

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA

VADODARA

Ph. D. ENTRANCE TEST (PET) – 13th SEPTEMBER 2015

Signature of Invigilator

FACULTY OF TECHNOLOGY
AND ENGINEERING (11)

Roll. No.

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(in figures as in Hall Ticket)

Roll No.

(in words)

Maximum Marks: 100

Time: 12.00 noon to 3.00 P.M. (180 Minutes)

Instruction for the Candidate:

1. Write your Roll Number in the space provided on the top of this page.
2. This paper consists of **Fifty (50)** multiple choice type questions. Each Question carries **two (2)** marks.
3. Each question has four alternative responses marked (A), (B), (C) and (D). The answer should be a capital letter for the selected option. The answer letter should entirely be contained within the corresponding square.

Correct Method



Wrong Method



OR



4. Your responses to the items for this paper are to be indicated on the ICR Answer Sheet only.
5. Read instructions given inside carefully.
6. Extra page is attached at the end of the Booklet for rough work.
7. You should return the ICR Answer Sheet to the Invigilator at the end of examination and should not carry it with you outside the examination hall.
8. There shall be NO NEGATIVE MARKING.
9. Use of programmable calculator is not allowed. Any electronic equipments/ mobile phone etc. are not allowed in the premise of the examination hall. If found, candidate is liable to be expelled from the examination centre.
10. Candidates are allowed to carry Question booklet with them after the examination is over.

Faculty of Technology and Engineering (11)

Note : This paper contains **FIFTY(50)** multiple-choice questions. Each Question carries **two (2)** marks.

01) If PALE is coded as 2134, EARTH is coded as 41590, how can is PEARL be coded in that language?

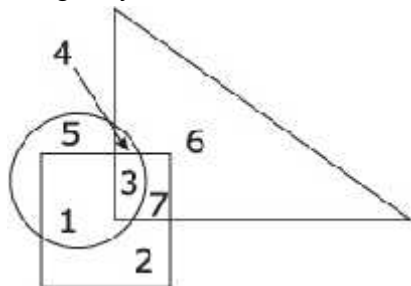
- A) 25430
- B) 29530
- C) 25413
- D) 24153

02) Of the following two statements, both of which cannot be true, but both can also be false. Which are these two statements?

- I. All machines make noise
- II. Some machines are noisy
- III. No machine makes noise
- IV. Some machines are not noisy

- A) I & II
- B) III & IV
- C) I & III
- D) II & IV

03) In a given figure, circle indicates 'strong', square indicates 'tall' and triangle 'army officers'. The strong army officers who are not tall are shown by,



- A) 4
- B) 3
- C) 5
- D) 6

04) Newton-Raphson method of solution of numerical equation is not preferred when,

- A) Graph of A(B) is vertical
- B) Graph of x(y) is not parallel
- C) The graph of f(x) is nearly horizontal-where it crosses the x-axis
- D) Graph of A(B) is increasing exponentially

05) A number is doubled and then 9 is added. If resultant is trebled, it becomes 75. What is that number?

- A) 8
- B) 10
- C) 12
- D) 14

06) Three unbiased coins are tossed, what is the probability of getting at least 2 tails?

- A) 1/3
- B) 1/6
- C) 1/2
- D) 1/8

07) In the following question, various terms of an alphabet series are given with one term missing as shown by a question mark. Choose the missing terms out of the given alternatives:

AZ, GT, MN, ?, YB.

- A) KF
- B) RX
- C) SH
- D) TS

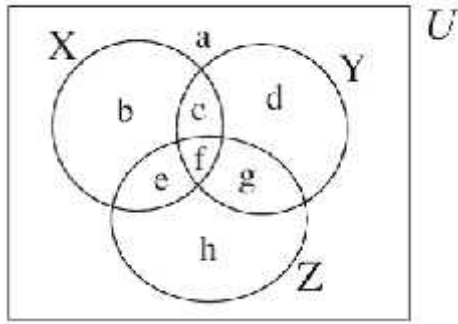
08) Which of the following places the common data elements in order from smallest to largest?

- A) Character, file, record, field, database
- B) Character, record, field, file, database
- C) Character, field, record, file, database
- D) Bit, byte, character, record, field, file, database

09) If $U = \{1, 2, 3, \dots, 20\}$ and $S =$ Set of prime numbers, then $S =$

- A) $\{3, 5, 7, 11, 13, 17\}$
- B) $\{2, 3, 5, 7, 11, 13, 17, 19\}$
- C) $\{1, 3, 5, 7, 9, 11, 13, 15, 17, 19\}$
- D) $\{1, 2, 3, 5, 7, 11, 13, 17\}$

10) In the give figure, $U = \{a, b, c, d, e, f, g, h\}$.



$(X \cap Y) \cup Z =$

- A) $\{c, e, f, g, h\}$
- B) $\{e, f, g\}$
- C) $\{f\}$
- D) $\{c, f, h\}$

11) The statement of purpose in a research study should:

- A) Identify the design of the study
- B) Identify the intent or objective of the study
- C) Specify the type of people to be used in the study
- D) Describe the study

12) One step that is not included in planning a research study is:

- A) A review of current research
- B) Statement of the research question
- C) Conducting a meta-analysis of the research
- D) Developing a research plan

13) The feasibility of a research study should not be considered in light of:

- A) Cost and time required to conduct the study
- B) Skills required of the researcher
- C) Potential ethical concerns
- D) Profitability of research outcome

14) Hypotheses in qualitative research studies usually _____.

- A) Are very specific and stated prior to beginning the study
- B) Are often generated as the data are collected, interpreted, and analyzed
- C) Are never used
- D) Are always stated after the research study has been completed

15) Which of the following is not an example of Operating System?

- A) Windows 98
- B) BSD Unix
- C) Microsoft Office XP
- D) Red Hat Linux

16) If Poles: Magnet:: ? : Battery

- A) Energy
- B) Power
- C) Cells
- D) Terminals

17) The average mark obtained by a student in 3 papers is 52 and in fourth paper he obtained 60 marks. His new average would be:

- A) 54
- B) 52
- C) 55
- D) 53.5

18) Which of the following is the largest number?

- A) 20% of 200
- B) 7% of 500
- C) 1300% of 3
- D) 600% of 7

19) Diya can complete a work in 8 days. Jyoti can do the same work in 24 days. If both are working together then the task will be finished in:

- A) 8 days
- B) 6 days
- C) 4 days
- D) 2 days

20) Following four pairs of the words in options are related in some respect. Identify the pair which is different from other pairs.

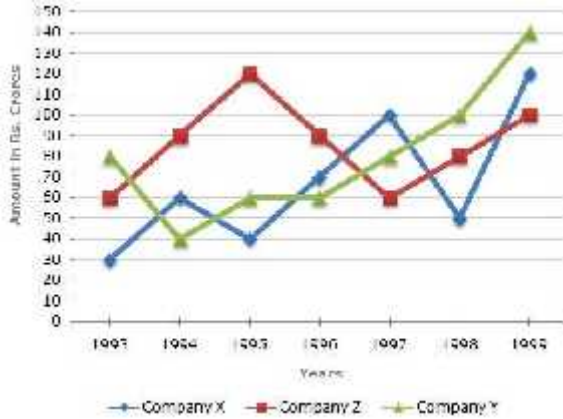
- A) Trees: Forest
- B) Books: Library
- C) Flowers: Bouquets
- D) Ship: Sea

21) Shoe is related to 'Leather' in the same way as 'Shirt' is related to:

- A) Thread
- B) Cotton
- C) Cloth
- D) Tailor

- 22) Find the word which means the same or has the closest meaning to the verb 'Slump':
- Settle
 - Fall
 - Reduce
 - Bend
- 23) Find the word which means the same or has the closest meaning to the noun 'Oracle':
- Professor
 - Magician
 - Prophet
 - Noble
- 24) Choose the most appropriate word to complete the sentence.
Population increase _____ with depletion of foreign reserve has led to slow development.
- coupled
 - mixed
 - added
 - joined
- 25) Choose the most appropriate word to complete the sentence.
We have been trying to solve the problems _____.
- since two days
 - during two days
 - for two days
 - from two days
- 26) Find the word which means the same or has the closest meaning to the phrasal verb 'give in'.
- abandon
 - surrender
 - distribute
 - offer
- 27) Choose the most appropriate alternative from the options given below to complete the following sentence.
Despite of several _____ the mission succeeded in its attempt to resolve the conflict.
- attempts
 - setbacks
 - meetings
 - delegations
- 28) The sum of digits A and B of two digit number AB is 10. When the digits are reversed, the new number BA is decreased by 54. The number AB will be
- 91
 - 73
 - 64
 - 82
- 29) If $381A$ is divisible by 9, find the value of smallest natural number A.
- 5
 - 7
 - 6
 - 9
- 30) In a mixture of 80 liters of milk and water, 25% of the mixture is milk. How much water is added to the mixture so that the milk becomes 20% of the mixture?
- 10 liters
 - 15 liters
 - 20 liters
 - 25 liters
- 31) In any given year, the probability of a annual maximum flood greater than magnitude of 800 cumecs in River Vishwamitri is 0.04. The average time between successive occurrence of such flood event is _____ years.
- 100
 - 80
 - 40
 - 25
- 32) The average of day time temperature on Monday, Tuesday and Wednesday was 41°C . And the average of day time temperature of Tuesday, Wednesday and Thursday was 40°C . If on Thursday, the average day time temperature was 39°C , What was the average day time temperature on Monday?
- 42°C
 - 46°C
 - 23°C
 - 26°C

33) Study the line graph shown in the figure and answer the question.

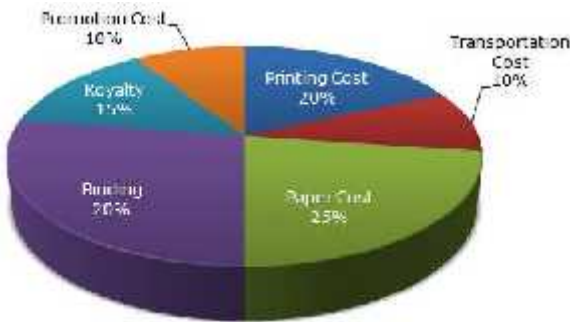


For which of the following pairs of years the total exports from the three Companies together are equal?

- A) 1995 and 1998
- B) 1996 and 1998
- C) 1997 and 1998
- D) 1995 and 1996

34) The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the following question.

Various expenditures (in percentage) incurred in Publishing a book.



If for a certain quantity of books, the publisher has to pay Rs. 30,000 as printing cost, then what will be amount of royalty to be paid for these books?

- A) Rs. 15,000
- B) Rs. 25,000
- C) Rs. 22,500
- D) Rs. 30,000

35) Which web tool/application is best suited to collect feedback in form of MCQ from customers using internet at various locations?

- A) Email
- B) Excel
- C) Google form
- D) Twitter

36) Which network site is most appropriate to build contacts with researchers?

- A) ResearchGate
- B) Facebook
- C) LinkedIn
- D) Tweeter

37) The 'Introduction' section of the research plan should not include

- A) Gives an overview of prior relevant studies
- B) Contains a statement of the purpose of the study
- C) Concludes with a statement of the research questions and, for quantitative research, it includes the research hypothesis
- D) Data/Result tables

38) Which of the following represents the quality of a research journal

- A) Academic Performance Index
- B) Sensitivity Index
- C) Impact Factor
- D) Cumulative Performance Index

39) Find the missing Number 11, 12, 17, 18, 23, 24...

- A) 12
- B) 29
- C) 30
- D) 35

40) Deep goes to the east, then he turns left and then goes 10 m and then again he turns left and goes 10 m. In which direction is he from the starting point

- A) North
- B) South
- C) East
- D) West

41) A is 40 m south west of B, C is 40 m South East of B then, C is in which direction of A

- A) South
- B) West
- C) East
- D) North-east

- 42) The ratio of the two numbers is 3:4 and their sum is 420. The greater of the two number is:
 A) 175
 B) 200
 C) 240
 D) 315
- 43) If $a+b : b+c : c+a = 6:7:8$ and $a+b+c=14$, then what is c ?
 A) 6
 B) 7
 C) 8
 D) 14
- 44) The population of a town increases by 5% annually. If its population is 1,38,915 in 2015, what it was in 2012?
 A) 1,00,000
 B) 1,08,000
 C) 1,10,000
 D) 1, 20,000
- 45) It rained as much on Wednesday as on all the others day of the week combined. If the average rainfall for the week was 3 cm how much did it rained on Wednesday?
 A) 18 cm
 B) 3 cm
 C) 10.5 cm
 D) 15 cm
- 46) If 12 men and 16 boys can do a piece of work in 5 days, 13 men and 24 boys can do it in 4 days, then the ration of daily work done by a man to that of a boy is:
 A) 2:1
 B) 3:1
 C) 3:2
 D) 5:4
- 47) Two pipes A and B can fill a tank in 6 hrs and 4 hrs respectively. If they are opened on alternate hours and if pipe A is opened first, in how many hours, the tank shall be full?
 A) 4
 B) 4.5
 C) 5
 D) 5.5
- 48) Excluding stoppages, the speed of a bus 54 kmph and including stoppages, it is 45 kmph. For how many minutes does the bus stop per hour?
 A) 9
 B) 10
 C) 12
 D) 20
- 49) If the ratio of the areas of two squares is 225:256, then the ratio of their perimeter is
 A) 225:256
 B) 256:225
 C) 15:16
 D) 16:15
- 50) If a man can swim downstream at 6 kmph and upstream at 2 kmph, his speed in still water is
 A) 4 kmph
 B) 2 kmph
 C) 3 kmph
 D) 2.5 kmph
- *****

Rough Work: