Code No.	J – 2289

Entrance Examination for Admission to the M.Tech. Degree Courses in the Teaching Departments, 2020

CSS

TECHNOLOGY MANAGEMENT

General Instructions

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

Time : 2 Hours **Max. Marks : 100**

To be filled in by the Candidate									
Register Number	in Figures								
	in words								

PART – A

(Objective Type)

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

(60 × 1 = 60 marks)

1. The postfix form of the expression $(A + B) * (C * D - E)^{*} F / G$ is?

   a) $AB+CD^{*}E-FG/**$ b) $AB+CD^{*}E-F**G/$

   c) $AB+CD^{*}E-*F*G/$ d) $AB+CDE^{*}-*F*G/$

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2. What is the time complexity of worst performance in linear search?

   a) $O(n \log n)$ b) $O(\log n)$

   c) $O(n)$ d) none of these

3. Which algorithm is a faster method for calculating pixel positions?

   a) Bresenham's line algorithm b) Parallel line algorithm

   c) Mid-point algorithm d) DDA line algorithm

4. The interrupt servicing mechanism in which the requesting device identifies itself to the processor to be serviced is

   a) Polling b) Vectored interrupts

   c) Interrupt nesting d) Simultaneous requesting

5. '*m*' processes share '*n*' resources of the same type. The maximum need of each process doesn't exceed '*n*' and the sum of all their maximum needs is always less than $m+n$. In this setup, deadlock

a) can never occur
b) may occur
c) has to occur
d) none of the mentioned

6. Which of the following tasks is not done by data link layer?

a) framing
b) error control
c) flow control
d) channel coding

7. The size of an IP address in IPv6 is

a) 4 bytes
b) 128 bits
c) 8 bytes
d) None of the above

8. If same message is passed to objects of several different classes and all of those can respond in a different way, what is this feature called?

a) Inheritance
b) Overloading
c) Polymorphism
d) Overriding

9. Which of the following calls never returns an error?

a) getpid
b) fork
c) ioctl
d) open

10. Abstract classes can ———————— instances.

a) Never have
b) Always have
c) Have array of
d) Have pointer of

11. Which statement regarding conduction band is false?

a) it is the lowest unfilled energy band
b) it represents the energy of conduction electrons
c) it lies below the valence band
d) it may be either empty or partially filled

12. The input current of JFET and MOSFET are basically the leakage currents of ———————— and ———————— respectively.
    a) forward-biased PN junction and capacitor
    b) reversed biased PN junction and capacitor
    c) forward-biased PN junction and inductor
    d) reversed biased PN junction and inductor

13. The antenna used for radar is
    a) paraboloidal antenna
    b) horn fed paraboloidal reflectors
    c) dipole
    d) all of the above

14. Which type of memory elements are used in synchronous sequential circuits?
    a) clocked flip-flops
    b) unclocked flip-flops
    c) time delay elements
    d) all the above

15. The number of depletion layers in a transistor is
    a) 4
    b) 3
    c) 1
    d) 2

16. The base of a transistor is ———————— doped.
    a) heavily
    b) lightly
    c) moderately
    d) None of the above

17. In a transistor :
    a) IC = IE + IB
    b) IB = IC + IE
    c) IE = IC + IB
    d) IE = IC – IB

18. An oscillator produces ———————— oscillations.
    a) damped
    b) undamped
    c) both (a) and (b)
    d) none of these

19. The binary number 00010010 is equivalent to the decimal number
    a) 18
    b) 19
    c) 17
    d) 12

20. The 2's compliment of binary number 0011 is :

a) 1100 b) 0010

c) 1110 d) none of the above

21. If two resistors are placed in parallel,

a) inverse of the equivalent resistance is the algebraic sum of the inverse of the individual resistances

b) the resultant resistance will be algebraic sum of individual resistances

c) the resultant resistance will be the same as first

d) the resultant resistance cannot be determined

22. The magnitude of the DC voltage

a) rises and falls b) is a sine wave

c) is an audio waveform d) remains constant

23. Kelvin's bridge consists of

a) half bridge b) three fourth bridge

c) single bridge d) double bridge

24. The moving iron instrument is used to measure

a) AC only b) DC only

c) Both AC and DC d) None of the above

25. ———————— is the S.I. unit of frequency.

a) Ampere b) Watt

c) Hertz d) None of the above

26. In a shunt dc motor, the speed of the motor ————————, if field current is reduced.

a) remains same b) increases

c) decreases d) none of the above

27. Sparking occurs when a load is switched off because the circuit has high.

a) Resistance b) Inductance

c) Capacitance d) Impedance

28. Differentiating circuit can be used to convert a square wave to
    a) Sine wave
    b) Sharp narrow pulses
    c) Rectangular wave
    d) Triangular wave

29. Flashing the field of D.C. generator
    a) Decrease residual magnetism
    b) Causes magnetic losses of forces parallel
    c) Creates residual magnetism
    d) Neutralize residual magnetism

30. Solder is an alloy of
    a) Copper and aluminium
    b) Tin and lead
    c) Nickel, Copper and Zinc
    d) Silver, Copper and Lead

31. Ratio of compressive strength to tensile strength of concrete
    a) increases with age
    b) decreases with age
    c) remains constant
    d) none of the above

32. The biggest of the survey line is called
    a) First line
    b) Base line
    c) Tie line
    d) Main survey line

33. Lime mortar is generally made with
    a) quick lime
    b) fat lime
    c) hydraulic lime
    d) plain lime

34. The most dangerous pollutant in vehicular emissions is
    a) CO
    b) SO_2
    c) CO_2
    d) O_3

35. During purification process of sewage the gas given off, is
    a) carbon dioxide
    b) hydrogen
    c) ammonia
    d) all the above

36. The brick work is not measured in cu m in case of
    a) One or more than one brick wall
    b) Brick work in arches
    c) Reinforced brick work
    d) Half brick wall

37. For standing crops in undulating sandy fields, the best method of irrigation, is
    a) sprinkler irrigation
    b) free flooding
    c) check method
    d) furrow method

38. The binder used in flexible pavement construction is
    a) Cement
    b) Lime
    c) Bitumen
    d) None of the above

39. The fire clay contains
    a) Calcium hydroxide
    b) Potassium hydroxide
    c) Hydrated aluminium silicate
    d) Oxide of Magnesium

40. The direction and speed of winds is measured with the help of
    a) anemometer
    b) wind indicator
    c) barometres
    d) none of these

41. The colour of the flame of halide torch, in case of leakage of Freon refrigerant, will change to
    a) Bright green
    b) Yellow
    c) Red
    d) Orange

42. ———————— is the process of bevelling sharp ends of a work piece.
    a) Chamfering
    b) Grooving
    c) Facing
    d) Knurling

43. ———————— is the ratio of stress and strain.
    a) Modulus of elasticity
    b) Young's modulus
    c) Both (a) and (b)
    d) None of the above

44. In cantilever beam, maximum slope and deflection is at
    a) fixed end
    b) free end
    c) middle
    d) None of the above

45. What is the primary function of mechanism?
    a) Power transmission
    b) Power absorption
    c) Force transmission
    d) Motion transmission

46. On drilling machine, Reaming is the process of ————————

a) Increasing the radius of existing hole
b) Hole made by removal of metal along the hole circumference
c) Smoothly finishing and accurately sizing a drilled hole
d) All of the above

47. ———————— law, states that the internal energy of a perfect gas is the function of absolute temperature.

a) Boyles law
b) Charles law
c) Joules law
d) None of the above

48. ———————— is used to reverse the direction of lead screw relative to the direction of spindle movement.

a) Speed lever
b) Feed lever
c) Tumbler gear lever
d) Tool post

49. A steam nozzle converts

a) Heat energy of steam into kinetic energy
b) Kinetic energy into heat energy of steam
c) Heat energy of steam into potential energy
d) Potential energy into heat energy of steam

50. Which of the following energy conversion devices convert heat into work?

a) Electrical generators
b) I.C. engines
c) Condensers
d) All of the above

51. A problem is given to two students whose chance of solving it are ½ and ¼ respectively. What is the probability that the problem is solved if they try independently?

a) 3/4
b) 1/4
c) 5/8
d) 3/8

52. If the letters of the word EQUATION are arranged at random, what is the probability that all the vowels are together?

a) 5/8
b) 2/7
c) 1/14
d) 2/9

53. A standard normal curve is symmetrical about

a) Mean
b) Median
c) Mode
d) All the above

54. The radius of the circle increases at a constant rate of 2 ft/s. Find the rate of change of area when the radius is 60 ft.

a) 120 ft^2/s
b) 30 π ft^2/s
c) 240 π ft^2/s
d) 120 π ft^2/s

55. The sum of deviations of the observations is zero when taken about

a) mean
b) median
c) mode
d) all the above

56. A conic with excentricity *e* represents an ellipse, if

a) $e < 1$
b) $e = 1$
c) $e > 1$
d) $e = 0$

57. If 206, 293 and 187 are sides of triangle, its area is

a) 34300
b) 12800
c) 19100
d) 24000

58. While scheduling a project by C.P.M.

a) a project is divided into various activities
b) required time for each activity is established
c) sequence of various activities is made according to their importance
d) all the above

59. The sum of consecutive numbers from 1 to 100 is

a) 5050
b) 5500
c) 5005
d) None of the above

60. If arithmetic mean of two numbers is greater than the geometric mean of the numbers by 2, and the ratio of the numbers is 4 : 1, then the numbers are

a) 4, 1
b) 8, 2
c) 16, 4
d) None of the above

ANSWER SHEET — PART – A

1	A	B	C	D	E	21	A	B	C	D	E	41	A	B	C	D	E
2	A	B	C	D	E	22	A	B	C	D	E	42	A	B	C	D	E
3	A	B	C	D	E	23	A	B	C	D	E	43	A	B	C	D	E
4	A	B	C	D	E	24	A	B	C	D	E	44	A	B	C	D	E
5	A	B	C	D	E	25	A	B	C	D	E	45	A	B	C	D	E
6	A	B	C	D	E	26	A	B	C	D	E	46	A	B	C	D	E
7	A	B	C	D	E	27	A	B	C	D	E	47	A	B	C	D	E
8	A	B	C	D	E	28	A	B	C	D	E	48	A	B	C	D	E
9	A	B	C	D	E	29	A	B	C	D	E	49	A	B	C	D	E
10	A	B	C	D	E	30	A	B	C	D	E	50	A	B	C	D	E
11	A	B	C	D	E	31	A	B	C	D	E	51	A	B	C	D	E
12	A	B	C	D	E	32	A	B	C	D	E	52	A	B	C	D	E
13	A	B	C	D	E	33	A	B	C	D	E	53	A	B	C	D	E
14	A	B	C	D	E	34	A	B	C	D	E	54	A	B	C	D	E
15	A	B	C	D	E	35	A	B	C	D	E	55	A	B	C	D	E
16	A	B	C	D	E	36	A	B	C	D	E	56	A	B	C	D	E
17	A	B	C	D	E	37	A	B	C	D	E	57	A	B	C	D	E
18	A	B	C	D	E	38	A	B	C	D	E	58	A	B	C	D	E
19	A	B	C	D	E	39	A	B	C	D	E	59	A	B	C	D	E
20	A	B	C	D	E	40	A	B	C	D	E	60	A	B	C	D	E

TECHNOLOGY MANAGEMENT

PART – B

(Management Aptitude)

Answer **any eight** questions out of twelve questions. Each question is based on the information from a given passage and five sub questions based on it. Each sub question carry one mark. **(8 × 5 = 40 Marks)**

1. Study the following table to answer the questions given below :

Number of candidates appeared and qualified in competitive examination from different states over the years.

Year	2016		2017		2018		2019		2020	
State	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.
Tamil Nadu	5200	720	8500	980	7400	850	6800	775	9500	1125
Kerala	7500	840	9200	1050	8450	920	9200	980	8800	1020
Karnataka	6400	780	8800	1020	7800	890	8750	1010	9750	1250
Andhra	8100	950	9500	1240	8700	980	9700	1200	8950	995
Telangana	7800	870	7600	940	9800	1350	7600	945	7990	885

(a) What is the percentage of candidates qualified from state of Kerala for all the years together, over the candidate appeared during all the years together?

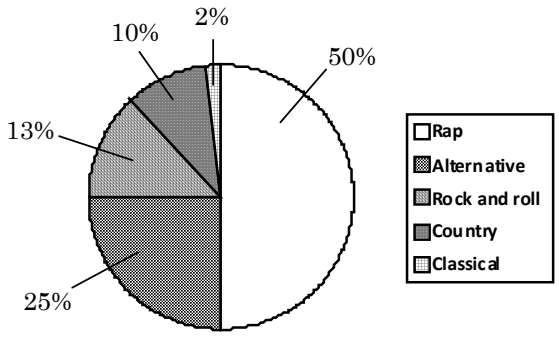
(b) During which year was the percentage of qualified candidates over the appeared candidates is the highest for the state of Kerala?

(c) What is the percentage of total number of qualified candidates from all the states together over the total number of candidate appeared from all the states together in 2016?

(d) During which year the percentage of candidates qualified over the candidates appeared from state of Telangana is the Lowest?

(e) Total number of candidates qualified from all the states together in 2016 is approximately what percentage of the total number of candidates qualified from all the states together in 2017.

2. The pie chart shows the music preferences in students aged 14 to 19 years old. Study the pie chart carefully and answer the following questions.



(a) Which music do the majority of the students prefer?

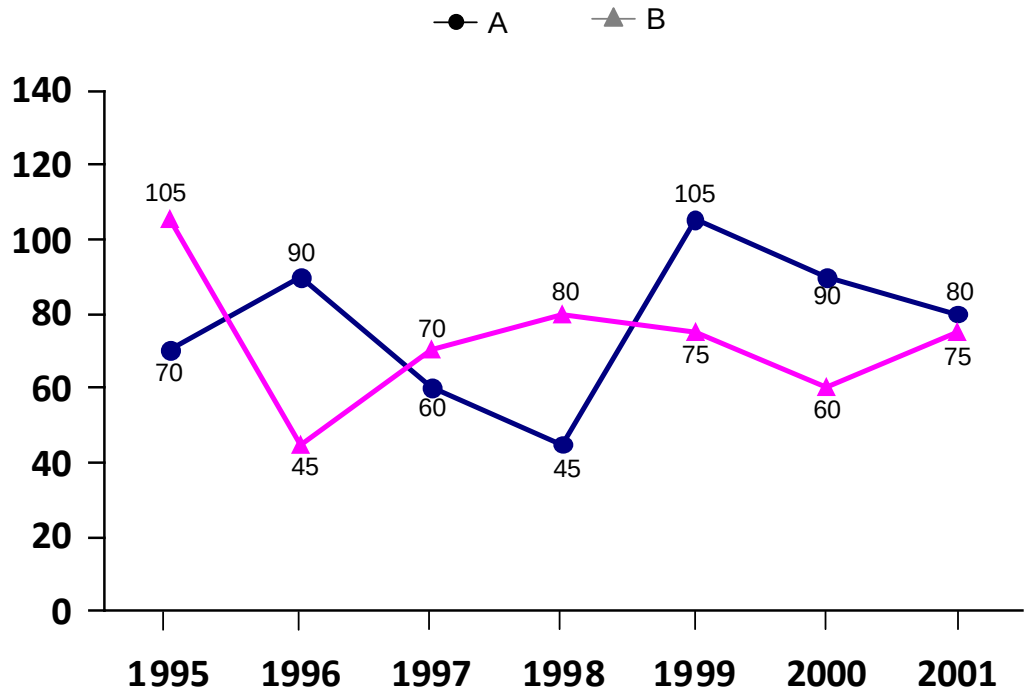
(b) Which music is least preferred?

(c) Which is the second choicest preference of the students?

(d) What is the percentage of students preferring country music?

(e) What is the degree of angle of students preferring Rock and Roll music?

3. Study the following graph carefully and answer accordingly. The following graph shows the percentage profit of two companies over the years.



(a) In which of the following years of the ratio of expenditure to income was the least for company B?

(b) If the total expenditure of company A in 1997 was Rupees 150 Lakhs, What was the total income?

(c) In which year the total income more than double the total expenditure for company A.

(d) In which year the percentage of expenditure with respect to the income of company B was less than 50 per cent?

(e) If the total income of company B in 2001 was Rupees 200 Lakhs, what was the expenditure of company A in the same year?

4. Choose the right answer based on the information given below :

Six books A, B, C, D, E & F are placed side by side. C, B and E have blue covers and other books have red covers. Only D and F are new books and the rest are old. A, C and D are law reports others are Gazetteers.

(a) Which of the book is a new law report with a red cover?

(b) Which two books are old Gazetteers with blue covers?

(c) Which red cover Gazetteer is a new book?

(d) Which one of the old volume of a Gazetteer among the books C, D, E and F?

(e) Which one is old blue covered law report?

5. Six friends P, Q, R, S, T and U are sitting around the hexagonal table each at one corner and are facing the centre of the hexagonal table.

P is second to the left of U

Q is neighbour of R and S

T is second to the left of S

(a) Which of the following are the neighbours of P?

(b) Counting Clockwise how many people are between P and U?

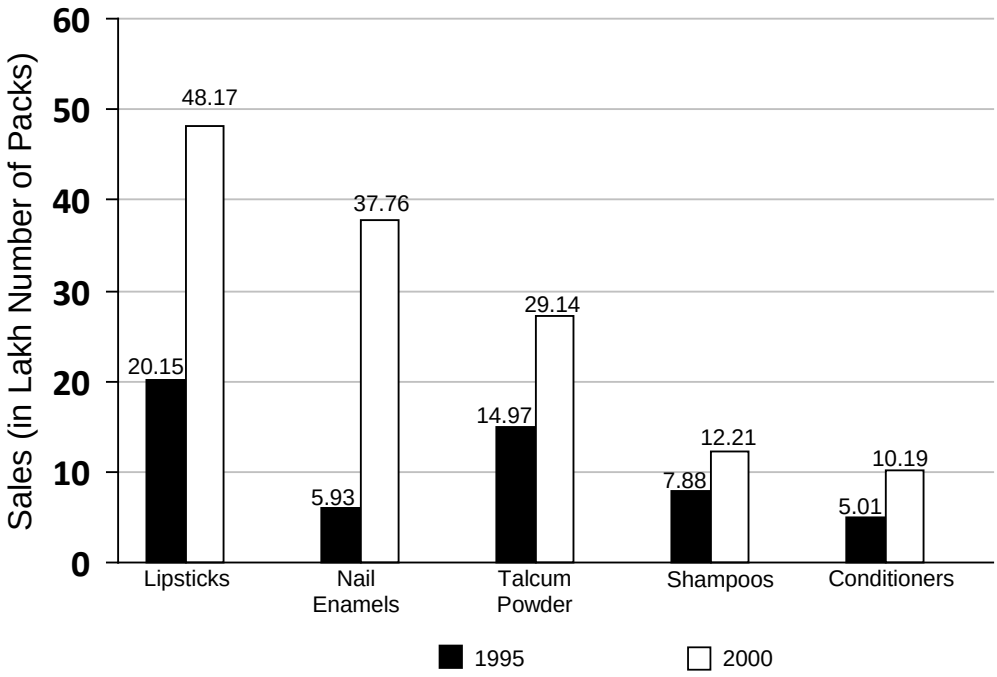
(c) Which one is sitting opposite to P?

(d) Which one is sitting diagonally opposite to T?

(e) Who is the fourth person to the left of Q?

6. A cosmetic company provides five different products. The sales of these five products (in lakh number of packs) during 1995 and 2000 are shown in the following bar graph.

Sales (in lakh number of packs) of five different products of Cosmetic Company during 1995 and 2000.



(a) The sales of lipsticks in 2000 was by what percent more than the sales of nail enamels in 2000? (rounded off to nearest integer)

(b) During the period 1995–2000, the minimum rate of increase in sales is in the case of?

(c) What is the approximate ratio of the sales of nail enamels in 2000 to the sales of Talcum powders in 1995?

(d) The sales have increased by nearly 55% from 1995 to 2000 in the case of?

(e) The sales of conditioners in 1995 was by what percent less than the sales of shampoos in 1995? (rounded off to nearest integer)

7. The following bar chart shows the composition of the GDP two countries (India and Pakistan)

Composition of GDP of Two Countries

(a) If the total GDP of Pakistan is Rs. 10,000 crore, then a GDP accounted for by Manufacturing is?

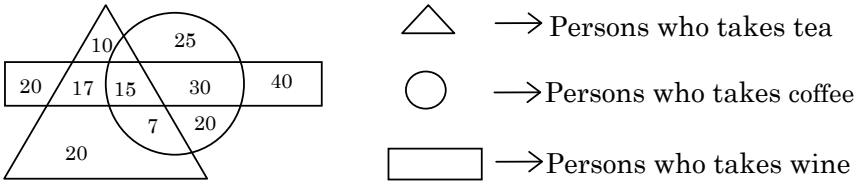
(b) What fraction of India's GDP is accounted for by Services?

(c) If the total GDP of India is Rs. 30,000 crores, then the GDP accounted for by Agriculture, Services and Miscellaneous is?

(d) Which country accounts for higher earning out of Services and Miscellaneous together?

(e) If the total GDP is the same for both the countries, then what percentage is Pakistan's income through agriculture over India's income through services?

8. Study the diagram given below and answer each of the following questions.



(a) How many persons who take tea and wine but not coffee?

(b) How many persons are there who take both tea and coffee but not wine?

(c) How many persons take wine?

(d) How many persons are there who takes only coffee?

(e) How many persons takes all the three?

9. Study the following information carefully and answer the questions given below :

There are five persons P,Q,R,S and T. Two of them ages are 35 and the other three ages are viz, 27, 29 and 32. They are working in Google, Sony, Samsung, Apple and Alibaba, but not necessarily in the same order. A person working in Sony and the one who is working in Alibaba are the same age. They belong to different countries, Canada, the US, France, China and India, but not necessarily in the same order. The person working in Alibaba is tallest, while the one is working in Google is shortest among the five persons. The one who is working in Sony and his height lies between the one who is working in Samsung and the one who is working in Alibaba respectively. S is working in Sony and his age is 35 while T belongs to France and his age is 32. The person working in Samsung belongs to China and his age is 27. Q belongs to India, while P belongs to Canada and working in Google.

(a) In which company does Q work?

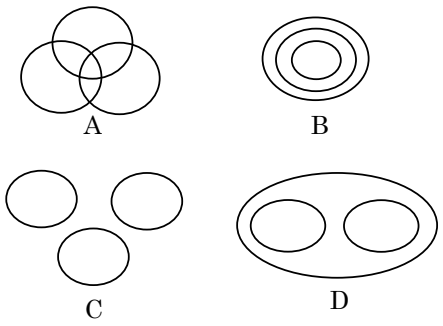
(b) In which country does T work?

(c) Where does R work?

(d) According to Height, who will be between P and R?

(e) Who will be the youngest one?

10. Questions here are based on the following figures. Study the figures and relate them to the terms and concepts given in questions. Each questions are related to any one of the following figure. Identify and justify the reason.



(a) Hard bed, Sofa, Furniture

(b) Crocodile, Eagle, Lion

(c) Country, State, Chief Minister

(d) Teacher, Writer, Philosopher

(e) Father, Son, Daughter

11. Four families decided to attend the marriage ceremony of one of their colleagues. One family has no kids, while others have atleast one kid each. Each family with kids has atleast one kid attending the marriage.

Given below is some information about the families, and who reached when to attend the marriage.

The family with two kids came just before the family with no kids.

Shanthi who does not have any kids reached just before Sridevi's family.

Sunil and his wife reached last with their only kid.

Anil is not the husband of Joya.

Anil and Raj are fathers.

Sridevi's and Anita's daughters go to the same school.

Joya came before Shanthi and met Anita when she reached the venue.

Raman stays the farthest from the venue.

Raj said his son could not come because of his exams.

(a) Which women arrived third?

(b) Name the correct pairs of husband and wife having two children certenly?

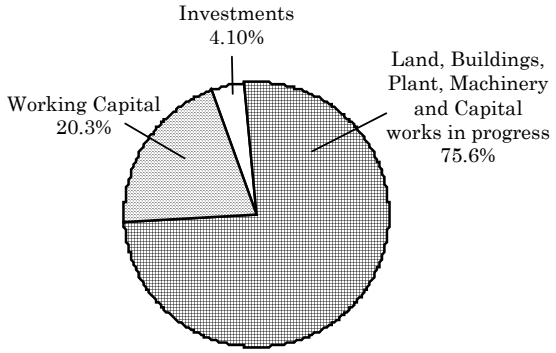
(c) Write the name of the fathers of daughters who goes to the same school?

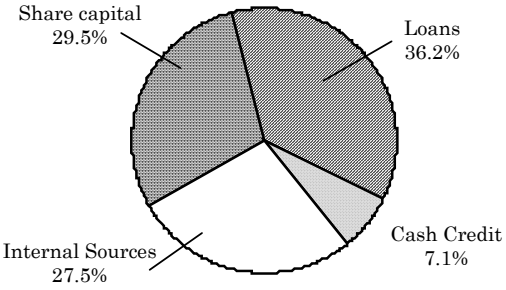
(d) Whose family is known to have no kids?

(e) Name the correct pairs of husband and wife arrived last.

12. The diagram below depicts the sources and uses of funds in a public sector enterprise.

The total outlay is Rupees 4000 Crore.





(a) If working capital has to be managed out of the loan funds, then what percentage (approximately) of loan funds should be set apart for this purpose?

(b) The total amount which has been used for buying land, machinery, setting plants and capital work is approximately Rupees.

(c) The total cash credits acquired by the company are approximately Rupees.

(d) The company is in need of more working capital. How much capital it can acquired by redeeming its investment.

(e) If the company were to manage its working capital internal sources alone, then how much fund from this resource will still be left for other use?