

SECOND SEMESTER UG DEGREE EXAMINATION, APRIL 2026

(FYUGP)

(Regular/Supplementary/Improvement)

CC24UMAT2FM106(2) - MATHEMATICS FOR COMPETITIVE EXAMINATIONS - PART - II

(Mathematics - MDC)

(2024 Admission onwards)

Time: 1.5 Hours

Maximum : 50 Marks

Credit: 3

Section A

Answer *all* questions. Each question carries 1 mark.

1. Rajnish can row 12 km/hr in still water. It takes him twice as long to row up as to row down the river. Find the rate of stream. [Level:3] [CO1]
(A) 8 km/hr (B) 4 km/hr (C) 6 km/hr (D) 10 km/hr
2. A person covers $20\frac{2}{5}$ km on 3 hr. What distance will he cover in 5 hr? [Level:3] [CO1]
(A) 20 km (B) 25 km (C) 30 km (D) 34 km
3. At 5:30, the hour hand and the minute hand of a clock form an angle of [Level:3] [CO1]
(A) 30° (B) 15° (C) 70° (D) 45°
4. A missile travels at 1350 km/hr. How many metres does it travel in one second? [Level:3] [CO1]
(A) 369 km (B) 375 km (C) 356 km (D) 337 km
5. After 2007, which year's calender will be the same as 2007? [Level:3] [CO1]
(A) 2011 (B) 2015 (C) 2018 (D) 2009
6. What is Ram's average speed, if he goes from point X to Y at 8 km/hr and returns from point Y to point X at 12 km/hr? [Level:3] [CO1]
(A) 8.6 km/hr (B) 10.6 km/hr (C) 9.6 km/hr (D) 15.6 km/hr
7. 'A' is thrice as good a workman as 'B' and takes 10 days less to do a piece of work than 'B' takes. The number of days taken by 'B' alone to finish the work is [Level:3] [CO1]
(A) 12 (B) 15 (C) 20 (D) 30
8. 4th April, 1988 was Monday. What day of the week was it, on 6th November, 1987? [Level:3] [CO1]
(A) Tuesday (B) Friday (C) Sunday (D) Saturday

9. A train 100 m long passes a platform 100 m long in 10 s. The speed of the train is [Level:3] [CO1]
 (A) 36 km/hr (B) 45 km/hr (C) 54 km/hr (D) 72 km/hr
10. If A can do a piece of work in 4 days, B can do the same work in 8 days C can do the [Level:3] [CO1]
 same work in 12 days, then working together, how many days will they take to
 complete the work?
 (A) $1\frac{1}{11}$ days (B) $2\frac{2}{11}$ days (C) 2 days (D) 11 days
11. A man can row with a speed of 6 km/hr in still water. What will be his speed with the [Level:3] [CO1]
 stream, if the speed of stream is 2 km/hr?
 (A) 8 km/hr (B) 6 km/hr (C) 2 km/hr (D) 4 km/hr
12. Two trains of lengths 80 m and 90 m are moving in opposite directions at 10 m/s and 7 [Level:3] [CO1]
 m/s respectively. Find the time taken by the trains to cross each other.
 (A) 7 s (B) 8 s (C) 10 s (D) 17 s
13. A and B working together can finish a piece of work in 12 days while B alone can [Level:3] [CO1]
 finish it in 30 days. In how many days can A alone finish the work?
 (A) 18 days (B) 20 days (C) 24 days (D) 25 days
14. If 'gnr tag zog qmp' stands for 'Seoul Olympic Organising Committee', 'hyto gnr emf' [Level:3] [CO2]
 stands for 'Summer Olympic Games' and 'emm sdr hyto' stands for 'Morden Games
 History'. What would be the code for 'Summer'?
 (A) hyto (B) gnr (C) emf (D) zog
15. In a class of 42 students, Mahesh's rank is 16th from the bottom. What is his rank from [Level:3] [CO2]
 the top?
 (A) 25 (B) 26 (C) 27 (D) 28
16. In a code language, 'BRINJAL' is written as 'LAJNIRB'. Then, how will [Level:3] [CO2]
 'LADYFINGER' be written in that code?
 (A) RNEGIFYDAL (B) RINEGFYDAL
 (C) REGNIFYDAL (D) RGENIFYDAL
17. Choose the odd one. [Level:3] [CO2]
 (A) PRTV (B).CEGI (C) ACFH (D) JLNP
18. Choose the word which will complete the second pair, in the same way as first pair. [Level:3] [CO2]
 Clock : Time :: Thermometer : ?
 (A) Heat (B) Radiation (C) Energy (D) Temperature

19. Choose the odd one. [Level:3] [CO2]
 (A) EHKN (B) KNRU (C) GJMP (D) MPSV
20. Find the next number in the below series. 2, 3, 5, 8, 12, 17. [Level:3] [CO2]
 (A) 32 (B) 33 (C) 34 (D) 23
21. If 'TEACHER' is coded as 'VGCEJGT'. Then, what will be code for 'CHILDREN'? [Level:3] [CO2]
 (A) EJKNFTGP (B) EJKNFHTP (C) EKJNFGTO (D) EJKNEGTP
22. DI is related to 49, in the same way FD is related to [Level:3] [CO2]
 (A) 64 (B) 52 (C) 41 (D) 33
23. Raja walks slower than Raghu and Raghu walks as fast as Goru and Krishna walks faster than Goru. Who walks the fastest? [Level:3] [CO2]
 (A) Raghu (B) Krishna (C) Goru (D) Raja
24. Find the next number in the below series. [Level:3] [CO2]
 LMD, MKG, NIJ, ?
 (A) PKM (B) OGM (C) MGO (D) LGM
25. Find the next number in the below series. P1F, R2E, T6D, V24C. [Level:3] [CO2]
 (A) X120B (B) Y100C (C) Y120B (D) X120C
26. A is the father of C but C is not his son. E is the daughter of C. F is the spouse of A. B is the brother of C. D is the son of B. G is the spouse of B. H is the father of G. Who is the grandmother of D? [Level:3] [CO3]
 (A) A (B) C (C) F (D) H
27. Mohit walks a distance of 5 km towards South, then turns to his right and walks 3 km. He again turns right and walks 5 km. He then turns to his left and walks 5 km. How far is he from the starting point and in which direction? [Level:3] [CO3]
 (A) 5 km and West (B) 3 km and North (C) 3 km and East (D) 8 km and West
28. A man walks 6 km South, turns left and walks 4 km, again turns left and walks 5 km. Which direction is he facing now? [Level:3] [CO3]
 (A) South (B) North (C) East (D) West
29. Rina walks 20 m towards North. She then turns left and walks 40 m. She again turns left and walks 20 m. Further, she moves 20 m after turning to the right. How far is she from her starting point? [Level:3] [CO3]
 (A) 60 m (B) 40 m (C) 20 m (D) 80 m

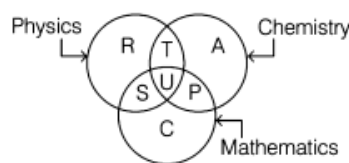
30. Ram is facing North-West. He turns 90° in the clockwise direction and then turns 135° in the anti-clockwise direction, which direction is he facing now? [Level:3] [CO3]
- (A) South (B) North (C) East (D) West

31. A boy rode his bicycle Northwards, then turned left and rode 1 km and again turned left and rode 2 km. He found himself exactly 1 km West of his starting point. How far did he ride Northwards initially? [Level:3] [CO3]
- (A) 1 km (B) 2 km (C) 3 km (D) 5 km

32. Choose the diagram that best represents the relationship among Brinjal, Glass and Spoon. [Level:3] [CO3]

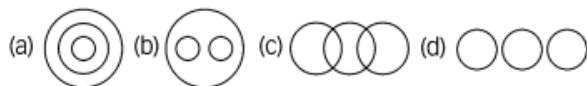


33. Study the diagram and identify the region which represents students who study both Physics and Chemistry but not Mathematics. [Level:3] [CO3]



- (A) T+S+U+P (B) C (C) R+T+A+U+P+S (D) T

34. Which figure will be represent the relationship amongst Week, Day, Year. [Level:3] [CO3]



- (A) (a) (B) (b) (C) (c) (D) (d)

35. Ram is the brother of Shyam and Mahesh is the father of Ram. Jagat is the brother of Priya and Priya is daughter of Shyam. Who is the uncle of Jagat? [Level:3] [CO3]

- (A) Shyam (B) Mahesh (C) Ram (D) None of these

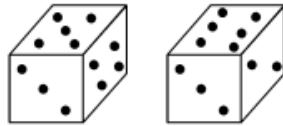
36. If Mohan says that his mother is the only daughter of Shyam's mother, then how is Shyam related to Mohan? [Level:3] [CO3]

- (A) Son (B) Father (C) Sister (D) Uncle

37. 'P x Q' means 'P is the father of Q', 'P — Q' means 'P is the sister of Q', 'P + Q' means 'P is the mother of Q', 'P / Q' means 'P is the brother of Q'. Which of the following represents 'J is the son of F'? [Level:3] [CO3]

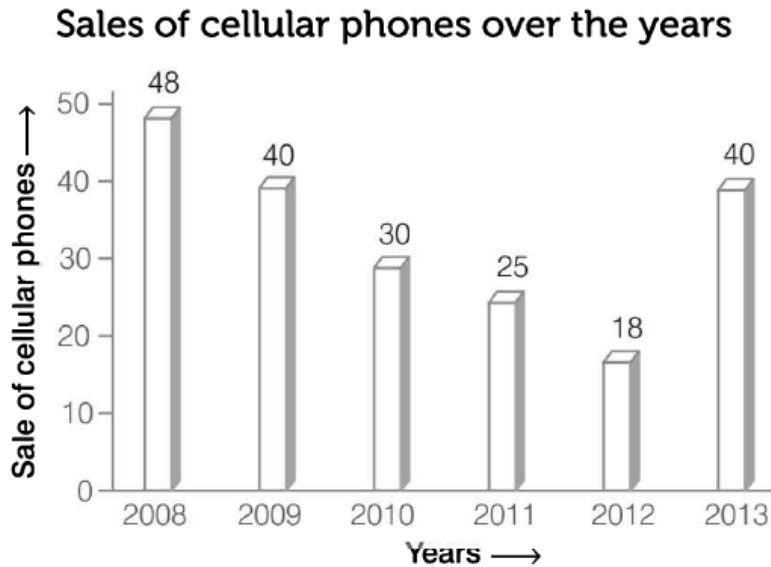
- (A) J - R — T x F (B) J + R — T x F (C) J + M — N x F (D) None of these

38. If the bottom face is marked as number 1, which number will be on the top among the following two figures? [Level:3] [CO4]



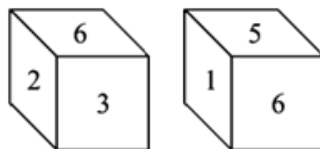
- (A) 2 (B) 3 (C) 4 (D) 5

39. Refer to the following bar chart and answer the questions that follow. [Level:3] [CO4]



Find the two years between which the rate of change of cellular phones is minimum.

- (A) 2008-09 (B) 2010-11 (C) 2009-10 (D) Both (a) and (b)
40. Two faces of a cube are given below. Which number will be opposite to 3? [Level:3] [CO4]



- (A) 1 (B) 5 (C) 4 (D) 2

41. The area of an isosceles triangle, each of whose equal sides is 13cm and whose base is 24 cm, is [Level:3] [CO4]

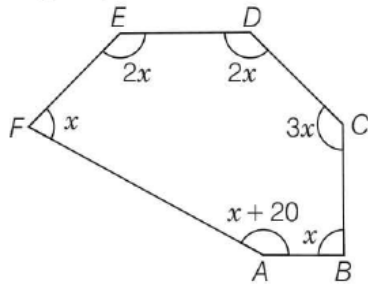
- (A) 60 (B) 55 (C) 50 (D) 40

42. In a circle of radius 10 cm, a chord is at a perpendicular distance of 6 cm from the center. The length of the chord is: [Level:3] [CO4]

- (A) 8 (B) 12 (C) 14 (D) 16

43. Find x

[Level:3] [CO4]



- (A) 72 (B) 76 (C) 70 (D) 74

44. Study the table carefully to answer the questions that follow

[Level:3] [CO4]

Number of students studying in different standards of different schools

Standards Schools	I	II	III	IV	V	VI
A	42	54	48	58	50	38
B	50	60	58	45	45	46
C	40	48	58	46	42	54
D	45	55	46	40	52	50
E	48	55	44	55	52	48
F	52	52	54	42	60	54

What is the approximate average number of students studying in standard I from all schools together?

- (A) 38 (B) 50 (C) 40 (D) 46

45. **Statements**

[Level:3] [CO4]

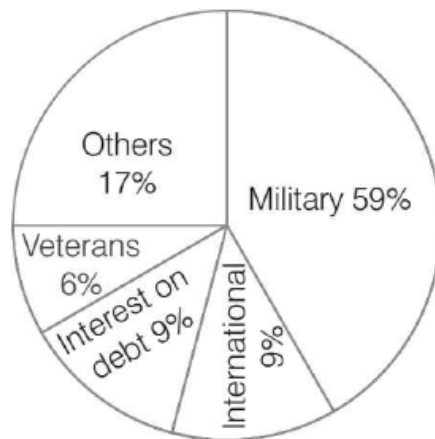
- (i) Some players are singers.
(ii) All singers are tall.

Conclusions

- (i) Some players are tall.
(ii) All players are tall.
(A) Only Conclusion I is true
(B) Only Conclusion II is true
(C) Both Conclusions I and II are true
(D) Neither Conclusion I nor Conclusion II is true

46. **National budget expenditure in the year 2012**
(Percentage distribution)

[Level:3] [CO4]

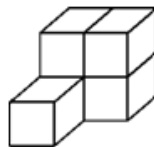


If ₹ 9 billion were spent in year 2012 for veterans, then what would have been the total expenditure for that year?

- (A) ₹ 100 billion (B) ₹ 150 billion (C) ₹ 175 billion (D) ₹ 200 billion

47. How many cube are there in the figure?

[Level:3] [CO4]



- (A) 4 (B) 5 (C) 6 (D) 7

48. A cylindrical tank has diameter 14 m and height 6 m. How many liters of water can it hold?

[Level:3] [CO4]

- (A) 922,000 liters (B) 923,000 liters (C) 924,000 liters (D) 925,000 liters

49. **Statement:** All the TV sets manufactured in India, 'Solar' brand has the largest sale.

[Level:3] [CO4]

Conclusions: I. Volume of sales of all brands of TV sets manufactured is known. II.

The production of no other TV set is as large as that of 'Solar'.

Which conclusion(s) follow from the given statement?

- (A) Only conclusion I follows (B) Only conclusion II follows
(C) Both conclusions I and II follow (D) Neither conclusion I nor II follows

50. Number of diagonals in a regular polygon with 10 side is.

[Level:3] [CO4]

- (A) 35 (B) 40 (C) 45 (D) 32
