



International Islamic University, Islamabad

Department of Physics Entrance Test Session Fall 2013

Candidate's Name:

Time Allowed: 2 hrs

Father's Name:

Roll no.:

Signature:

BS

Instructions

1. Attempt all the questions
2. All questions carry equal marks
3. Mark the most appropriate answer, multiple answers for same question shall be considered as wrong
4. Lead pencil is not allowed to answer the questions
5. Any attempt to copy answer from another candidate will result in permanent disbarment from the University for all purposes.
6. Use your own calculator. No permission for borrowing from others.

Part A English

➤ **Pick the word that is nearly similar in meaning to the capitalized word.**

1. CALLIGRAPHY

- A. Computers
- B. Handwriting
- C. Blood pressure
- D. Brain waves

2. DEMISE

- A. Conclude
- B. End
- C. Affection
- D. Death

3. TOUCHSTONE

- A. Remind
- B. A hall
- C. At rest
- D. Criterion

4. IGNOBLE

- A. Lowly
- B. Vile
- C. Good
- D. Noble

5. PRETEND

- A. Sham
- B. Substantiate
- C. Feign
- D. Fabricate

➤ In the following questions choose the word which is the exact OPPOSITE of the given words.

6. ENORMOUS

A. Soft
C. Tiny

B. Average
D. Weak

7. COMMISSIONED

A. Started
C. Finished

B. Closed
D. Terminated

8. ARTIFICIAL

A. Red
C. Truthful

B. Natural
D. Solid

9. EXPAND

A. Convert
C. Congest

B. Condense
D. Conclude

10. SHRINK

A. Contract
C. Expand

B. Spoil
D. Stretch

➤ Pick out the most effective word(s) from the given words to fill in the blank to make the sentence meaningfully complete.

11. Fate smiles those who untiringly grapple with stark realities of life.

A. with
C. on

B. over
D. round

12. Catching the earlier train will give us the to do some shopping.

A. chance
C. possibility

B. luck
D. occasion

13. I saw a of cows in the field.

A. group
C. swarm

B. herd
D. flock

14. The grapes are now enough to be picked.

A. ready
C. ripe

B. mature
D. advanced

15. Success in this examination depends hard work alone.

A. at
C. for

B. over
D. on

➤ Some proverbs/idioms are given below together with their meanings. Choose the correct meaning of proverb/idiom, If there is no correct meaning given, E (i.e.) 'None of these' will be the answer.

16. To have an axe to grind

A. A private end to serve
C. To have no result
E. None of these

B. To fail to arouse interest
D. To work for both sides

17. To end in smoke

A. To make completely understand
C. To excite great applause
E. None of these

B. To ruin oneself
D. To overcome someone

18. A man of straw

A. A man of no substance
C. A worthy fellow
E. None of these

B. A very active person
D. An unreasonable person

19. To hit the nail right on the head

A. To do the right thing
C. To announce one's fixed views
E. None of these

B. To destroy one's reputation
D. To teach someone a lesson

20. To cry wolf

A. To listen eagerly

B. To give false alarm

C. To turn pale

D. To keep off starvation

E. None of these

➤ In questions given below out of four alternatives, choose the one which can be substituted for the given word/sentence.

21. A person pretending to be somebody he is not

A. Magician

B. Rogue

C. Liar

D. Imposter

22. A person who knows many foreign languages

A. Linguist

B. Grammarian

C. Polyglot

D. Bilingual

23. One who has little faith in human sincerity and goodness

A. Egoist

B. Fatalist

C. Stoic

D. Cynic

24. A small shop that sells fashionable clothes, cosmetics, etc.

A. Store

B. Stall

C. Boutique

D. Booth

25. That which cannot be read

A. Negligible

B. Illegible

C. Ineligible

D. Incurable

Part B Mathematics

26. $y = \sqrt{x-1}$ is an _____ function.
(a) Even (b) Explicit (c) Odd (d) Implicit
27. Modulus of complex number $3+4i$ is _____.
(a) 3 (b) 4 (c) 5 (d) -5
28. When discriminant is 0 then roots are _____.
(a) Real and equal (b) Rational (c) Irrational (d) None
29. Derivative of 7^x w.r.t. x is _____.
(a) 7^x (b) $7^x \ln 7$ (c) $x7^{x-1}$ (d) $7^x \ln x$
30. $\int_a^b \ln x dx =$ _____.
(a) $\ln a - \ln b$ (b) $\ln b - \ln a$ (c) $1/a - 1/b$ (d) $1/b - 1/a$
31. $\lim_{h \rightarrow 0} (1+2h)^{1/h} =$ _____.
(a) 1 (b) 0 (c) e (d) e^2
32. The general term of geometric progression is
(a) ar^n (b) $ar^n - 1$ (c) $a + (n-1)d$ (d) ar^{n-1}
33. If ${}^nP_2 = 30$ then $n =$ _____.
(a) 5 (b) 6 (c) 2 (d) 28
34. The area A of a sector of a circular region with radius r and central angle is _____.
(a) $r^2\theta$ (b) $\frac{1}{2}r^2\theta$ (c) $\frac{1}{2}r\theta$ (d) $\frac{1}{2}r\theta^2$.
35. Domain of $f(x) = 1/x$ is _____.
(a) 0 (b) \mathbf{R} (c) $\mathbf{R} - \{0\}$ (d) $0 - \mathbf{R}$
36. If $4^x = 1$ then $x =$ _____.
(a) 0 (b) 1 (c) 2 (d) 4
37. $\ln x$ is not defined at $x =$ _____.
(a) 0 (b) 1 (c) e (d) None

38. Slope of vertical line is _____.

- (a) Zero (b) Undefined (c) One (d) None

39. Equation of x -axis is

- (a) $x = 0$ (b) $y = 0$ (c) $x - y = 0$ (d) $x + y = 0$

40. Slope of the line $2y + x + 3 = 0$ is

- (a) 2 (b) -2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

41. $\cos x (\tan x + \cot x) =$ _____.

42. \vec{u} and \vec{v} are parallel if $u \times v$

- (a) 0 (b) -1 (c) 1 (d) π

43. If $f(x) = 1/x^2$ $g(x) = \sqrt{x}$ then $f \circ g =$

- (a) \sqrt{x} (b) $1/\sqrt{x}$ (c) x (d) $1/x$

44. $\tan(-\beta) =$ _____.

- (a) $\tan(\beta)$ (b) $-\tan(\beta)$ (c) $\cot \beta$ (d) $\sin \beta$.

45. A conic is hyperbola if $h^2 - ab$ is

- (a) $=$ (b) $>$ (c) $<$ (d) None

46. The degree of the polynomial $x^4 - 5x^3 + x^2 + 4$ is _____.

- (a) 1 (b) 4 (c) -5 (d) 3

47. $z\bar{z} =$ _____.

- (a) 1 (b) $|z|$ (c) $-z$ (d) $|z|^2$

48. $\frac{d}{dx}(\ln e^x) =$ _____.

- (a) e^x (b) $1/e^x$ (c) 1 (d) $e^x \ln x$.

49. If a line intersects x -axis at $(a, 0)$ then a is called _____.

- a) a -intercept (b) x -intercept (c) y -intercept (d) None

50. The Circles are said to be concentric if they have _____

- (a) same radius (b) same chord (c) same center (d) same diameter

51. If the angles of a triangle are in the ratio $1 : 2 : 3$, then the sides are in the ratio.

- (a) $1 : 2 : \sqrt{3}$ (b) $1 : \sqrt{3} : 2$ (c) $\sqrt{3} : 1 : 2$ (d) $\sqrt{3} : 2 : 1$

52. The point where the axes meet, the parabola, is called _____ of the Parabola.

- (a) Focus (b) Vertex (c) Directrix (d) Centre

53. Harmonic Mean between a and b is _____

- (a) $2ab/(a+b)$ (b) $(a+b)/2$ (c) $ab/2$ (d) $\pm\sqrt{ab}$

54. The point $(2, 2)$ lies _____ the circle $x^2 + y^2 = 1$.

- (a) Outside (b) inside (c) On (d) None

55. $\sin(180 - \theta) =$ _____.

- (a) $\cos\theta$ (b) $\sin\theta$ (c) $-\sin\theta$ (d) $-\cos\theta$

Part C PHYSICS

56. Blue coloured object is seen red if
- A. Source is moving away from observer
 - B. Observer is moving away from source
 - C. Gamma rays effect is observed
 - D. None of the above
57. In hot days white clothes are worn because they are good
- A. Absorber
 - B. Emitter
 - C. Reflector
 - D. None of the above
58. When a body moves with speed of light then its mass approaches to
- A. Zero
 - B. Infinity
 - C. Remain same
 - D. None of the above
59. Which of the following cannot be used as dielectric in a capacitor?
- A. Wax
 - B. Iron
 - C. Air
 - D. All of these
60. Scattering of photon by electron is called
- A. Photo electric effect
 - B. Compton effect
 - C. Pair production
 - D. Annihilation
61. Entropy is a measure of
- A. Heat
 - B. Kinetic energy
 - C. Momentum
 - D. Disorder
62. Moving charge produce
- A. Magntic filed
 - B. Electric field
 - C. Both a and b
 - D. None of the above
63. An electron is placed between two charged plates the upper plate is positively charged and the lower plate is negative charged. The electron will
- A. Deflect downward
 - B. Deflect upward
 - C. Go straight
 - D. None of the above

64. Power of RLC circuit at resonance is
A. Zero
B. Minimum
C. Maximum
D. None of those
65. Time seen from ground in a clock of airplane
A. Seems slower
B. Seems faster
C. Constant
D. Unpredictable
66. If y-component of a force acting in the y-direction is 6N, then the x-component will be
A. 6N
B. 12N
C. Zero
D. None of the above
67. In a pure resistive circuit current and voltage are
A. In phase
B. Out of phase
C. Current leads
D. Voltage leads
68. Which of the following is not an example of periodic motion
A. A man walking in the street
B. Rolling ball
C. Moving fan
D. Vibratory rotator
69. Maxima in young's experiment indicate?
A. Bright band
B. Dark band
C. Constructive interference
D. Both a and b
70. how much heat a 100 watt bulb will generate in 1 hour?
A. 0 joule
B. 60 joule
C. 360 joule
D. 360000 joule
71. In interference energy ___ destroyed
A. May be
B. Will be
C. Can be
D. Cannot be
72. Speed of sound is greatest in
A. Glass
B. Water
C. Wood
D. Plastic

73. if 60 capacitors are connected in series and then in parallel what is the ratio of C_s/C_p ?
- 250
 - 3600
 - $1/60$
 - $1/3600$
74. energy of alpha and beta particles has the relation
- $\alpha > \beta$
 - $\alpha < \beta$
 - $\alpha = \beta$
 - none of the above
75. Two conducting objects, x and y having charge q on them exert force F on each other. now third conductor having charge -q is touched with x and removed, the new force between x and y is
- F
 - $F/2$
 - $2F$
 - Zero
76. what happens to bulk of potential energy of a glass that falls from a table and breaks
- converted in to kinetic energy
 - wasted in air
 - converts in to sound
 - consumed in breaking of glass
77. Which one has the more resistance 500 watt or 40 watt?
- 40watt
 - 500watt
 - Both have equal
 - Depend on voltage source
78. Resistance of RCL series circuit at resonance is?
- X_C
 - R
 - X_L
 - None of the above
79. What is the magnification when the image of an object through convex lens is formed at its Focal length?
- 1
 - 1.5
 - 2
 - 2.5
80. 0's on right side of non-zero numbers are?
- Significant
 - Non-significant
 - Sometimes significant
 - None of those
81. $A \times A$ is:-
- $2A$
 - A
 - ZERO
 - A^2

82. If $r = 5\text{m}$ and $F = 4\text{N}$ are along same direction then torque is:-
- 10Nm.
 - 20N-m.
 - 5N-m
 - ZERO.
83. A body is in a static equilibrium only when it is:-
- moving with uniform velocity
 - moving with variable velocity
 - moving with uniform acceleration
 - at rest
84. $F \times t =$
- $\Delta P / \Delta t =$ Rate of change in momentum
 - $a = g$
 - Elastic collision
 - Impulse
85. Range of a projectile gives
- Maximum vertical distance
 - $a_0 S = [V_f + V_i/2] \times t$
 - Maximum horizontal distance
 - Momentum
86. When an observer moves towards the stationary source of sound, the observer frequency
- Decreases
 - Increases
 - Remains constant
 - become zero
87. The value of acceleration due to gravity is maximum at
- Center of the earth
 - Poles
 - Equator
 - Surface of the earth
88. The time period of the orbit of a geostationary satellite is----- hours.
- 36
 - 48
 - 12
 - 24
89. Two row boats moving parallel in the same direction will:-
- be pulled towards each other
 - remain moving in the same direction
 - get apart due to increase in pressure in between
 - none of the above

90. The maximum drag force on a falling sphere is 9.8N, its weight is:-
A. 1N
B. cannot be calculated
C. 9.8N
D. 4.9N
91. Tuning of a Radio set is an example of:-
A. Electrical resonance
B. Mechanical resonance
C. Musical resonance
D. Free vibrations
92. In the equation of S.H.M., $a = -\omega^2 x$ negative sign indicates the direction of motion of particle:-
A. Towards mean position
B. Away from mean position
C. Towards or away from mean
D. Perpendicular to mean position
93. A convex lens placed closed to eye is called
A. Simple microscope
B. Complex microscope
C. Simple binocular
94. Ideal gas equation
A. $PV = nRT$
B. $RV = nRT$
C. $PV = nRi$
95. Which of the following convert the electrical energy in to Mechanical energy?
A. Transformer
B. Motor
C. A.C Generator
D. D.C Generator
96. Thermo-couple converts _____ energy in to electrical energy
A. Magnetic
B. Heat
C. Mechanical
D. Chemical
97. Potentiometers can be used as
A. Avometer
B. Voltmeter
C. Galvanometer
D. Ammeter

98. As temperature increases, the resistance of thermistor
- A. Increases
 - B. Decreases
 - C. Becomes zero
 - D. Stays the same
99. Electromagnetic waves are
- A. Transverse waves
 - B. Not really waves at all
 - C. Highly charged waves
 - D. Longitudinal waves
100. Power dissipated as heat in the conductor of resistance R due to electric current I is given by
- A. IR
 - B. I^2R
 - C. I^2Rt
 - D. VIt

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