such a way that their axis are perpendicular to one another. The distance between their centers is 2 m. Find the magnetic field at the midpoint of the line segment joining their centers.

OR

A steamer is to be moved in the direction making an angle of 10° South of West. The magnetic declination at the place is 17° West of the South. In which direction should the steamer be moved with respect to the magnetic meridian?

59. Q amount of charge is uniformly distributed over some body. How should the body be divided in two parts, so that force acting between two parts is maximum for a given separation between them?

60. An electromagnetic plane wave is travelling along the X-direction. The electric field vector at an arbitrary point and time is given as $E = 6.3 \text{ j Vm}^{-1}$.

PHYSICS-II**SECTION - A**

- **Question Nos. 1 to 16 are multiple choice questions. Each carries one mark. Choose the correct answer (a or b or c or d) from the given alternative response and write it. 16**
1. σ and ρ respectively, are the surface and volume charge densities of a sphere, then _____
(a) $\sigma \neq 0, \rho \neq 0$ (b) $\sigma = 0, \rho \neq 0$ (c) $\sigma \neq 0, \rho = 0$ (d) $\sigma = 0, \rho = 0$
 2. A metal of negligible thickness is introduced between the two plates of the capacitor. The value of capacitance will be _____.
(a) unchanged (b) doubled (c) halved (d) increased by 3 times
 3. How many electrons will pass through a cross-section in one second to form 1.6 A current ? ($e = 1.6 \times 10^{-19} \text{ C}$)
(a) 10^{-19} (b) 10^{19} (c) 10^{-18} (d) 10^{18}
 4. Neutral temperature of a thermocouple is 270°C and temperature of the cold junction is 15°C then the temperature of inversion is _____ $^\circ\text{C}$.
(a) 255 (b) 525 (c) 285 (d) 575
 5. Speed of a particle moving through a magnetic field is increased then the radius of curvature of its trajectory will _____.
(a) no change (b) decrease (c) become half (d) increase
 6. A straight steel wire of length l has magnetic dipole moment M . If this wire is bent in the form of a semicircle, then the new value of the magnetic dipole moment is _____.
(a) $M/2$ (b) M (c) M/π (d) $2M/\pi$
 7. Lenz's law is a consequence of law of conservation of _____.
(a) charge (b) current (c) energy (d) momentum
 8. In an A.C. circuit direction of electric current gets reversed after every $2 \times 10^{-2} \text{ s}$. Then the frequency of the A.C. is _____ Hz.
(a) 100 (b) 25 (c) 314 (d) 3.14
 9. Which of the following electromagnetic waves have the shortest wavelength ?
(a) Radio waves (b) γ -rays (c) ultraviolet rays (d) X-rays
 10. Radii of curvature of both the sides of a convex lens are 15 cm if the refractive index of the material of the lens is 1.5, its focal length in air is _____ cm.
(a) 10 (b) 15 (c) 20 (d) 30
Reciprocal of angular resolution is called _____.
(a) magnification (b) resolution (c) resolving power (d) none of these
 11. Cathode rays are travelling in the direction from east to west enter in an electric field directed from north to south. They will deflect in _____.
(a) east (b) west (c) north (d) south
 12. The frequency of the characteristic X-ray determines _____ property of the target.
(a) atomic weight (b) atomic number (c) melting point
(d) atomic mass number
 13. Half life of a radioactive element is 5 min. In 20 min, the _____ % of the substance will remain undecayed.
(a) 9.37 (b) 25 (c) 75 (d) 6.25
 14. The emitter junction of the CE transistor amplifier is _____ biased while the collector junction is _____ biased.
(a) reverse, forward (b) forward, forward (c) forward, reverse (d) reverse, reverse
 15. The propagation of UHF band is via _____.
(a) ground wave (b) space wave (c) sky wave (d) optical fibre

SECTION - B

- **Questions , 17 to 32 are very short questions, each carrying ONE mark.**
16. State the superposition principle for forces between more than two charges.
 17. What is the condition for the potential difference between the two terminals of the battery to be maximum?
 18. What is ohmic loss ?
 19. Write the mathematical form of Ampere's circuital law.
 20. What is the difference between electric and magnetic field lines.

21. State Lenz's Law.
22. What is the importance of cladding in optical fibers?
23. How are the coherent sources obtained in Young's experiment ?
24. State Heisenberg's uncertainty principle.
25. What is astigmatism?
26. What is population inversion ?
27. Why neutron is considered to be the best projectile to bombard the nucleus ?
28. Compare the effect of increasing the temperature of good conductors and semi conductors.
29. Draw the circuit diagram of a full wave rectifier.
30. Define transducer and give one example of the same.
31. Name any two ways in which waves of electromagnetic radiations propagate through space with their frequency range ?

SECTION - C

- **Questions , 33 to 48 are short answer type questions, each carries TWO mark. 32**
32. Explain the behaviour of an electric dipole in an uniform electric field.
 33. Explain electro-static shielding with an example.
 34. derive equation for the resultant capacitance of series combination of capacitors in series combination.
 35. Explain contact potential with the help of necessary diagrams.
 36. Derive the expression for magnetic field at a point on the axis of the circular ring carrying current.

Or

State and explain Biot-Savart's law.

37. What are eddy currents ? How can they be reduced? State two uses of eddy currents.

OR

State the difference between peltier effect and Joule effect

38. Represent impedance of an A.C. circuit having L-C-R in series in a complex plane and obtain the expression for the magnitude of impedance and phase difference.
39. Explain the working of an L-C circuit with the help of a diagram.
40. Obtain the relation between u , v and R in case of refraction at spherically curved surface.
41. Describe with a ray diagram, the construction and working of cassegrain's reflecting telescope.
42. Derive the expression for resultant intensity of light on a screen produced due to interference of two light rays.
43. Give Einstein's explanation for photo electric effect and also derive necessary equations.
44. Consider the wave nature of an electron and show that angular momentum of an electron moving in a circular orbit of radius ' r ' is quantized.

OR

Explain the characteristic X-ray spectrum.

45. Explain the avalanche effect.
46. Explain the working of a transistor as an amplifier, with the help of a circuit diagram.
47. Write about Amplitude shift keying and frequency shift keying techniques in transmission of digital information.

SECTION - D

- **Answer the questions , 49 to 60 as directed. Each carries THREE mark. 36**

48. A charge of 4×10^{-8} C is uniformly distributed all over the surface of a sphere of radius 1 cm. Another hollow sphere of radius 5 cm is concentric with the small sphere. Find the intensity of electric field at a distance of 2 cm from the centre. $K = 9 \times 10^9$ SI

OR

The surface charge density of a very large surface is equal to -3.0×10^{-6} Cm^{-2} . From what distance should an electron of 150 eV energy be projected towards the plane so that its velocity becomes zero on reaching the plane? Charge on an electron is 1.6×10^{-19} C,
 $1\text{eV} = 1.6 \times 10^{-19}$ J, $\epsilon_0 = 9 \times 10^{-12}$ SI.

49. A drop of water (spherically shaped) has 3×10^{-10} C amount of charge residing on it. 500 V electric potential exists on its surface. Calculate the radius of this drop. Two such drops (having identical charge and radius) combine to form a drop. Calculate the electric potential on the surface of the new drop.

50. A thin layer of 0.001 cm of copper is to be deposited on a plate of copper of 10 cm^2 through electrolysis. Calculate the amount of energy used if a battery of 12 V is connected. Density of copper = 9 g cm^{-3} , electrochemical equivalent of copper = $0.0003 \text{ g mol}^{-1}$.
51. A very long straight wire is carrying a current of 10A. If an electron is moving parallel to this wire in a direction opposite to the current at a distance of 20 cm from the wire, with a velocity of $5 \times 10^5 \text{ ms}^{-1}$, find the force of attraction experienced by the electron.
($e = 1.6 \times 10^{-19} \text{ C}$, $\mu_0 = 4 \times 10^{-7}$)
52. 20 A current is passing through the winding of a Rowland ring. The number of turns on the ring is 400 and the average circumference of the ring is 40 cm. In this situation the magnetic field produced in the material inside the ring is 10 T. Find : (i) magnetic intensity (ii) magnetization intensity (iii) magnetic susceptibility .
53. A 110 V, 10 W lamp has to be connected with an a.c. source of 220 V and 50 Hz. Calculate the inductance of the choke coil to be connected in series with it.
- OR
- The series combination of $R(\Omega)$ and capacitor $C(\text{F})$ is connected to an a.c. source of V volts and angular frequency ω . If the angular frequency is reduced to $\omega/3$, the current is found to be reduced to one-half without changing the value of the voltage. Determine the ratio of the capacitive reactance and the resistance.
54. 15% of the total energy of a 100 W bulb is converted into visible light. Calculate the average intensity at a spherical surface which is at a distance of 2 m from the bulb. Consider the bulb to be a point source and let the medium be isotropic.
55. The distance between two narrow linear sources is 0.7 mm. If the fourth dark fringe is at a distance 3 mm from the central bright fringe in the interference pattern produced by them on a screen placed at the distance of 1 m from the sources, find the wavelength of monochromatic light.
- OR
- For a thin lens object distance is 20 cm and image distance is 51 cm. If the image is formed on the other side of the lens. Find,
(i) Focal length of the lens (ii) Type of the lens (iii) Type of the image
(iv) Lateral magnification
56. Find the de Broglie wavelength of an atom of nitrogen gas at 300 K. Mass of nitrogen atom is $4.7 \times 10^{-26} \text{ kg}$
57. Calculate the maximum wavelength of Balmer series in the hydrogen spectrum. Calculate the corresponding wave number. Rydberg constant = $1.097 \times 10^7 \text{ m}^{-1}$
58. At a specific time, the rate of radioactive decay of a substance is 8000 decay/s. At that time the undecayed number of nuclei is 8×10^7 . Find the decay constant and the half life.
59. A change of 0.02V takes place between the base and emitter when an input signal is connected to the CE transistor amplifier. As a result, 20 A change takes place in the base current and a change of 2mA takes place in the collector current. Calculate the
(i) Input resistance (ii) A.C. current gain (iii) transconductance

PHYSICS-III

- **Question Nos. 1 to 16 are multiple choice questions. Each carries one mark. Choose the correct answer (a or b or c or d) from the given alternative response and write it. 16**
1. There exists an electric field of 100 N/C along Z-direction. The flux passing through a square of 20 cm sides placed on XY-plane inside the electric field is _____.
(a) $1.0 \text{ Nm}^2/\text{C}$ (b) 2.0 Vm (c) 10 Vm (d) $4.0 \text{ Nm}^2/\text{C}$
 2. A $4 \mu\text{F}$ capacitor is charged up to 100 V. The plates of the capacitor are then connected with a conducting wire. How much heat will be generated in the above situation ?
(a) 0.2 J (b) 0.02 J (c) 0.002 J (d) 2 J
 3. If $5.0 \times 10^4 \Omega$ is the resistance of a person's wet hand, then ____ potential difference will generate a fatal current of 1.0 mA.
(a) 50 V (b) 110 V (c) 230 V (d) 220 V
 4. A wire of 2m is bent in the form of a circular loop. The magnetic moment of the loop when 1 A current flows through it is _____ Am^2 .
(a) 2π (b) $1/\pi$ (c) $\pi/2$ (d) $\pi/4$
 5. Thermoelectric constants of a thermocouple are α and β . Thermoelectric power for this thermocouple at inversion temperature is _____.
(a) β (b) α/β (c) $-\alpha$ (d) $-\alpha/\beta$
 6. With reference to earth, the angle of dip is $\pi/2$ rad at _____.
(a) equator (b) 45° North latitude
(c) Magnetic poles of the earth (d) Geographic poles of the Earth
 7. An inductor stores energy in its _____.
(a) electric field (b) magnetic field (c) conducting wire (d) electric and magnetic field
 8. The real power in an A.C. circuit containing only inductor is equal to _____ W.
(a) $\frac{1}{2} LI^2$ (b) $2LI^2$ (c) $\frac{1}{2} LI$ (d) zero
 9. If the relative permeability and dielectric constant of given medium are equal to μ_r and K respectively, then the refractive index of the medium is equal to _____.
(a) $1/\sqrt{\mu_r K}$ (b) $\sqrt{\mu_r \epsilon_0}$ (c) $\sqrt{\mu_0 \epsilon_0}$ (d) $\sqrt{\mu_r K}$
 10. Focal length of the lens of the eye is changed by
(a) cornea (b) ciliary muscles (c) retina (d) lens
 11. Which of the following phenomena is not possible for sound ?
(a) interference (b) diffraction (c) polarization (d) reflection
 12. The wavelength of the first line of Lyman series is λ . The wavelength of the first line in Balmer series is _____.
(a) $(27/5)\lambda$ (b) $(5/27)\lambda$ (c) $(9/2)\lambda$ (d) $(2/5)\lambda$
 13. Cathode rays are _____.
(a) the atoms moving towards the cathode. (b) electromagnetic waves.
(c) negative ions travelling from cathode to anode. (d) electrons emitted by cathode and travelling towards anode.
 14. $1 \text{ mCi} =$ _____ Becquerel.
(a) 3.7×10^4 (b) 3.7×10^7 (c) 3.7 (d) 3.7×10^{-7}
 15. The Boolean expression for NOR gate is _____.
(a) $y = A + B$ (b) $y = A \cdot B$ (c) $y = A + B$ (d) $y = A + B$
 16. The communication by a modem is of _____ type.
(a) simplex (b) full duplex (c) half duplex (d) double duplex

SECTION - B

- **Questions , 17 to 32 are very short questions, each carrying ONE mark.**
17. State Coulomb's inverse square law.
 18. What is polar dielectric ?
 19. What is thermopile ?
 20. What is gyro-magnetic ratio ?
 21. What are diamagnetic substances ? Give one example of it.
 22. What is ' Back emf ' ?
 23. What is Rayleigh's scattering ?
 24. What is polarized light ?
 25. On which factors does the threshold frequency of a metal depend ?
 26. Which type of defect in vision is called Near sightedness ? Name the lens used to correct it ?
 27. What is stimulated emission ?

28. What are moderators ? Name the materials that are used as moderators.
29. Draw the circuit diagram of a CE amplifier.
30. Write the truth table for OR gate.
31. Define critical frequency.
32. State any one necessity of modulation in communication.

SECTION - C

- **Questions , 33 to 48 are short answer type questions, each carries TWO mark. 32**
33. Obtain the formula of force on a point charge q due to uniform surface charge distribution.
 34. Define electric potential and obtain expression of electric potential at a point in the electric field of a given charge.
 35. Using $U_E = \frac{1}{2} CV^2$, obtain the equation for energy density in terms of electric field between plates of charged capacitor.
 36. Explain Peltier effect and define peltier emf.
 37. Obtain the formula for force acting on a charge moving in a Magnetic and electric field.
 38. Explain mutual inductance with the help of a diagram and hence define it.
 39. Derive the differential equation of charge Q for the circuit containing L, C and R in series. Applied A.C circuit voltage, $V = V_m \cos \omega t$.
 40. Write the principle of transformer. Obtain the expression $N_2 : N_1 = E_2 : E_1$
 41. Obtain the Gauss formula for concave mirror.
 42. Obtain the condition for first order minimum for Fraunhofer diffraction by a single slit.
 43. Derive the general form of Snell's Law.
 44. Write four characteristics of photon.
 45. Write the limitations of Bohr model.
 46. Explain the working of a zener diode in voltage regulator.
 47. With the help of a diagram explain two types of electric current in a semiconductor.
 48. Derive the formula $d = \sqrt{2}hr$ for space wave transmission.

SECTION - D

- **Answer the questions , 49 to 60 as directed. Each carries THREE mark. 36**
49. Two spheres having same radius and mass are suspended by two strings of equal length from the same point, in such a way that their surfaces touch other. On depositing total 4×10^7 C charge on them, they repel each other in such a way that in equilibrium the angle between their strings become 60° . If the distance from the point of suspension and to the centre of the sphere is 20 cm, find the mass of each sphere. $K = 9 \times 10^9$ SI and $g = 10 \text{ ms}^{-2}$.

OR

Q amount of electric charge is residing on a conducting sphere having radius equal to R_1 . This sphere is connected to another conducting sphere of radius R_2 by a conducting wire. Calculate the electric charge on each of the spheres. The two spheres are separated by a large distance.

50. The tungsten filament of the bulb has resistance equal to 18Ω at 20°C temperature . A current of 0.185 A flows, when 30 V is connected to it. If $\alpha = 4.5 \times 10^{-3} \text{ K}^{-1}$ for a tungsten, then find the temperature of the filament.
51. On passing some current through a silver voltameter for 10^3 s, 1.118 gm silver collects on its cathode. An ammeter connected in series shows 0.9 Amp. If the electrochemical equivalent of silver is $1.118 \times 10^{-6} \text{ kgC}^{-1}$, find the error in the ammeter reading.
52. A proton and a deuteron having the same kinetic energies enter a region of uniform magnetic field. Deuteron's mass is twice that of a proton. Calculate the ratio of the radii of their resulting circular paths.
53. The region inside a current carrying toroidal winding is filled with tungsten of susceptibility 6.8×10^{-5} . What is the percentage increase in the magnetic field in presence of the material with respect to the magnetic field without it ?
54. Two long solenoids are of equal length l and the smaller solenoid having a cross-sectional area A is placed within the larger solenoid in such a way that their axes coincide. Find the mutual inductance of the system.

OR

Find the equivalent inductance of two inductors connected in parallel with the help of an appropriate dc circuit.

55. A 1000 W bulb is kept at the centre of a spherical surface and is at a distance of 10m from the surface. Calculate the force acting on the surface of the sphere by the electromagnetic waves, along with E_0 , B_0 and I . Take the working efficiency of the bulb as 2.5 % and consider it as a point source. Also calculate energy density on the surface.

Here, E_0 : maximum electric field strength

B_0 : maximum magnetic field strength

I : intensity of the waves.

$$\epsilon_0 = 8.85 \times 10^{-12} \text{ SI} \text{ and } c = 3.0 \times 10^8 \text{ m/s}$$

56. A fish is at some depth in a lake. It is at horizontal distance $R = 1.5 \text{ m}$ from the edge of the lake. If it is just able to see a tree on the edge of the lake what is its depth ?

Or

The ratio of intensity of light emerging from two sources is α . For the interference pattern produced by them, prove that,

57. Consider the radius of a nucleus to be 10^{-15} m . If an electron is assumed to be in such nucleus, what will be its wavelength ?

$$\text{Mass of electron} = 9.1 \times 10^{-31} \text{ kg; } h = 6.6 \times 10^{-34} \text{ Js}$$

58. Calculate the quantum number for which the radius of the orbit of electron in Be^{3+} would be equal to that for the ground state of electron in a hydrogen atom. Also compare the energy of the two states.

59. Half life of a radioactive element is 0.693 s . How much time will it take for the decay of 80 % of this substance ?

60. Two amplifier circuits are connected in series. The voltage gain of the first amplifier is equal to 15 and that of the second amplifier is equal to 10. If a 10 mV signal is applied at the input of the amplifier, then what will be the output signal ?

OR

The density of electron hole pair in a pure semiconductor at 300K temperature is equal to $1.5 \times 10^{16} \text{ m}^{-3}$. The number density of the majority charge carriers becomes equal to $4.5 \times 10^{22} \text{ m}^{-3}$ on adding trivalent impurity atoms. What will be the number density of the minority charge carriers in the above sample ?

BIOLOGY-I

1. What is RQ? Why RQ of organic acids is more than 1?
2. Differentiate between Thrombocytes and Monocytes.
3. Where are the respiratory centres located in the brain? Give the role of any 2.
4. Which part of brain maintains homeostasis in internal environment? Write 2 of its other functions.
5. A farmer wants to develop seedless grapes in his orchard. Can you suggest him the ways to develop to them.
6. Invagination of primitive streak fails to occur. What will be the fate of developing foetus?
7. Diagrammatically show the role of rubisco in Calvin cycle and photorespiration
8. What are the effects of senescence on brain and heart in man?
9. What are immunomodulators? Give their types.
10. What is the full form of ELISA test? Why this test is to be repeated every 6 months?
11. Why GM foods are considered controversial by some environment enthusiasts?
12. Name any 4 mental behavioural problems.
13. Give any 2 reasons for threat to biodiversity.
14. Write the criteria of essential mineral nutrients (any 2)
15. Give the source, place of action and the products formed by the enzyme Peptidase
16. What are the diseases caused due to metabolic disorders in urine formation? Give the reason.
17. Define 2 main reasons for deafness of the ear.
18. Describe the respiration in earthworm.
19. Give the names and role of digestive hormones.
20. What is biomagnification? Which level of organisms are most affected by it and Why?
21. Explain in detail any 2 methods of soil conservation.
22. Explain any 2 kinds of growth in animals giving examples
23. How osmoregulation takes place in aquatic animals?
24. Which patients need artificial pace maker? Where it is placed in the body? How it works?
25. How can you remove seed dormancy?
26. Name a bone disorder caused due to auto immune responses? What happens in it?
27. Which features are considered susceptible to extinction of organisms?
28. The hormone secreted by this gland encourages absorption of Na^+ and K^+ and maintains balance of these ions in our body. Name the gland and the hormone. Also name the other hormone secreted by this gland with one function of it.
29. Write in detail about the anaerobic respiration in plants and animals.
30. Describe reticular and limbic systems.
31. In which technique radioactive C and O are used for diagnosis? Explain about that method.
32. How can you control vehicular pollution? **OR**
33. How can you control industrial pollution?
34. Explain in detail the process of decomposition.
35. Draw a flow chart of photorespiration.
36. Explain circulatory system in cockroach.
37. Discuss in detail uterine cycle.
38. Explain the mode of action of peptide hormone with diagram.
39. Explain with the flow chart photophosphorylation. **OR**
Describe with the flow chart oxidative phosphorylation.
Draw neat and labeled diagram of LS of human brain. Describe structure and functions of different regions of brain stem.
40. Draw and explain the structure of male reproductive system in man.
Write a note on antibody mediated immunity. **OR**
41. Write the causes, symptoms and treatment of cancer.

COMPUTER-I**Q: Choose the correct alternative from the given alternatives:**

1. Which attribute of radio button specifies that it is to be shown selected from the beginning?
a) selected b) checked c) check d) default
2. To create an application which allows opening the image/image path after browsing for the file name, which attribute of <input> element is used?
a) type=file b) type=button c) type=img d) type=src
3. For the code <input type=textbox name=text1 value=text box>, what is displayed in the textbox on the browser window?
a) text1 b) text c) textbox d) Nothing will be shown
4. Which of the following is the correct property to define types of fonts in CSS?
a) font b) font-face c) font-family d) font-type
5. Which of the following are the possible values for the clear property of label selector?
a) right b) both c) none d) All of these
6. Which of the following is used to depict 'not equal to' in JavaScript?
a) <> b) ≠ c) != d) NOT
7. Which event would occur if the mouse has moved over the element in a JavaScript program?
a) onmouseover b) onMouseover c) ONMOUSEOVER d) All of these
8. Which of the following is an invalid way to use variable in JavaScript?
a) var a, b b) var a=10; c) var a=10; b=10; d) None of these
9. Which function is used to define that the cursor should be placed into the textbox?
a) onFocus() b) focus() c) gotFocus() d) All of these
10. Which of the following is used to concatenate strings in JavaScript?
a) + b) & c) && d) ;
11. What is meant by GPL?
a) Generic Private Legislature b) General Proprietary Legislature
c) Generic Proprietary License d) None of these
12. Which of the following rules do not apply to open source softwares?
a) availability of source code b) royalty payment on redistribution
c) modification of source code d) non-discrimination against persons, regions
13. What is meant by 'integrity of software' in open source software?
a) Overwriting the original source code b) Generating a new source code with license
c) Derived work to carry different name/version d) None of these
14. Which of the following are/is operating system(s) created under open source environment?
a) FreeRTOS b) FreeBSD c) FreeDOS d) All of these
15. Which is one of the most successful open source browser till date?
a) OpenSolaris b) Inferno c) Minix d) None of these
16. Which of the following open source office suite works only on Windows OS?
a) GNOME office b) SoftMaker Office c) NeoOffice d) KOffice
17. Which version of OpenOffice is currently in use?
a) 1x b) 1.5x c) 2x d) 3x
18. LGPL software can be used for which of the following purposes?
a) Commercial b) Educational c) Domestic d) All of these
19. What is the Open Office spreadsheet application called?
a) Base b) GBase c) KBase d) None of these
20. Which of the following application would allow creating queries and reports in Open Office?
a) gedit b) Calc c) HSQL d) None of these
21. Which of the following application would allow creating flowcharts in Open Office?
a) Draw b) Math c) Paint d) None of these
22. Which of the following is the most used Open Source Web Server?
a) AOLServer b) Apache HTTP c) SeaMonkey d) Zope
23. What is IDE?
a) Integration of Database Environment b) International Database Environment
c) Integrated Development Environment d) Integration of Database Environment
24. Which of the following is a programming/scripting language?
a) PHP b) Python c) Perl d) All of these
25. Which of the following is a open source image editor?
a) GIMP b) KIMP c) IMP d) GKIMP
26. Who was the pioneer of Linux OS?
a) Linus Torvalds b) Minix Torvalds c) Richard Torvalds d) Linus Stallman
27. What is the main directory in Linux called as?
a) bin b) boot c) root d) usr
28. What is the attaching of any hard drive to the Linux system called?
a) loading b) plugging c) mounting d) logging
29. The file system used in Unix/Linux is called _____ file system.
a) complex b) simplified c) unified d) multiplied
30. Which directory contains unix commands?
a) /lib b) /home c) /boot d) /bin
31. Which of the following directory shows the various drives/disks attached to the system?

- a) wc long b) wc -l long c) wc -line long d) wc -wcl long
64. Which command is used to view the file permissions of the file 'long'?
- a) ls -l long b) ls -p long c) cat long d) chmod long
65. What does the following permission depict: -rw-rw-rw- little?
- a) little is a directory b) little is a file c) file is read only d) None of these
66. Which of the following command is used to make a file 'kit' also executable for all?
- a) chmod a+x b) chmod a=x c) chmod ugo=x d) chmod a-x
67. Which command is used to uncompress a zipped file 'kit'?
- a) gzip -u kit b) gzip -d kit c) gunzip kit d) None of these
68. Which option is used with cut command to specify the delimiter used in the file?
- a) -c b) -d c) -f d) -t
69. Which of the following command will give the same output as : whoami?
- a) who|cut -t ":" -f 1 b) who|cut -d ":" -c 1 c) who|cut -d " " -f 1 d) who|cut -c "|" -d 1
70. Which command is used for pattern searching?
- a) tr b) grep c) uniq d) paste
71. Which of the following are editors where shell scripts are written?
- a) vim b) vedit c) edit d) kedit
72. Which sign displays the unused lines in vi editor?
- a) - b) ` c) ~ d) _
73. What is the default mode of vi editor?
- a) command mode b) execute mode c) colon mode d) None of these
74. How do you invoke the insert mode of vi editor?
- a) Press i b) Press insert key c) Press Esc d) All of these
75. What does 'A' command do in insert mode?
- a) Appends text at the end of current line b) Appends text after the current cursor position
c) Appends text at the beginning of current line d) Edits selected text
76. Which command is used to replace a single character under cursor with another character?
- a) R b) r c) s d) S
77. Which command is used to replace the entire line?
- a) R b) r c) s d) S
78. Which command takes you ex-command mode?
- a) Esc : b) : c) Esc c d) Esc x
79. Which command is used to exit the editing mode without making changes to file?
- a) :q b) :q! c) :x d) :w
80. Which command is used to save the file and quit the editing mode?
- a) :wq b) :x c) :w d) Both (a) & (b)
81. Which of the following command is used to run the script one.sh?
- a) sh one.sh b) x one.sh c) chmod one.sh d) All of these
82. Pressing which key on the keyboard allows deleting the character on the cursor position?
- a) d b) x c) Esc x d) Esc d
83. Which key is used to move the cursor to the left direction?
- a) h b) k c) l d) j
84. Which of the following is used as assignment operator in shell scripting?
- a) == b) := c) = d) -eq
85. Which of the following option is valid with echo command?
- a) -l b) -s c) -c d) -n
86. Which of the following is used to check the exit status of a command?
- a) for construct b) while construct c) if construct d) All of these
87. 'cmp' command is used on _____.
- a) numbers b) files c) strings d) directories
88. How is the if construct ended?
- a) using endif b) using [] c) using fi d) Using fidne
89. How is 'not equal to' used in if construct?
- a) < > b) != c) ≠ d) None of these
90. Which of the following is used to check whether the file exists and has size>0 in if construct?
- a) -s b) -f c) -sz d) -fs
91. How is the logical operator 'AND' used in shell script?
- a) + b) && c) AND d) -a
92. Which of the following is used to check whether the length of string str is greater than zero?
- a) -s str b) -z str c) -n str d) None of these
93. On the encounter of _____ the case statement starts checking the next condition.
- a) ;; b) ; c) break d) *
94. Using which of the following is unexpected input handled in case statement?
- a) #) b) *) c) ^) d) %)
95. Which of the following symbol indicates string beginning with 'm'?
- a) \$m b) m\$ c) ^m d) m^
96. Which command is used to accept a filename from the user in the shell script?
- a) input b) read c) enter d) scan
97. What is the output of : a=a + 1, where a is a variable storing number 10 in a shell script?
- a) a=a + 1 b) a + 1 c) 11 d) Error

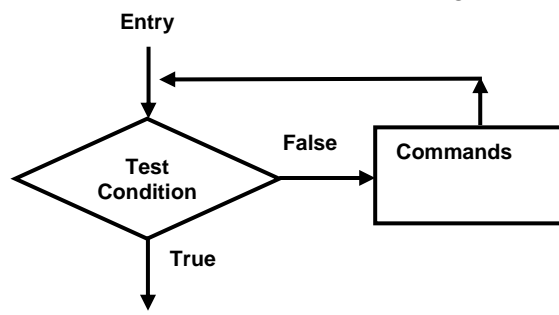
COMPUTER-II

1. What are the special purpose text that are used to create webpages called in HTML?
 - a) tags
 - b) angular bracket
 - c) elements
 - d) All of these
2. Which of the following is/are the part(s) of 'Tags' in HTML?
 - a) values
 - b) properties
 - c) elements
 - d) All of these
3. Which of the following is usually used to send data to the server or retrieve information?
 - a) JavaScript
 - b) forms
 - c) frames
 - d) None of these
4. Into how many parts can a form be divided?
 - a) 4
 - b) 3
 - c) 2
 - d) 5
5. Which of the following allow the user to enter data?
 - a) control elements
 - b) form container
 - c) input controls
 - d) Both (a) &(c)
6. Which of the following is not a type of form control element?
 - a) File select button
 - b) select menu
 - c) submit button
 - d) None of these
7. Which of the following attribute uniquely identifies a control on the form?
 - a) size
 - b) name
 - c) value
 - d) type
8. What will be displayed as the output of the following: <input type=submit>?
 - a) a button with 'Submit' displayed
 - b) a button with 'Submit Query' displayed
 - c) a textbox with 'Submit' displayed
 - d) None of these
9. What interprets a JavaScript code in HTML?
 - a) compiler
 - b) interpreter
 - c) web browser
 - d) server
10. Which of the following is used to prompt the user to enter his details using JavaScript?
 - a) inputbox
 - b) prompt
 - c) alert
 - d) confirm
11. Which of the following is used to concatenate strings in JavaScript?
 - a) '&'
 - b) '+'
 - c) '&&'
 - d) AND
12. Which of the following is used as a comment tag in HTML?
 - a) //
 - b) <!-- -->
 - c) <-- !-->
 - d) */ /*
13. Which of the following is the correct way to using the 'script' element?
 - a) <script>..</script>
 - b) <Script>..</Script>
 - c) <SCRIPT>..</SCRIPT>
 - d) All of these
14. If 'form1' is the name of the form and 'no1' the name of a textbox, which of the following is the correct code to clear the textbox of its contents?
 - a) textbox.clear
 - b) no1.clear
 - c) form1.no.clear
 - d) None of these
15. 'addNumber()' is an example of which type of function?
 - a) Built-in
 - b) User-defined
 - c) Modular
 - d) None of these
16. parseFloat () takes text as input and returns _____ number.
 - a) floating point
 - b) decimal
 - c) real
 - d) exponent
17. FAQ stands for _____.
 - a) Frequently Asked Questions
 - b) Few Asked Questions
 - c) Frequently Answered Questions
 - d) Few Answered Questions
18. Which of the following holds true for the 'Browser Compatibility' feature of a website?
 - a) Content should be precise, concise and brief
 - b) image file formats used in website should open in all browsers
 - c) customer forum to share their experience
 - d) All of these
19. 'ebay.com' is an ecommerce site. Which of the following would be the most appropriate structure of the website?
 - a) Hierarchical
 - b) Catalog
 - c) Linear
 - d) None of these
20. Which of the following structures provide a navigation bar to allow the user to move to any section directly?
 - a) Hierarchical
 - b) Catalog
 - c) Linear
 - d) Tutorial
21. A sitemap of a website is an example of _____ structure.
 - a) Hierarchical
 - b) Catalog
 - c) Linear
 - d) Tutorial
22. Which of the following means the layout of the webpage?
 - a) Web layout
 - b) Site layout
 - c) Site Template
 - d) Page Template
23. Which of the following the popular image file formats used on the web pages?
 - a) BMP
 - b) TIFF
 - c) GIF
 - d) All of these
24. Microsoft Office Publisher can be used for which of the following applications?
 - a) Catalogs
 - b) visiting cards
 - c) certificates
 - d) All of these
25. Which of the following are valid options available while creating web sites and email using Publisher?
 - a) Product Services
 - b) Professional Sales
 - c) 3-Page Web site
 - d) All of these
26. To change the logo displayed on the web page, one should select the old logo and then click on _____ icon.
 - a) magic wand
 - b) magic slate
 - c) magic hand
 - d) magic select
27. More templates can be downloaded from which of the following site to satisfy the web designing requirements?
 - a) www.msoffice2003.com
 - b) www.microsoft.com
 - c) www.mspublisher2003.com
 - d) www.mspub.com
28. Which of the following fields use the concept of e-commerce?
 - a) net-banking
 - b) auction of goods
 - c) goods trading
 - d) All of these
29. For which of the following purposes is amazon.com famous?

- a) selling books b) selling watches c) selling IT goods d) selling auction goods
30. Which of the following website provides live auction of goods?
a) amazon.com b) sellonline.com c) auctiononline.com d) ebay.com
31. Which of the following transaction cannot be performed through net banking?
a) Transferring money b) Balance Inquiry c) Withdrawal of money d) Online purchases
32. Which of the following is not a valid type of e-commerce business model?
a) B2B b) C2B c) C2C d) B2C
33. Which of the following come under G2B?
a) income tax returns forms b) birth certificates
c) welfare schemes d) All of these
34. Which of the following network is developed by the Government of Gujarat as a part of G2C?
a) GSWAN b) GEDI c) GSMAN d) GSEB
35. What is important before adding an item into the shopping cart?
a) registering to the website b) checking your bank balance
c) surfing for the item on different sites d) All of these
36. What is VPP?
a) Very Precious Parcel b) Value Precious Parcel
c) Value Payable Parcel d) Visa Payable Parcel
37. When is VPP sent to the purchaser?
a) When paid through credit card b) When paid through smart card
c) When paid through cash d) When paid through debit card
38. To connect your website to an e-commerce database, you should use which of the following?
a) ASP b) XML c) Java d) LINUS
39. What is JSP?
a) Java Servelets b) Java Server Pages c) Java Script Pages d) Java Script Problems
40. PHP stands for _____.
a) Preprocessor Hypertext b) Pre Hypertext Processor
c) Hypertext Preprocessor d) Hypertext Processor
41. 'Open Source' term means _____.
a) Source code is accessible to all b) Source code is available free of charge
c) Source code cannot work on all platforms d) Programs developed by specialized people
42. Which of the following is an application of open source technology?
a) Windows Server b) HTTP Server c) Apache Server d) HTTPx Server
43. Which of the following is/are open source programming/scripting language(s)?
a) Python b) Perl c) Both (a) & (b) d) PostgreSQL
44. Which of the following is an open source Linux desktop environment?
a) GIMP b) GNOME c) PHP d) AJAX
45. Which of the following is an open source mail client?
a) gmail b) moodle c) plone d) thunderbird
46. What is NetBeans IDE used for?
a) Creating windows b) Creating menus c) Both (a) & (b) d) None of these
47. NetBeans IDE supports which of the following?
a) Ajax b) Java c) C++ d) All of these
48. BOSS stands for _____.
a) Business Open Source Software b) Business Operating System Solutions
c) Bharat Open Source Software d) Bharat Operating System Solutions
49. The Indian GNU/Linux is presently localized in which of the following languages?
a) Hindi & Telugu b) Hindi & Tamil c) Tamil & Gujarati d) None of these
50. Which of the following is the correct release of Indian GNU/Linux?
a) Sarang b) Anand c) Tarang d) All of these
51. How do you make ch-8.tar.gz file compatible to Windows WinZip software?
a) change extension to .zip b) change extension to .gz
c) change the extension to .tar.gz.zip d) it is not possible in Linux to do so
52. What is 'Evolution'?
a) mail-client software b) internet setting software
c) audio player software d) movie player software
53. Which of the following option allowing finding files/folders in Linux?
a) Find b) Search for files c) Search d) Find and Display
54. Which of the following operation is possible in Nautilus File Manager?
a) create files b) move files c) delete directories d) All of these
55. Find and Replace option appears in which menu in Open Office Writer?
a) Edit b) View c) File d) Tools
56. Spell check option appears in _____ menu in Writer.
a) Edit b) View c) File d) Tools
57. The formatting toolbar in Open Office shows relevant tools in response to the cursor's current position or selection. What is such a bar called?
a) cursor sensitive b) context sensitive c) tool sensitive d) data sensitive
58. What is the shortcut key to create a new Writer file?
a) Ctrl + N b) Shift + N c) Ctrl + Shift + N d) Ctrl + Alt + N
59. The Navigator displays all objects contained in a document. How do you display the Navigator?

- a) File|Navigator b) Edit|Navigator c) Tools|Navigator d) Window|Navigator
60. A PDF file of the existing Writer file can be created by which of the following options?
 a) File→Save As→PDF b) File→Export as PDF
 c) Clicking on Export Directly as PDF icon d) Both (b) & (c)
61. What is the default extension of a Writer file?
 a) .odt b) .odf c) .odw d) .doc
62. Which of the following are valid views in Writer?
 a) Zoom b) Page Layout c) Outline d) All of these
63. How do you enable creating presentation through Wizard every time you open Impress?
 a) File →Wizard →Presentation b) Tools→Wizard →Presentation
 c) File →New →Wizard d) Insert → New →Wizard
64. Which view of Impress allows adding text and graphics to the slides?
 a) Slide View b) Normal View c) Both (a) & (b) d) None of these
65. How many rows does Calc have?
 a) 65536 b) 16777216 c) 256 d) Unlimited
66. Which of the following allows creating fill series in Calc?
 a) Edit →New→Series b) Edit→Fill→Series c) Insert→New→Series d) Insert →Fill→Series
67. Which of the following is/are valid series type(s) in Calc?
 a) Growth b) Direction c) Exponent d) Both (a) & (c)
68. What will be the correct formula to round off the number 190.23 to zero decimal places in Calc?
 a) =trunc(190.23,0) b) =round(190.23,0) c) =trunc(190.23:0) d) =round(190.23;0)
69. You have created an Ms Excel file called charts.xls in Windows OS. You take this file on an external storage device and transfer it on Linux OS. How will you open this file?
 a) change the file extension from .xls to .ods
 b) convert the file to pdf and then only can you open the file
 c) open Calc and open the file
 d) The file cannot be opened at all
70. Into how many categories are the formulas in Calc divided into?
 a) 10 b) 11 c) 12 d) 15
71. Under which category does the 'frequency' function appear in Calc?
 a) Logical b) Mathematical c) Statistical d) Array
72. The place where the commands are executed in Linux is called _____.
 a) administrator prompt b) user prompt c) console prompt d) command prompt
73. Which of the following is a command language interpreter that accepts/issues commands?
 a) Kernel b) Shell c) Prompt d) Terminal
74. Which type of shell is given by 'sh'?
 a) Korn b) Bourne c) C d) None of these
75. Which of the following command gives the default shell of your system?
 a) /bin/bash b) \$HOME c) #Shell d) \$SHELL
76. Which command will temporarily change your default shell to 'C' shell?
 a) #shell c b) ctrl + d csh c) csh d) \$csh
77. How do you exit the online help given by man pages?
 a) Ctrl+Z b) Ctrl + K c) Ctrl + d d) Ctrl + m
78. Which of the following command will only display the calendar of December 2010?
 a) cal 2010 b) cal Dec 2010 c) cal 12 2010 d) All of these
79. What is the last field of the 'date' command?
 a) time zone b) year c) date d) time
80. Which of the following format specifier is used to display the date in mm/dd/yy format using the date command?
 a) %D b) %d c) %B d) %b
81. How many minimum number of arguments are needed by the cp command?
 a) 3 b) 2 c) 4 d) 1
82. What does the following command do: cp good better best luck?
 a) copy contents of file good to files better, best and luck
 b) copy the contents of files good and better to files best and luck
 c) copy the contents of files good, better and best to file luck
 d) None of these
83. Which of the following is used with 'more' command to view the previous pages of a file on the screen?
 a) enter key b) b c) f d) Both (a) & (b)
84. Which of the following command gives the file size?
 a) more b) size c) wc d) show
85. What does the 'hyphen' in the following indicate: -rwxrwxrw-?
 a) file permission is missing b) not a directory c) Both (a) & (b) d) None of these
86. Which of the following can be performed on a file with the following: -r-xr--r--?
 a) delete the file b) edit c) append data d) None of these
87. Which command is used to remove an external storage device safely?
 a) mount b) umount c) unmount d) remove
88. Which mode of vi editor allows the entry of commands to manipulate text?
 a) colon mode b) ex mode c) insert mode d) None of these

89. Which command allows inserting text in a new line above the current cursor position in vi editor?
 a) A b) O c) R d) S
90. Which command allows inserting text from the beginning of a line in vi editor?
 a) I b) O c) A d) i
91. Which command replaces characters till Esc is hit in vi editor?
 a) r b) R c) s d) S
92. Which command is used to replace an entire line in vi editor?
 a) r b) R c) s d) S
93. Which command is used to exit the editing mode when no changes are made in a file in vi editor after pressing Esc?
 a) :w b) :x c) :q d) :q!
94. You want to execute your script file s1.sh. Which of the following command can be used to do so?
 a) ./ s1.sh b) ex s1.sh c) run s1.sh d) None of these
95. What is the exit status when a command has been executed successfully?
 a) 0 b) 1 c) true d) false
96. Which command is used to compare the contents of two files using if construct in shell scripting?
 a) -eq b) = c) cmp d) ==
97. The following flow chart represents which of the following loop?



- a) while do..done b) until do..done c) do while done d) None of these
98. Which of the following statement is used to increment the value of 'a' by 1?
 a) a++ b) a=expr \$a + 1 c) a=\$a + 1 d) a=`expr \$a + 1`
99. While using case structure, the condition is checked and statements executed till _____ is found.
 a) ;; b) break c) break; d) ::
100. How is else statement/condition given in case structure?
 a) else) b) esle) c) case else) d) *)

- a) EDI Gateways b) Payment Gatewaysc) Online Gateways d) ABC Gateways
29. Which of the following are the data centers that perform the credit card transactions and settle funds to the merchant?
a) Payment b) EDI c) Processors d) Both (a) & (b)
30. The bank that provides credit card facility to the customer is called _____.
a) issuing bank b) online bank c) acquiring bank d) merchant bank
31. Which of the following is an example of electronic cash?
a) credit card b) eCash c) debit card d) smart card
32. Display of which logo indicates that the communication on the logged on site is secured?
a) SSL b) VeriSign c) SecureSign d) VeriSecure
33. SSL stands for _____.
a) Secure Signature Layer b) Secure Socket Link
c) Secure Socket Layer d) Secure Signature Link
34. Which of the following is true for a secured e-commerce website?
a) web-address begins with ftp b) web-address begins with http
c) web-address begins with shttp d) web-address begins with https
35. What is a catalogue on an e-commerce website?
a) customers' list enrolled on the website b) List of items sold on the website
c) services list provided on the website d) Links to related websites
36. Which of the following are server side scripting languages?
a) VB Script b) Hypertext Preprocessor
c) Jscript d) All of these
37. How do you save your website in HTML format using Publisher?
a) File → Save b) File → Export → Webpage
c) File → Web Page → Save d) File → Save As → Webpage
38. How is a textbox added to the webpage in Publisher?
a) Insert → Textbox b) Add → Textbox c) Tools → Textbox d) Insert → Drawing
39. Which menu allows you to create a hyperlink in Publisher?
a) Edit b) Add c) Insert d) Tools
40. Which of the following is not very important while purchasing on an e-commerce website?
a) Selecting payment terms b) Name c) Contact Address d) All of these
41. Apache HTTP Server can be downloaded from which of the following website?
a) <http://http.apache.org> b) <http://https.apache.org>
c) <http://httpd.apache.org> d) <http://http.apache.com>
42. What is Apache Tomcat?
a) web server b) database c) office suite d) web browser
43. Using which of the following open office software can a mathematical equation be created?
a) Draw b) Math c) Open Math d) Mathematica
44. Open Office Base uses its own built-in _____ database engine.
a) SQL b) PL/SQL c) HSQL d) MySQL
45. Which of the following OS can be downloaded free from the net?
a) MINIX b) Lynx c) Lotus d) Flock
46. Firefox can work on which of the following OS?
a) Mac OS b) Linux c) Both (a) & (b) d) None of these
47. Which of the following make short work of flowcharts and organization charts?
a) Smart connectors b) Line c) Autosshapes d) Rendering
48. Which option allows changing the setting of the mouse in Linux?
a) System Settings b) System Tools c) Settings d) Preferences
49. What is the Recycle Bin called in Linux?
a) Bin b) Recycler c) Trash d) Recycle Bin
50. Which of the following is an important configuration file whose backup saves re-configuration on re-installation of Linux?
a) etc.conf b) grub.conf c) lilo.conf d) hda1.conf
51. Any device in Linux needs to be attached to some existing directory. What is this existing directory called?
a) mounting b) mount point c) device point d) /dev point
52. Which type of hierarchical directory structure does Linux follow?
a) Single b) Dual c) Multiple d) Bus
53. Which of the following shows the various partitions on the first master drive of the Linux system?
a) /etc b) /dev c) /mnt d) /dir
54. Which of the following directory is used for recovering Linux from any crash situation?
a) /lost+found b) /boot c) /tmp d) /proc
55. Use of which shortcut key allows changes in the text style in Notes view in Impress?
a) F6 b) F10 c) F11 d) F12
56. How many prepackaged Master Pages are available in Impress?
a) 4 b) 5 c) 6 d) 10
57. You have already selected a master slide. Now you want to make changes in this master slide. Which of the options will allow you to do so?
a) View → Master Slide b) Tools → Master → Master slide
c) Format → Master slide d) View → Master → Master Slide

