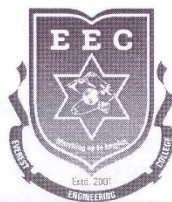


Everest Engineering College

(Affiliated to Pokhara University)



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ENTRANCE EXAMINATION - MODEL SET

Programs

BE-CIVIL

BE-IT

BE-COMPUTER

Name:.....

Program:.....

ID:.....

Directions: There are 100 multiple choice questions of equal weightage. Every questions or incomplete statements below is followed by four suggested lettered choices or completions. Choose the one lettered choice that is best in each and then fill in the corresponding circle in the answer sheet provided.

Time: 2 Hours

Full Marks: 1 x 100=100

Mathematics

1. The logically equivalent proposition of $p \leftrightarrow q$ is:
 - a) $(p \wedge q) \vee (p \vee q)$
 - b) $(p \rightarrow q) \wedge (q \rightarrow p)$
 - c) $(p \wedge q) \rightarrow (q \vee p)$
 - d) $(p \rightarrow q) \vee (q \rightarrow p)$
2. Let X and Y are two disjoint sets, then $X \cap (X \cup Y) =$
 - a) X
 - b) Y
 - c) ϕ
 - d) None
3. Let $S = \{0, 1, 5, 4, 7\}$ then number of subsets of S is :
 - a) 64
 - b) 32
 - c) 40
 - d) 20
4. If $A \cap B = \phi$ then $A - B$ is
 - a) A
 - b) B
 - c) $B - A$
 - d) ϕ
5. $|x| < a$ implies
 - a) $-a > x > a$
 - b) $-a < x < a$
 - c) $-a \geq x \geq a$
 - d) $-a \leq x \leq a$
6. If $f(x) = \frac{x}{x-1}$ then $\frac{f(a)}{f(a+1)} =$
 - a) $f(-a)$
 - b) $f(1/a)$
 - c) $f(a^2)$
 - d) $f\left(-\frac{a}{a+1}\right)$
7. $\left|5 - \frac{2}{x}\right| < 1$ is equal to
 - a) $-1 \leq x \leq \frac{1}{2}$
 - b) $\frac{1}{3} < x < \frac{1}{2}$
 - c) $-\frac{5}{2} < x < \frac{3}{2}$
 - d) $-1 < x < \frac{3}{2}$
8. If $\log_8 x + \log_8(x-4) + \log_8(x-6) = 2$ then x is equal to
 - a) 2
 - b) 4
 - c) 8
 - d) 10
9. If $\frac{1}{(a+c)} + \frac{1}{(b+c)} = \frac{3}{a+b+c}$ where a, b, c are side of triangle ABD then $\angle C =$
 - a) 30°
 - b) 60°
 - c) 45°
 - d) 90°
10. A function $f: R \rightarrow R$ defined by $f(x) = \sin x, x \in R$ will be
 - a) One to one
 - b) Onto
 - c) Bijective
 - d) None
11. The equation of line having slope 5 represents
 - a) Family of concurrent lines
 - b) Family of parallel lines
 - c) A concurrent line
 - d) A line parallel to x-axis
12. The length of perpendicular drawn from $(-3, 0)$ to the line $3x + 4y + 7 = 0$ is
 - a) $\frac{2}{5}$
 - b) $\frac{5}{2}$
 - c) $\frac{3}{5}$
 - d) 2
13. The distance between parallel lines $x+y+a=0$ and $2x+2y+b=0$ is
 - a) $\pm \frac{a-b}{2\sqrt{2}}$
 - b) $\pm \frac{b-a}{2\sqrt{2}}$
 - c) $\pm \frac{2a-b}{2\sqrt{2}}$
 - d) $\pm \frac{2b-a}{2\sqrt{2}}$

14. The centroid of a triangle, whose vertices are (2, 1), (5, 2) and (3, 4) is:

a) $\left(\frac{8}{3}, \frac{7}{3}\right)$ b) $\left(\frac{10}{3}, \frac{7}{3}\right)$
 c) $\left(\frac{-10}{3}, \frac{7}{3}\right)$ d) $\left(\frac{8}{3}, \frac{-7}{3}\right)$

15. The area of triangle formed by $\frac{x}{a} + \frac{y}{b} = 1$ with coordinate axes is

a) ab b) $\frac{ab}{2}$
 c) $2ab$ d) $\frac{ab}{3}$

16. The angle between the pair of lines given by equation $x^2 + 2xy - y^2 = 0$ is

a) $\frac{\pi}{3}$ b) $\frac{\pi}{6}$
 c) $\frac{\pi}{2}$ d) 0

17. If the equation $ax^2 + 2hxy + by^2 = 0$ represents two lines $y = m_1x$ and $y = m_2x$ then

a) $m_1 + m_2 = \frac{2h}{b}$ and $m_1m_2 = -\frac{a}{b}$
 b) $m_1 + m_2 = -\frac{2h}{b}$ and $m_1m_2 = \frac{a}{b}$
 c) $m_1 + m_2 = \frac{2h}{b}$ and $m_1m_2 = \frac{a}{b}$
 d) $m_1 + m_2 = -\frac{2h}{b}$ and $m_1m_2 = \frac{a}{b}$

18. which one of the following is not always true?

- a) matrix addition is commutative
 b) matrix addition is associative
 c) matrix multiplication is commutative
 d) matrix multiplication is associative

19. In each element of the third order determinant $|A|$ is multiplied by 2, then the value of the determinant is

a) $4|A|$ b) $2|A|$
 c) $6|A|$ d) $8|A|$

20. If a, b, c are in A.P; b, c, a are in H.P then c, a, b are in

- a) A.P b) G.P
 c) H.P d) None of these

21. If the sum to infinity of a geometric series is 15 and the first term is 3 then find the common ratio

a) $\frac{4}{5}$ b) $\frac{5}{4}$
 c) $\frac{3}{4}$ d) $\frac{1}{5}$

22. n arithmetic mean are inserted between a and b, then common difference is

a) $\frac{b+a}{n}$ b) $\frac{b+a}{n+1}$
 c) $\frac{b-a}{n+1}$ d) $\frac{b-a}{n}$

23. The modulus of $\frac{3-4i}{3+4i}$ is

a) 5 b) 7
 c) $\frac{7}{2}$ d) 1

24. If $1, w, w^2$ are cube root of unity then value of $(1+w)^3 - (1+w^2)^3$ is :
 a) 0 b) 2
 c) -2 d) $2w$
25. The root of quadratic equation $2x^2 + 3x + 1 = 0$ are
 a) Irrational b) Rational
 c) imaginary d) None
26. The circle $x^2 + y^2 - 2ax - 2ay + a^2 = 0$ touches
 a) Both axes b) x-axis
 c) y-axis d) none
27. A circle touches y-axis at the point (0,4) and cuts the x-axis in chord of 6 units. The radius of circle the circle is
 a) 3 b) 4
 c) 5 d) 6
28. The equation of circle passing through (4,5) and having center at (2,2) is
 a) $x^2 + y^2 + 4x + 4y - 5 = 0$
 b) $x^2 + y^2 - 4x - 4y - 5 = 0$
 c) $x^2 + y^2 - 4x - 13 = 0$
 d) $x^2 + y^2 + 4x + 4y + 5 = 0$
29. If $a=2, b=3, c=5$ in triangle ABC, then angle C is equal to
 a) $\frac{\pi}{6}$ b) $\frac{\pi}{3}$
 c) $\frac{\pi}{2}$ d) none
30. If $A = \tan^{-1} x$ then $\sin(2A)$ is equal to
 a) $\frac{2x}{\sqrt{1-x^2}}$ b) $\frac{2x}{\sqrt{1+x^2}}$
 c) $\frac{2x}{1+x^2}$ d) $\frac{2x}{1-x^2}$
31. In triangle ABC, If $A=75^\circ, B=45^\circ, c=\sqrt{3}$ then $b=$
 a) 2 b) 3
 c) $\sqrt{3}$ d) $\sqrt{2}$
32. Which of the following limits is wrong?
 a) $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$ b) $\lim_{x \rightarrow 0} \frac{\tan x}{x} = 1$
 c) $\lim_{x \rightarrow 0} \frac{\log(x+1)}{x} = 1$ d) $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = 1$
33. $\lim_{x \rightarrow 0} \frac{\sin(2x)}{x}$ is equal to
 a) 0 b) 1
 c) $1/2$ d) 2
34. The value of $\lim_{x \rightarrow 0} \frac{\sin x}{\sqrt{x^2}}$ is equal to
 a) 1 b) -1
 c) 0 d) does not exists
35. If $\lim_{x \rightarrow 3} \frac{x^n - 3^n}{x - 3} = 27$ and n is positive integer then $n=$
 a) 4 b) 3
 c) 5 d) 6

36. Which of the following is not true.
- If $\lim_{x \rightarrow 0} f(x)$ exists then $f(x)$ is continuous at $x=0$.
 - The identity function $f(x)=x$ is continuous for all x .
 - A differential function is always continuous function.
 - The function $f(x)=|x|$ is continuous at $x=0$.
37. A particles moves in a straight lines during time $t=0$ to $t=3$ according to law $s = 15t - 2t^2$. The average velocity is
- 3
 - 9
 - 15
 - 27
38. If $ax^2 + 2hxy + by^2 = 1$ then $\frac{dy}{dx}$
- $\frac{ax + hy}{hx + by}$
 - $\frac{2ax}{by}$
 - $\frac{h(x+y)}{ax + by}$
 - $\frac{x}{y}$
39. If $x^n + y^n = a^n$ then $\frac{dy}{dx} =$
- $-\frac{x}{y}$
 - $-\frac{x^n}{y^n}$
 - $-\frac{x^{n-1}}{y^{n-1}}$
 - $\frac{x^{n+1}}{y^{n+1}}$
40. $\int \frac{e^x}{1+e^x} dx =$
- $\log_e e^x + c$
 - $\log_e (1 + e^x) + c$
 - $\frac{1}{1 + \log_e x} + c$
 - $1 + e^x + c$

Physics

41. The graph for displacement versus time for a particle moving with uniform acceleration is
- Straight line with positive slope
 - Parabola
 - Ellipse
 - Straight line parallel to time axis
42. An object is moving in a circle of radius 100 m with a constant speed of 31.4 m/s. What is its average speed for one complete revolution?
- Zero
 - 31.4 m/s
 - 3.14 m/s
 - $\sqrt{2} \times 31.4$ m/s
43. The Young's modulus of the material of the wire is $2 \times 10^{10} \text{ Nm}^{-2}$. If the elongation strain is 1 %, then the energy stored in the wire is
- 10^6
 - 10^8
 - 2×10^6
 - 2×10^8
44. What will be the formula of mass of the earth in terms of g , R and G ?
- $G \frac{R}{g}$
 - $g \frac{R^2}{G}$
 - $g^2 \frac{R}{g}$
 - $G \frac{g}{R}$
45. G is the acceleration due to gravity at the surface of the earth. Its value at the pole is
- Less than that at equator
 - Greater than g
 - Lesser than g
 - None of the above

46. Which of the following processes depends on gravity
 - a) Conduction
 - b) Convection
 - c) Radiation
 - d) None
47. 50 gm of ice at 0°C is mixed with 50 gm of water at 800°C . The final temperature of the mixture will be
 - a) 40°C
 - b) 50°C
 - c) 0°C
 - d) 80°C
48. Above critical temperature substance can exist in
 - a) Gaseous and liquid state
 - b) Gaseous state only
 - c) Solid state
 - d) Solid and gaseous state
49. At constant temperature, the graph of P vs. $1/V$ is
 - a) Straight line
 - b) Parabola
 - c) Ellipse
 - d) Circle
50. Unit of coefficient of thermal conductivity is
 - a) $\text{Watt K}^{-1} \text{m}^{-1}$
 - b) Joule s K^{-1}
 - c) Watt K m^{-3}
 - d) $\text{Joule s}^{-1} \text{K}$
51. The astronaut in a space ship sees the sky away from the sun as
 - a) White
 - b) Blue
 - c) Red
 - d) Black
52. The color of light is characteristics of
 - a) Amplitude
 - b) Wavelength
 - c) Velocity
 - d) Frequency
53. The unit of electric field is not equal to
 - a) N/C
 - b) J/C
 - c) V/m
 - d) J/Cm
54. When a current flows through a conductor, its temperature
 - a) Increases
 - b) Decreases
 - c) Remains same
 - d) May increase
55. A voltmeter is an instrument
 - a) To measure the potential difference
 - b) To determine electrochemical equivalent
 - c) To find electric power
 - d) Made up of a pile of voltmeter
56. Which of the following materials has the highest value of dielectric constant?
 - a) Vacuum
 - b) Glass
 - c) Oil
 - d) Ceramics
57. The angle of dip is 90° at the
 - a) Magnetic poles
 - b) Magnetic equator
 - c) Geographic poles
 - d) 90° latitude
58. The sensitivity of a moving coil galvanometer can be increased by
 - a) Increasing the number of turns in the coil
 - b) Decreasing the area of the coil
 - c) Increasing the current in the coil
 - d) Introducing the soft iron core in the coil
59. The self-inductance of a straight wire is
 - a) Zero
 - b) Infinity
 - c) Negative
 - d) Positive

60. If N is the number of turn in the coil, the value of the self-inductance varies as
 a) N^0 b) N
 c) N^2 d) N^{-2}
61. The device that does not work on the principle of mutual induction is
 a) Tesla coil b) Transformer
 c) Induction coil d) Motor
62. The threshold frequency for potassium is 3×10^{14} Hz. The work function is
 a) 1×10^{-19} J b) 2×10^{-19} J
 c) 4×10^{-19} J d) 0.5×10^{-19} J
63. The wave of wavelength 5200 \AA lies under which item of the electromagnetic spectrum
 a) X-Rays b) Ultraviolet rays
 c) Visible rays d) Infrared rays
64. A photon and electron have got same de-Broglie wavelength, which has greater total energy?
 a) Photon b) Electron
 c) Both equal d) Insufficient data
65. The full form of LASER is
 a) Light amplified by strong emission of radiation
 b) Light amplification by stimulated emission of radiation
 c) Light amplified by stimulated emission of radiation
 d) Light amplification by strong emission of radiation

English

Detective glories tend to glorify crime. Murderers, gangsters and crooks all kind are described as tough, cunning and courageous individuals who know how to take care of them and how to get what they want. In James McCain's the postman always Rings twice, for instance the villain is much more a impressive character than his victim. He is casual brave smart and successful with women. It is true that he finally gets caught. But he is punished for a crime that he did not commit, so over the conviction is hardly a triumph of justice. Besides, looking back over the exciting life of the criminal, the reader might conclude that it was worth the risk.

66. The passage mention James McCain.....
 a) as an author of detective stories.
 b) as brave, smart and successful with women.
 c) as though cunning and courageous.
 d) as being more impressive than others .
67. Murderers, gangsters and crooks referred to in the passage given above.....
 a) always manage to get away.
 b) are often glorified in detective stories.
 c) are wiser than their victims.
 d) know how to escape from law.
68. According to this passage, a criminal in a detective story generally gets caught.
 a) for the crimes he has committed.
 b) because of his careless mistakes.
 c) because the policies smarter than the criminals
 d) for the crimes the has not committed.

69. According to the passage, the life of a criminal.....
 a) is exciting
 b) is hardly worth the risk
 c) is seldom presented in the right perspective.
 d) ends in a triumph a justice.
70. According to be passage, given above, detective stories.....
 a) make interesting reading
 b) are hardly worth reading
 c) encourage readers to content crimes
 d) tend to create wrong notion about crimes and punishment.
71. The word 'veteran' has its synonyms as.....
 a) idiot b) expert
 c) spoilt d) flexible
72. The correct form of antonym of 'tangible' is.....
 a) solid b) concrete
 c) actual d) ethereal
73. Coining or using of new word is.....
 a) phoneme b) tautology
 c) neologism d) bilingual
74. The word 'disciplinarian' has primary stress in.....syllable.
 a) 1st b) 2nd
 c) 3rd d) 4th
75. They are dancing at party,?
 a) have they b) aren't they
 c) are they d) do they
76. We have the children hard.
 a) studied b) studying
 c) study d) to study
77. Dravid tendsin music.
 a) to enjoy b) enjoying
 c) enjoyed d) enjoys
78. They are committed.....decision of meeting.
 a) with b) by
 c) from d) to
79. It isfourth road on the right.
 a) a b) an
 c) the d) nothing
80. The teacher.....is standing in front of us, is wearing blue jacket.
 a) who b) whom
 c) which d) what
81. The active form of the sentence "The goat is attacked by the tiger" is.....
 a) The tiger attacked the goat
 b) The tiger attacks the goat
 c) The tiger is attacking the goat
 d) The tiger has attacked the goat

88. Which of this represents anomalous pair in Mendeleev's periodic table?
a) K & Ca b) Mn & Fe
c) Fe & Ca d) Te & I
89. Oxidant;
a) loses electron b) decreases oxidation number
c) adds oxygen d) all of these
90. Number of moles of $K_2Cr_2O_7$ reduced by one mole of Sn^{2+} ion is
a) 3 b) 6
c) 1/3 d) 1/6
91. The amount of current required to deposit 1.5 gm equivalent of Cu by electrolysis of $CuSO_4$ is
a) 1.5 F b) 3 F
c) 4.5 F d) 6 F
92. The reactive species in aqua-regia is
a) H⁺ b) O₂
c) Cl⁻ d) NO_2^+

86. The number of H^+ -ion present 100ml of 0.1 M HNO_3 solution

a) 6.023×10^{22} b) 6.023×10^{21}
c) 1.2×10^{23} d) 1.2×10^{22}

87. The number of unpaired electrons in Ni^{++} ion is

a) 2 b) 3
c) 4 d) 5

93. Which of this reagent can detect halides?
a) AgNO_3 b) conc. H_2SO_4
c) both a and b d) neither a or b
94. Which of this is thermally unstable?
a) Li_2CO_3 b) Na_2CO_3
c) K_2CO_3 d) Rb_2CO_3

95. The reducing agent inside Bessemer converter during extraction of copper is
a) Cu b) CO
c) Al d) Cu_2S
96. In open-hearth process, the impurities are removed by using
a) Air b) hematite
c) SiO_2 d) CO
97. The secondary suffix of the IUPAC name of compound $\text{CHO-CH}_3\text{-CHOH-COOH}$ is
a) ol b) al
c) oic acid d) oal
98. Which of this is a nucleophile?
a) CO_2 b) BF_3
c) SO_3 d) NH_3
99. Benzene diazonium chloride is reduced benzene by
a) H_3PO_4 b) H_3PO_3
c) H_3PO_2 d) PH_3
100. If the atomic number of element is 17, its electronic configuration is
a) 2, 8, 7 b) 2, 8, 6, 1
c) 2, 6, 6, 3 d) 2, 8, 5, 2

Good Luck